STATUS OF FEDERAL REGULATIONS, RESEARCH PROGRAMS, AND OTHER ACTIVITIES

Situation: National Marine Fisheries Service (NMFS) will report on the management and research activities at this time. The NMFS enforcement report is also provided for Council review.

Council Action: None; information only.

Reference Materials:

1. Enforcement Report (NMFS Report B.2.).

PFMC
03/17/00

National Marine Fisheries Service
Office of Enforcement

NORTHWEST ENFORCEMENT DIVISION

QUARTERLY REPORT

MODIFIED FOR COUNCIL DISTRIBUTION

First Quarter FY00
October 1, 1999 - December 31, 1999

To report fisheries violations,
call our National Hotline at 1-800-853-1964.

NORTHWEST ENFORCEMENT DIVISION

Quarterly Report
October 1, 1999 - December 31, 1999

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CIVIL INVESTIGATIONS

ENDANGERED SPECIES ACT

Case number withheld: This case involves a private landowner who hired a consultant to re-channelize about two miles of private property on the Imnaha River in northeastern Oregon. The project was permitted by the Corps of Engineers but was completed without consultation of NMFS. NMFS, State, and Tribal biologists provided statements indicating the project caused take of ESA-listed chinook salmon. A large restoration project was undertaken under the direction of NMFS and the Environmental Protection Agency (EPA) after the case was referred to the Department of Justice for violations of the ESA and the Clean Water Act. Civil penalties will be assessed by NOAA and the Department of Justice (DOJ) in the near future.

Case number withheld: This case involves a dam operation along the Rogue River in Southern Oregon. State and Federal agencies allege that the dam takes listed fish (SONC coho) during the course of their normal operations. The Office for Law Enforcement documented take of listed juvenile coho as a result of a normal dam draw down operation in 1998 prior to the filing of a court injunction. The irrigation district that operates the dam had not applied for an incidental take permit at the time of the recorded take event. Negotiations currently underway with dam officials will be monitored and consideration for prosecution under Section 9 of the ESA will be revisited if takes of SONC coho continue to occur.

Case number withheld: This case involves a landowner who rechanneled a portion of the Little Butte Creek in Southern Oregon by removing riparian vegetation and de-stabilizing portions of the bank and streambed as a result of in-stream construction. This case was completed and forwarded to General Counsel for prosecution.

Case number withheld: This case alleges that an irrigation district's diversion has inadequate fish passage and fish screens which reportedly result in listed fish (SONC Coho) spawning in its diversion ditch and juveniles becoming impinged on the screens. The irrigation district, located on the Rogue river in Southern Oregon, NMFS, and the Oregon Department of Fish and Wildlife (ODFW) are aware of the shortcomings of the diversion. A NMFS hydrologist has already prepared a take statement and a NMFS habitat biologist is in the process of drafting a separate take statement. The Office for Law Enforcement plans to contract for services to provide monitoring and a take evaluation of the irrigation district facility for the 2000 irrigation season.

Case number withheld: This case involves a Corps of Engineers (COE) Project Manager who allegedly issued construction permits within ESA critical habitat without consulting with NMFS.

The same project manager issued another permit for construction which caused take of listed chinook salmon. This case was referred to the US Army Criminal Investigations Division (CID) where a Crime Prevention Survey was recently completed. The survey found that the COE was not complying with consultation requirements of the ESA, not documenting decisions, and their work was not being reviewed beyond the project manager level. Recommendations were made by the CID to fix these problems and disciplinary action will be brought against the respondent.

Case number withheld: This case involves a privately-owned timber company diverting water from a creek in Southern Oregon. The dam reportedly obstructs adult SONC coho fish passage. The dam is located on U.S. Forest Service (USFS) property and the diversion is permitted by USFS through an existing permit issued prior to the listing of SONC coho. Representative biologists from ODFW, USFS, and NMFS agree that the dam would likely obstruct fish passage, however, documentation of listed fish migrating through the dam and/or habitat use above the dam is sketchy. The Office for Law Enforcement sent a letter to the respondent advising them of the take situation created by the dam as defined under Section 9 of the ESA. Under Oregon state law, the water user holds the responsibility to maintain fish passage at their diversion site at all times. The USFS acknowledged their responsibility under Section 7 of the ESA to re-initiate consultation with NMFS on the respondent's USFS permit as a result of the SONC coho listing. The USFS and ODFW contracted services to monitor adult SONC coho passage at the dam this Fall/Winter.

Case number withheld: This case involves a private landowner in Southern Oregon who placed a culvert, approximately 10 feet in diameter, in the middle of a creek and built a sand and gravel push up dam around it. The landowner uses a road on the push up dam to access land on the other side of the creek. The landowner has a long history with ODFW regarding inadequate fish passage and fish screening issues and with Oregon's Department of State Lands (DSL) regarding removal/fill and DSL permit violations. NMFS Habitat and NMFS Hydro personnel have visited the site and are drafting take statements to support a violation of the ESA. The case agent is waiting for General Counsel review.

Case number withheld: This case involves a contractor hired by the Bonneville Power Administration (BPA) to clear trees from around their power lines along the Bandon-Port Orford line. The respondent clearcut a stand of alder trees down to Butte Creek in Curry County Oregon. According to the Incident Report forwarded by the Oregon State Police, this action resulted in a logjam of the creek and removal of riparian habitat. Additionally, turbidity was severely increased during the removal of the logjam by heavy equipment operating in the stream. The work was allegedly done in contradiction to the terms and conditions in the respondent's contract with BPA. The Office for Law Enforcement is working with the NMFS Oregon Habitat Conservation Division to assist them in re-opening consultation with BPA to ensure all reasonable steps are taken to prevent this practice from occurring again.

Case number withheld: This is an investigation of a project where the COE responded to a flood emergency and repaired a dike on a side channel of the Methow River. An Hydraulic Project Approval (HPA) permit had been issued by the WDFW and the COE greatly exceeded the work

prescribed under the HPA. WDFW is currently investigating the incident and is assisting NMFS by providing a "take" statement from a WDFW biologist.

Case number withheld: This case involves a landowner, a contractor, the Federal Highway Administration (FHWA), and the USFS. During the construction of a bridge in northeastern Oregon (under a contract with FHWA), the four subjects agreed to block a channel on Big Sheep Creek. The agreement resulted because FHWA trespassed onto the landowner's property and destroyed several trees. The FHWA and the USFS agreed to do some work for the landowner (work that benefitted the landowner) in return for trespassing onto his private property. One project that the FHWA employee agreed to perform (under contract with a contractor) involved blocking a side channel that was allegedly eroding land and undercutting the bridge abutment downstream. An agreement was signed and the channel was blocked, killing listed steelhead and chinook salmon (juveniles). There were many witnesses to the dead fish and all have provided sworn statements.

NW990077: This case involved failure to follow a NMFS biological recommendation and failure to consult with NMFS regarding construction of fire line ditches. However, no evidence indicated that a "take" of endangered species occurred, so this case was closed due to lack of evidence.

NW990078: This case involved an unpermitted irrigation diversion. No evidence indicated that a "take" of endangered species occurred, so this case was closed due to lack of evidence.

NW990079: This case involved operation of heavy machinery in a creek and alteration of the creek bed. However, no evidence indicated that a "take" of endangered species occurred, so this case was closed due to lack of evidence.

Case number withheld: An investigation was opened after NMFS agents salvaged approximately 120 live salmonids by returning them to the river and collected approximately 200 dead salmonids from an Eastern Washington irrigation ditch operated by the an irrigation district. Laboratory testing has identified endangered spring chinook and steelhead trout among the dead fish collected. This investigation moves forward on parallel paths which are not mutually exclusive. One route leads to a possible injunctive action to prevent further take without a Section 10 permit, and the other is a Section 9 take case for the dead fish identified as endangered.

Case number withheld: This case involves potential cyanide contamination from a mining site into a nearby creek which may be inhabited by spring/summer chinook. The cyanide levels were monitored as the creek volume decreased and the Environmental Protection Agency declined to take enforcement action due to the inability to find a single point source of the leak. Officials from the Idaho Department of Environmental Quality (DEQ) and DEQ's Natural Resources Deputy Attorney General were notified of the leak and DEQ cited the mining operation for various violations relating to the mine's cyanide discharge permit. The Northwest Fisheries

Science Center has agreed to assist in reviewing the water sampling data and their evaluation of surface water quality data is expected soon. Direct mortality was not documented in this case; therefore, expert opinion of take as defined under the new harm rule will be a key element in this case.

HALIBUT ACT

NW990106: The master was issued a written warning for failure to separate halibut from two regulatory areas.

LACEY ACT

NW960099: General Counsel had previously issued a $610,000 Notice of Violation and Assessment (NOVA) against NDC Group Inc. for violating the Lacey Act for the purchase, sale, and interstate transportation of at least 61 shipments of unlawfully taken geoduck clams. After months of unsuccessful negotiations, an administrative hearing was set in January 2000, and just prior to the hearing data General Counsel accepted a $25,000 settlement offer when it was discovered that the defendant had sold all of the corporate assets, dissolved the corporation, and claimed that they were willing to spend the corporation's final assets of $30,000 to defend itself against NOAA's charges.

Case number withheld: This Lacey Act case involves a Canadian vessel which unlawfully fished for albacore tuna in the U.S. Exclusive Economic Zone (EEZ) and on the high seas in violation of Canadian law. The proceeds from the sale of approximately 13,840 pounds of albacore tuna were seized by NMFS and the vessel was released after a PD27 discussion occurred. The case package will be forwarded to General Counsel for consideration of a NOVA.

NW990111: This investigation involves a shipment of 40,000 pounds of sockeye salmon that was detained by the U.S. Customs Service at Tacoma, Washington. The sockeye had been exported from Alaska to Japan but the ultimate consignee, a Japanese company, 'rejected the shipment' after it was in Japan for two months and it was re-imported into Tacoma. NMFS agents were asked to participate in the inspection of the shipment when it was detained at Tacoma and five fish were seized and sent to the Auke Bay laboratory for genetic identification. The investigation continues since the fish were gill-net marked and the U.S. Customs Service indicated that this was one of over 90 shipments by the same company that had traveled the same route.

MAGNUSON ACT

Case number withheld: This case involves a minor IFQ overage and multiple logbook violations. Initially the respondent was given a written warning, however it was later discovered that he has previous similar offenses so the case will be referred to General Counsel for consideration of a NOVA.

Case number withheld: This case involves an IFQ overage and is currently being reviewed by General Counsel.

NW990081: A written warning was issued for failure to complete Daily Fishing Logbooks during IFQ halibut fishing. In addition, a summary settlement was issued for failure to obtain required observer coverage. The summary settlement was paid in full and the case was closed.

NW990082: A written warning was issued for failure to retain Pacific cod with IFQ halibut on board.

NW990083: A written warning was issued for failure to use the logbook required in the Pacific Halibut Fishery Regulations and a summary settlement was issued for failure to submit required logbook on a quarterly basis. The summary settlement was paid in full and the case was closed.

NW990085: A summary settlement was issued for retention of prohibited species. The summary settlement was paid in full and the case was closed.

NW990086: A summary settlement was issued for a groundfish overage. The summary settlement was paid in full and the case was closed.

NW990087: A 30-day fix it notice was issued for failure to affix proper markings on vessel.

Case number withheld: This case involves failure to retain Pacific Cod with IFQ halibut on board and is currently being reviewed by General Counsel.

NW990089: The master was issued a written warning for failure to properly log discards in Daily Fishing Logbook.

NW990090: The master of this vessel was issued a written warning for failure to retain pollock as required under Improved Retention/Improved Utilization regulations.

NW990091: The master was issued a fix-it ticket for failure to maintain 18" vessel markings on the pilot house of the vessel.

NW990092: The master was issued a fix-it ticket for failure to maintain 10" vessel markings on the pilot house of the vessel.

NW990093: The master was issued a fix-it ticket for failure to affix 10" vessel markings on the pilot house of the vessel.

Case number withheld: This case involves failure to make accurate DCPL landing report.

Case number withheld: This case involves a groundfish overage and possible illegal commercial fishing.

NW990099: The master was issued a fix-it ticket for failure to keep current Federal Limited Entry Permit on board.

Case number withheld: This case involves a failure to maintain vessel markings and fishing with an undersized net mesh. The Coast Guard is currently gathering more information in preparation for this case to be sent to General Counsel for prosecution.

NW990101: The master was issued a fix-it ticket for failure to maintain properly sized document numbers on the hull of vessel.

NW990102: The master was issued written warnings for failure to retain Pacific cod with IFQ halibut on board the vessel and for failure to submit yellow log book sheets for the 2nd and 3rd quarter.

Case number withheld: This case involves failure to retain rockfish with IFQ sablefish and halibut on board, and is currently being reviewed by General Counsel.

NW990105: The master was issued a written warning for a groundfish overage.

NW990107: The master was issued a written warning for failure to have an IFQ Buyers Permit.

Case number withheld: This case documented fishing with an undersized bottom trawl net mesh and was forwarded to General Counsel for prosecution.

NW990109: The master was issued a written warning for failure to submit Daily Fishing Log blue sheets.

Case number withheld: This case involves a failure to maintain vessel markings and fishing with an undersized net mesh. This case was forwarded to General Counsel for prosecution.

NW990113: The master was issued a written warning for a groundfish overage.

MARINE MAMMAL ACT

NW990094: This case involved the potential unauthorized removal of seal pup from a beach. This case was closed as unfounded.

NW990098: The respondent in this case was issued a written warning for unlawfully picking up and moving a marine mammal.

NW990112: The respondent in this case owns a dock that is used for fishing, and reportedly shot a bb gun at seals to scare them off the dock. The respondent admitted to shooting the bb gun to scare the seals, and he was issued a written warning.

CRIMINAL INVESTIGATIONS

LACEY ACT

NW960129
NW970040
NW970041
NW970042
NW970046
NW970047
NW970048
All of these related investigations deal with Lacey Act violations involving geoduck clams and are currently awaiting prosecution through the U.S. Attorney's Office in Seattle, Washington, pending the availability and schedule of the Assistant U.S. Attorney. During the last quarter, one of the suspects provided testimony before the federal grand jury and is cooperating in the prosecution of the other suspects.

NW970011: After a plea agreement with the U.S. Attorney's Office could not be reached, the respondent decided to go to trial to challenge the indictment charging him with violating the Lacey Act and conspiracy to violate the Lacey Act. The jury returned a guilty verdict on both counts.

Case numbers withheld: These Lacey Act investigations deal with the unlawful sale and purchase of Canadian salmon harvested under Canadian aboriginal rights. Because the salmon were harvested for ceremonial purposes they are not allowed to be sold under Canadian law. These cases were forwarded to the U.S. Attorney's Office in Seattle, Washington for prosecution.

Case numbers withheld: These Lacey Act investigations involve the sale and purchase of several hundred pounds of undersized dungeness crab by tribal members. Two of these cases were forwarded to the U.S. Attorney's Office in Seattle, Washington for prosecution. The third case was forwarded to the Lummi Tribal Court, which declined to prosecute. The case was then forwarded to the U.S. Attorney's Office, who also declined to prosecute. The case was accepted for prosecution by NOAA General Counsel.

Case number withheld: This case involves the interstate transportation of stolen seafood.

Case number withheld: This case involves the illegal importation of seafood.

MARINE MAMMAL ACT

NW990094: This case was initiated after an employee of a wildlife center picked up seal pups. Two separate incidents were documented in Seattle Police Department (SPD) reports. An investigation revealed that SPD policy is to contact this particular employee of the wildlife center to respond to any wildlife problems that occur after 9:00 P.M. (which is when the local Animal Control office closes). The NMFS Marine Mammal Coordinator was asked to consult with SPD to discuss and review their marine mammal referral protocols. This case was closed as unfounded.

COPPS

Assistant Special Agent in Charge Marc Cline and Special Agent Dali Borden attended the Problem Oriented Policing Conference in San Diego, California. Over one hundred different agencies from across the US and other countries attended the three day conference, and the presentations discussed many strategies to incorporate a problem oriented policing approach into organizations. After the conference, ASAC Cline and SA Borden attended a Supervising Problem Solving Process course, which discussed specific techniques and guidance procedures for team leaders to encourage and promote problem solving among co-workers.

Endangered Species Act

ESA Brochure

The purpose of the ESA brochure is to provide public outreach and regulatory information for identifying and reporting violations. After approval of the brochure it will be distributed to areas impacted by ESA decisions. The first draft of the brochure was sent to the Snohomish Conservation District, Washington Department of Fish and Wildlife, USDA Natural Resources Conservation Service, Puget Sound anglers, University of Washington Fisheries Department, and the University of Washington Forest Department for input. The effectiveness of the brochure was split at 50 percent, but all agencies felt that the role of the Office for Law Enforcement in ESA is clearly explained in the brochure. Recommendations from the above identified agencies are being considered.

Okanagon County

Passage, barrier, and screening problems on Beaver Creek, a tributary of the Methow River in Okanagon County, have been identified as a significant risk to listed fish and their eventual recovery. A culvert which has historically blocked passage of anadromous fish into Beaver Creek is scheduled to be corrected in the summer of 2000. NMFS has been successful in convincing the Washington Department of Transportation to sustain the funding for the Beaver Creek Program in spite of severe budget impacts due to the passage of State Initiative 695. These aggressive engineering efforts will eliminate some risk to fish but to address flow concerns and all associated risks to fish, a long term strategy including development of an HCP will need to be employed. After restoring passage at the culvert, individual passage and screen problems upstream of the culvert become a risk to listed fish. To address these anticipated upstream risks, extensive planning and stakeholder meetings with the diverters have occurred this quarter. NW Enforcement staff attended a planning meeting with NMFS, WDFW and staff from Senator Slade Gorton's office to identify and discuss flow, passage barrier, and water diversion screen problems on Beaver Creek. Engineering solutions, funding options, and short and long term compliance objectives and strategies were identified. This meeting was followed by a stakeholder meeting with the Beaver Creek diverters and interested stakeholders. As an outcome, all but one of the primary diverters have made application to the WDFW for screening their diversion. The one outstanding issue is being pursued through a community policing strategy involving WDFW officers and NMFS agents.

Walla Walla River

Anticipating the promulgation of 4d rules for steelhead, the Office for Law Enforcement is researching the risks to listed fish inherent in the irrigation activities on the Walla Walla River. Enforcement personnel attended a meeting of the Walla Walla Basin Watershed Council and answered questions involving ESA issues including 4d impacts, HCPs, Section 9 take risks, and relevant compliance options. The primary enforcement concern in the basin is the annual dewatering of the Walla Walla River in late spring, which last year stranded 6,000 plus steelhead and hundreds of bull trout. Beyond the 6,000 fish stranded and salvaged, biologist estimate that at least an equal number of steelhead and bull trout died as a result of the dewatering. Although the irrigators in the area are involved with a host of agencies in a number of engineering improvements, the issue of flows is not being addressed to the extent that future dewatering events that take fish will be avoided this spring. Enforcement will spend considerable time this winter and spring establishing an historical fact pattern and in developing monitoring plans to document the anticipated spring dewatering event. Depending on how and when the 4d rule for steelhead is ultimately published as a final rule, a Section 9 take investigation could be enacted.

ESA Performance Measurement

ESA Coordinator Dayna Matthews has been assisting WDFW and the Governor's Office for Salmon Recovery in its education and performance measurement efforts this past quarter through his involvement in the Washington Salmon Recovery Plan Balanced Scorecard Initiative. The Balanced Scorecard, a performance measurement instrument developed by the Harvard School of Business, has been adapted for measuring the performance and ultimate success of the Governor's Salmon Recovery Plan by the Governor's Joint Natural Resources Committee. Matthews has been working with WDFW in establishing the criteria from measuring the contributions and performance of volunteers in the recovery effort. Key involvement in voluntary recovery efforts keeps the Office for Law Enforcement compliance message at the forefront and builds advocacy for fish protection measures. Additionally, involvement in performance measurement activity adds to OLE capacity for measuring its own voluntary compliance efforts.

Cooperative Enforcement with Idaho

The Office for Law Enforcement has identified problems regarding state enforcement of existing water regulations that are integral to the recovery of endangered salmonids and we are considering a COPPS approach that will expand state awareness of the ESA and increase enforcement efforts addressing in stream alteration projects and allowable water removal rights. The Office for Law Enforcement has met with officials of the Idaho Department of Water Resources (IDWR) and discussed IDWR's role in issuing state permits that comply with ESA regulations and possible funding for an ESA permit/enforcement-oriented state position. Justification may be realized for allocating NMFS resources by showing the number of potential overlapping violations and permit applications. Potential violations and permit applications that could apply would have to occur in ESA habitat involving ESA species and the Idaho State Stream Protection Act. Idaho is interested in applying for Federal enforcement dollars to support them in their efforts to enforce the State Stream Channel Protection Act. Other stakeholders

include property owners, agricultural and ranch irrigators and other Idaho state agencies such as the Idaho Department of Fish and Game.

Our approach will increase our operational effectiveness by enabling IDWR (and eventually other states) to address more violations and unauthorized activities that affect endangered species and endangered species habitat. By developing agreements with state agencies we will enhance our relationships and encourage better cooperation between our organizations. We plan to measure our efficiency and evaluate our successes by tracking state investigation numbers that relate to ESA issues as well as ESA complaint referrals.

Magnuson-Stevens Fishery conservation and Management Act Outreach
Fish Expo '99
Seattle Fish Expo is the largest commercial fishing trade show on the West Coast and remains our best opportunity to provide outreach and regulatory information to the fishers involved in fishing off the coasts of Alaska, Washington, Oregon, and California. The Office for Law Enforcement portion of the booth was staffed by Enforcement Officers from the Northwest and Alaska Enforcement Divisions, the National VCP Coordinator from headquarters, and the NMFS Western Inspection Branch (seafood). In partnership with state enforcement agencies, Oregon State Police - Fish and Wildlife Division, and the Washington Department of Fish and Wildlife Enforcement provided officers, displays, and their expertise at the fisheries enforcement booth. There were approximately one thousand contacts during the show.

WOC West Coast Trawl
A multi-agency meeting, which included personnel from NOAA General Counsel, Northwest Enforcement Division, Southwest Enforcement Division, National Marine Fisheries Service Net Loft, United States Coast Guard District 11 and District 13, Oregon State Police, and the California Department of Fish and Game, was held in Seattle, Washington. The purpose of the meeting was to discuss problems encountered in trawl mesh net enforcement under 50 CFR 660 West Coast Groundfish. During 1999, the U.S. Coast Guard documented a number of undersized trawl net cases which initiated concern from two respondents and the industry over the construction and application of the net gauges used by enforcement personnel. The meeting concluded with the decision to redesign the net gauges and to standardize the manufacturing of all gauges that will include individual serial numbers.

NUMBER OF CASES OPENED BY INVESTIGATION TYPE
FY99 and FY00

Investigation Type	FY99 Total	FY99 1st Quarter	FY00 1st Quarter	FY00 Total
ESA	16	2	5	5
Lacey Act	11	0	2	2
Magnuson Act	51	11	26	26
MMPA	8	3	3	3
Intl. Pac. Halibut Conv.	5	0	1	1
Other Federal Regulations	3	2	0	0
State Regulations	0	0	0	0
Marine Sanctuaries	0	0	0	0
TOTAL	94	18	37	37

COMPLAINT ACTION

10/1/99 - 12/31/99

Investigation Type	# Complaints Opened	# Complaints Unfounded
Magnuson Act (MFCMA)	1	0
Marine Mammal (MMPA)	10	6
Endangered Species (ESA)	7	3
Lacey Act	4	1
Other	8	4
TOTAL	30	14

Number of Complaints Assigned CCN'S	3
Number of Complaints Upgraded	N/A
Unfounded Complaints Assigned CCN'S	0
Number of Complaints not Assigned CCN'S	27
Number of Hotline Complaints	0

HARVEST RATE POLICY

Situation: Current Council policy for allowable fishing intensity on groundfish stocks includes, for some stocks, the use of a generalized harvest rate. When certain biological information about a stock is inadequate, this *default* harvest rate is used with the purpose of constraining catch to maintain a sustainable fishery. The Scientific and Statistical Committee (SSC), concerned the default harvest rate may be in error, has analyzed relevant information, and will present preliminary findings to the Council.

These three points provide background about the Council's default harvest rate:

(1) An estimate of the fishing mortality rate associated with maximum sustainable yield (MSY) is an important element of all fishery management plans (FMP). To accurately determine the MSY of a stock, we need to know how many fish are in the population and how many are needed to replenish the stock and maintain it at a healthy, sustainable level. MSY refers to the largest long-term average catch that a population of fish can support.

(2) The FMP specifies that, in general, a fixed fraction of the exploitable stock may be harvested each year by applying a constant fishing mortality rate (i.e., *rate of harvest* by fishing). This rate of harvest is designated as *F*. The F value that results in MSY is termed F_{MSY}. The $_{MSY}$ subscript is termed as a percentage that represents the percentage of the virgin (unfished) stock reproductive potential that remains after fishing. For example, a harvest rate of $F_{35\%}$ represents a fishing mortality that would maintain the stock at a level that produces 35% of the reproductive potential if there was no fishing. In general, the larger the $_{\%}$ subscript of F, the lower the harvest rate, that is, a fishing rate of $F_{35\%}$ catches a larger percentage of the stock than a fishing rate of $F_{90\%}$.

(3) Information to directly estimate MSY is usually not available. The FMP acknowledges this lack of information and specifies that a standard harvest rate (or "proxy" value) will be used as the default rate when MSY is not known. The current Council default harvest rates for West Coast groundfish are $F_{40\%}$ for *Sebastes* species and $F_{35\%}$ for other groundfish. However, recent scientific studies suggest that these rates may overestimate the true productivity and F_{MSY} for these species.

In 1999, the SSC initiated plans for convening a groundfish harvest policy workshop to review the Council's default harvest rate. In November 1999, the Council adopted the SSC's terms of reference for the workshop. The workshop was held in Seattle, Washington the week of March 20, 2000. The objectives of the workshop were to review past research on proxies for F_{MSY}, determine their appropriateness with respect to West Coast groundfish stocks, and recommend changes to existing default harvest rates if needed.

Dr. Steve Ralston (workshop chair) will present a **draft** report on the results of the workshop and will provide preliminary SSC recommendations to the Council. The final report will be available at the June 2000 meeting and will incorporate all SSC comments received at the April meeting. Final action on any recommended changes to the harvest rate policy should be scheduled for the June 2000 meeting to allow adequate time for stock assessment authors and the Groundfish Management Team to incorporate any revised default harvest rate into the 2001 specification process.

Council Action:

1. **Provide direction to the SSC for reviewing and completing the workshop report, including recommended changes to the Council's default harvest rate.**

Reference Materials:

1. DRAFT Report of the West Coast Groundfish Harvest Rate Policy Review Workshop (Supplemental Attachment B.3.).

PFMC
03/20/00

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON GROUNDFISH HARVEST RATE POLICY

The Groundfish Advisory Subpanel (GAP) met jointly with the Groundfish Management Team and the Scientific and Statistical Committee (SSC) to receive a presentation on the results of the Harvest Rate Policy Workshop conducted by the SSC. The GAP has the following comments on the workshop report:

1. Precautionary Approach

   As recommended in the report, the GAP believes any precautionary reductions in harvest should be made as part of the annual specifications establishing optimum yields. The harvest rates recommended in the report are risk-neutral; variations from those rates should follow the normal management process.

2. Phase-In of Harvest Rates

   The report suggests new harvest rates be phased in to prevent sudden adverse social and economic effects. The GAP agrees and suggests that stock assessment authors be asked to calculate F_{MSY} rates when completing new stock assessments or updates. These rates would then be applied to the species/ complexes in question. Since stock assessments are conducted on a rotating basis, this allows the new harvest rates to come into effect with the adoption of the new assessments.

3. Further Research

   Papers were presented at the workshop which discussed regime shifts and predator/prey relationships. The workshop report also raised questions about the calculation of B_0. The GAP believes all of these topics deserve additional research scrutiny.

PFMC
04/04/00

GROUNDFISH MANAGEMENT TEAM COMMENTS ON GROUNDFISH HARVEST RATE POLICY

The Groundfish Management Team (GMT) discussed the draft panel report of the ad-hoc West Coast Groundfish Harvest Policy Review Workshop Panel (Panel) (Supplemental Attachment B.3.a.), and believes the Panel has given the subject a thorough review resulting in useful recommendations. The GMT concurs with the Panel that available information suggest default harvest policies of $F_{40\%}$ for rockfish and $F_{35\%}$ for all other groundfish are too aggressive. Less aggressive default rates should be adopted in accordance with information presented at the March 2000 and previous workshops. Further, the GMT agrees with the Panel that it is appropriate to adopt the suggested default F_{MSY} proxy rates for 1) whiting, $F_{40\%}$; 2) *Sebastes/Sebastolobus*, $F_{50\%}$; 3) flatfish, $F_{40\%}$; and 4) other groundfish, $F_{45\%}$. These are practical groupings that include all groundfish, while recognizing different life histories and population dynamics among species.

It is important for managers to have flexibility in estimating F_{MSY} for individual species, so risk of overharvest or underharvest may be minimized. While use of an unbiased default rate may be risk-neutral for a group of related species as a whole, it nevertheless involves risk; because actual stock productivity for some species will be higher than the default, while for others it will be lower. In particular, this concern applies to the "other groundfish" category, where more dissimilar species are grouped together. Likewise, more than 50 species of *Sebastes* display a range of productivity that is difficult to capture with a single F_{MSY} proxy. Thus, use of a default will result in harvest of some species in excess of maximum sustaninable yield (MSY), based on variability in life history and productivity among species. Unfortunately, biological information is often inadequate to reliably estimate spawner-recruit relationships, which are needed to directly calculate B_{MSY} and F_{MSY} for individual species. In order for managers to address the tradeoffs between use of defaults and direct estimates of F_{MSY}, the GMT believes it is desirable for the Stock Assessment Review Team's terms of reference to request assessment authors routinely investigate B_{MSY} and F_{MSY} as part of the stock assessments for individual species, with appropriate treatment of associated uncertainty.

For many species, information is lacking to even allow use of default values of B_{MSY} and F_{MSY}. In the case of "remaining rockfish", Panel recommendations support F=0.75M as a risk-neutral policy. However, these species have previously been classified as data-moderate with respect to stock status. Thus, the GMT thinks further reductions in harvest rate should be considered if a "precautionary adjustment" is intended to be applied in response to greater uncertainty in the status of these stocks.

The Panel addressed issues concerning the current 40:10 policy and estimation of B_0. In addition, it may be appropriate to examine the default biomass level ($0.25*B_0$) that is used to determine whether or not a stock is formally classified as overfished. Since an overfished stock may be defined as one where current biomass is $<0.5* B_{MSY}$, the overfished threshold may be expected to vary among species or species groups as the F_{MSY} varies. Accordingly, it would be useful for the Scientific and Statistical Committee (SSC) to provide B_{MSY} values associated with the recommended SPR rates for each species group, which may be used to better estimate overfished biomass levels for each species group. Also, the GMT is concerned unproductive stocks may have equilibrium biomass considerably lower than the SPR rate that gives MSY, which may bring equilibrium biomass close to the current overfished definition level of $0.25*B_0$.

PFMC
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SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON GROUNDFISH HARVEST RATE POLICY

The Scientific and Statistical Committee (SSC) commends the Groundfish Harvest Rate Policy Workshop Panel (Panel) for the high caliber of technical review it has brought to bear on the question of West Coast groundfish productivity. Through written papers, presentations, and a robust interactive dialog, the workshop comprehensively reviewed the best available scientific information on appropriate "risk-neutral" proxies of F_{MSY}. The twelve written contributions to the workshop will be submitted for publication in the primary scientific literature.

The draft Panel report 1) summarized the scientific and management background of the harvest proxy issue, 2) concisely explained some areas of common confusion, and 3) recommended default groundfish F_{spr} harvest rates for Pacific whiting ($F_{40\%}$), *Sebastes* and *Sebastolobus* ($F_{50\%}$), flatfish ($F_{40\%}$), and other groundfish ($F_{45\%}$). The report notes these recommendations were not developed as precautionary changes, but instead they attempt to correct previous estimates of productivity.

The SSC notes that qualitatively different levels of uncertainty are associated with the Panel's proxy estimates. Further, the SSC recommends the Council develop precautionary adjustments that reflect these varying levels of uncertainty when developing target F values for the fishery. Precaution is warranted, because 1) while the proxy values were recommended as "risk-neutral" values for the groups, some individual species in the aggregations are less productive than the average and may be overfished if the group proxy is applied, and 2) estimation and process error result in the chance of exceeding the true F_{MSY} value for any individual species, even if the "best estimate" proxy is applied.

The SSC's preliminary review supports the Panel's consensus findings. The SSC will complete its review of the F_{MSY} proxy issue in June.

PFMC
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DRAFT

Report of the West Coast Groundfish Harvest Policy Review Workshop

West Coast Groundfish Harvest Rate Policy Workshop
AFSC, Seattle, Washington: March 20-23, 2000
Sponsored by the Scientific & Statistical Committee of the Pacific Fishery Management Council

Panel Report

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Scientific and Management Background

Through 1998 the policy of the Pacific Fishery Management Council (PFMC) was to set the Allowable Biological Catch (ABC) of a stock by applying the fishing mortality rate that produces Maximum Sustainable Yield (F_{MSY}) to an estimate of exploitable stock biomass. Policies of this kind are termed constant rate policies because, once the estimate of F_{MSY} is determined, the annual ABC is strictly proportional to estimates of exploitable biomass. However, owing to short data series and other technical issues, it generally has not been possible to directly estimate F_{MSY} reliably for any stock. Consequently, during the 1980s and into the early 1990s, one of several common surrogate or proxy estimates of F_{MSY} was used (e.g., $F_{0.1}$ or F=M).

Clark (1991) proposed the $F_{35\%}$ harvest rate as a more general and rational surrogate rate. $F_{35\%}$ is the fishing mortality rate that reduces the spawning potential *per recruit* to 35% of the unfished level. By reasonably assuming that fecundity is proportional to average weight, it is the rate of fishing that reduces the spawning biomass *per recruit* to 35% of what would exist if there were no fishing. Clark showed that this rate would produce a yield close to MSY for a range of life history parameters and productivity relationships that were intended to cover the great majority of well-studied groundfish stocks with long histories of exploitation (most of which were Atlantic stocks). He also showed that $F_{35\%}$ was very close to both $F_{0.1}$ and F=M when the schedules of recruitment and maturity coincided, and were sensibly higher or lower when they differed. However, a later paper extended the original analysis to cases with random and serially correlated recruitment variation (Clark 1993), and concluded that $F_{40\%}$ would be a better choice overall than $F_{35\%}$. Mace (1994) also recommended $F_{40\%}$ on the basis of deterministic calculations. The current scientific consensus now indicates that $F_{40\%}$ is an appropriate default harvest rate for stocks with unknown productivity parameters.

The PFMC adopted $F_{35\%}$ as its standard surrogate in 1992, and switched to $F_{40\%}$ for *Sebastes* only in 1997, based principally on the conclusions of Clark (1993) and Mace (1994). In 1998 it then adopted the so-called "40-10" rule under Amendment 11 to the groundfish FMP. The 40-10 rule represented a departure from prior constant rate harvest policies, wherein the target fishing mortality rate is reduced for stocks whose biomass is below 40% of the estimated unfished biomass (B_0).

Common Confusion Over Relative Biomass and Relative Biomass per Recruit

In addition to recommending the $F_{35\%}$ strategy, Clark (1991) suggested a more robust biomass-based strategy that consists of simply maintaining spawning biomass at around 40% of the estimated unfished level. Perhaps partly because of the shared "40%" level, it is often supposed that the $F_{40\%}$ harvest rate will reduce spawning biomass to 40% of unfished biomass, but that is only true for stocks with highly resilient spawner-recruit relationships. For less resilient stocks, $F_{40\%}$ will reduce biomass to a lower level, possibly much lower, while still providing a yield near MSY. That is possible because yield is not very sensitive to equilibrium biomass over a wide range of biomass levels, so a yield near MSY can be obtained even when biomass is well below B_{MSY}. It is this feature of yield curves that makes it possible for a rate like $F_{40\%}$ to perform well in terms of yield over a wide range of spawner-recruit productivity curves. For some curves $F_{40\%}$ is well above F_{MSY} and for some of the curves it is well below, but in none of the cases considered is it so far above or below F_{MSY} that yield is much lower than MSY.

For the most likely sort of groundfish spawner-recruit relationships (i.e., asymptotic curves such as the Beverton-Holt model), and if other forms of stock compensation are negligible, B_{MSY} is likely to lie in the range of 25-40% of unfished biomass. Therefore, even if F_{MSY} was known and was implemented for a stock, the resulting biomass level would generally be less than 40% of B_0 on average. For some stocks, recruitment variations alone might then result in biomass levels falling below 25% of the unfished level, which is the overfished threshold as implemented in Amendment 11 to the groundfish FMP. Thus, fishing at $F_{40\%}$, which can be well above (or below) F_{MSY}, can be expected to result in biomass levels that are occasionally or on average very low for some stocks. Thus, given the new requirement of biomass-based overfished thresholds (Department of Commerce 1998), the relationship between harvest rates and biomass levels becomes more critical.

Declines of Pacific Coast Stocks Fished at $F_{35\text{-}40\%}$

Ralston (1998) showed that a number of Pacific coast rockfish stocks declined to low levels during the last two decades, contributing to concerns about the wisdom of the $F_{35\%}$ policy. His findings, as well as analyses conducted by the GMT during the preparation of Amendment 11, led to a series of workshops, including this latest review. This panel received a number of papers dealing with the productivity of the stocks in question and considered arguments for and against retaining the $F_{35\%}/F_{40\%}$ rate (in conjunction with the 40-10 rule) for all stocks.

We believe there are at least three possible factors that are responsible for the observed declines in groundfish stocks:

1. Normal operation of the $F_{35\%}/F_{40\%}$ strategy.

As explained above, either an $F_{35\%}$ or $F_{40\%}$ harvest rate will often lead to biomass levels that are well below what many people commonly expect, even when the rate is no larger than F_{MSY}. When it is larger, as will happen for some stocks, resulting biomasses can be very low. The important point is that both F_{MSY} and the proxy rate are calculated to achieve a certain level of yield, not biomass. In addition, harvesting at $F_{35\%}/F_{40\%}$ should be viewed as a risk-neutral policy in that, being a compromise intermediate rate, some stocks will be over-exploited and some stocks will be under-exploited, with no penalty imposed for over-exploitation.

2. Higher than intended harvest rates.

Recent assessments show that in many cases, actual fishing mortality rates were well above $F_{35\%}$. This can happen in any fishery when quotas are set on the basis of current biomass estimates, which are subsequently revised downward in a later assessment.

3. Apparently low productivity of Pacific coast stocks.

The spawner-recruit estimates that have accumulated over the last twenty years on Pacific coast groundfish stocks indicate very low resiliency in the spawner-recruit relationships — at or below the lowest values estimated for well-studied stocks elsewhere in the world (Myers *et al*. 1999). It is not surprising then, that the estimated productivity of these stocks is in many instances lower than the range of values considered plausible by Clark (1991) in his derivation of the $F_{35\%}$ strategy.

Because these low productivity estimates are so common among Pacific coast groundfish stocks, and so uncommon elsewhere, there is some suspicion that they result from some unrecognized flaw common to all of the Pacific coast groundfish assessments. However, with the exception of discards (see below), the panel has no reason to doubt the accuracy of west coast groundfish stock assessments. The same methods and models have produced estimates of higher productivity elsewhere (e.g., in Alaska). For the time being, therefore, we believe that all of the assessment results should be taken at face value, and that the Council's harvest strategy should be reconsidered in light of the apparently low productivity of many of the stocks.

The reason for anomalously low productivity in this region is not certain, but it may well be linked to the climatic regime shift that occurred in the eastern Pacific ocean around 1977-78. Since then, ocean conditions have been generally more favorable for many Alaskan stocks and have been less favorable for many Pacific coast stocks. Sometime in the future conditions on the west coast are likely to change again. Still, there is no assurance that this will occur in the near future and so, in the interim, the PFMC should manage groundfish stocks according to their current productive capacity.

The panel reviewed results presented by Williams (see Appendix A), which suggest that discards of small fish could contribute to the perception of low groundfish productivity. To the

extent that this occurs, its effect is to reduce apparent recruitments and therefore to make groundfish stocks appear to be less resilient. This scenario depends on: (1) an increasing exploitation rate over time and (2) substantial unaccounted for discarding of the smallest fish captured. While groundfish exploitation rates have certainly risen, and substantial unaccounted for discards of small fish is likely in some fisheries, discards are generally not documented for these stock and cannot be quantified at present. Clearly more research on this issue is desirable and, in general,

the panel stresses that a full accounting of total catch is necessary for the PFMC to adequately manage any of the resources under its authority.

Panel Recommendations for Default Groundfish Harvest Rates

The panel reviewed the information presented by each presenter (see Appendix A), as well as other recently published material (e.g., Myers *et al*. 1999). Of particular importance were the works of Brodziak, Dorn, MacCall, and Parrish because each of these studies broadly re-analyzed the information presented in historical PFMC stock assessments in an attempt to estimate F_{MSY} for each stock and their F_{spr} equivalents (i.e., the spawning potential per recuit fishing mortality rate). Significantly, each of these studies indicated that in many instances groundfish productivity, as estimated from the results of stock assessments, is insufficient to support harvests at the $F_{35\%}$ or even $F_{40\%}$ rates.

With respect to the rockfishes (*Sebastes* spp.) the panel found the work of Dorn to be very compelling. His results showed that, when the genus is examined as a whole through the use of meta-analysis, west coast rockfish stocks (exclusive of Pacific ocean perch) have F_{MSY} rates that range between $F_{45\%}$ – $F_{67\%}$ for risk-neutral models, assuming either the Beverton-Holt or Ricker models with lognormal or gamma errors (four cases). However, gamma error models fit the data more poorly than models with a lognormal error structure and, as a consequence, the panel supported the use of Dorn's lognormal analysis only. For that subset of cases, the estimated F_{MSY} rates ranged $F_{45\%}$ – $F_{54\%}$ over the two recruitment models. The panel then adopted $F_{50\%}$ as a midpoint, risk-neutral, proxy for rockfish F_{MSY}. In addition, the panel recommends including the thorneyheads (genus *Sebastolobus*) with the rockfish in the setting of default harvest rate proxies.

The panel discussed results for Pacific whiting and concluded that the information base for that species was the best available for any west coast groundfish. Harvests are currently determined using the 40-10 policy in association with a fishing mortality rate equal to $F_{40\%}$. This rate is based on a separate and distinct meta-analysis of worldwide *Merluccius* productivity that was conducted as part of the last stock assessment (Dorn *et al*. 1999) and seems appropriate as a risk-neutral harvest policy. Consequently, the panel does not recommend any changes in harvest rate for Pacific whiting.

For flatfishes (including Dover sole), the panel concluded that resiliency is typically higher than in other taxa (e.g., Brodziak *et al*. 1997, Mace and Sissenwine 1993, Myers *et al*. 1999).

As a consequence, the panel recommends using a default rate of $F_{40\%}$ for all flatfish species in the groundfish FMP. This rate is consistent with the general findings of Clark (1993) and Mace (1994).

For all other species in the groundfish FMP (including sablefish and lingcod) the panel recommends an intermediate harvest rate of $F_{45\%}$. This intermediate rate was selected as a sensible risk-neutral alternative that would afford increased protection to all the remaining groundfish stocks. However, the level of certainty in setting this default rate is very low. Consequently, the panel makes two recommendations with respect to the estimation of groundfish productivity, i.e.,

(1) Assessment authors are encouraged to evaluate the resiliency of the specific stocks they model. When such analysis produces scientifically credible estimates of productivity, the analyst is encouraged to present those findings as part of their stock assessment. However, any productivity analysis should always include a measure of the uncertainty in the point estimates of management reference points (e.g., F_{MSY}, B_{MSY}, and B_0).

(2) A proper consideration of risk is essential in the setting of optimum yields for west coast groundfish stocks. Utilization of a risk-neutral harvest rate proxy (e.g., $F_{50\%}$ for *Sebastes* and *Sebastolobus*) implies that some stocks within the group are quite likely to be over-exploited. Similarly, calculation of an ABC using an unbiased stock-specific point estimate of F_{MSY} will result in overfishing if the estimate is, by chance, too high. It is the PFMC's responsibility to account for these risks of overfishing through the use of a precautionary approach in the establishment of optimum yields. In addition, the NMFS Guidelines specify that status determination criteria must specify a maximum fishing mortality rate threshold that is less than or equal to F_{MSY} (Department of Commerce 1998). While this issue is not specifically addressed in this report, the choice of the threshold should depend on the level of uncertainty associated with the estimate of F_{MSY} or its proxy.

In summary, panel recommendations with respect to risk-neutral default harvest rate F_{MSY} proxies for west coast groundfish are:

Pacific whiting	$F_{40\%}$
Sebastes & *Sebastolobus*	$F_{50\%}$
Flatfish	$F_{40\%}$
Other groundfish	$F_{45\%}$

Due to a lack of detailed life history and stock status information, it will not be possible to implement these recommendations for many stocks. In particular, the "remaining rockfish" management unit (PFMC 1999) includes a number of species for which the ABC has been set using the F=M harvest rate proxy (Rogers *et al.* 1996). Currently, the optimum yield (OY) of those species is reduced by 25% as a "precautionary adjustment" (PFMC 1999), amounting to an F=0.75M policy. The panel discussed the remaining rockfish category in light of results presented in MacCall's production model analysis (Appendix A), which indicated that 0.40M

may be a better proxy for an optimal exploitation rate. However, due to the review panel's unwillingness to fully endorse production modeling as a viable means of estimating groundfish productivity (see below), the panel recommended that the PFMC establish F=0.75M as the default, risk-neutral policy for the remaining rockfish management category. This determination was consistent with results presented for Pacific ocean perch, for which $F_{MSY} \approx 0.80M$. Even so, concern was expressed within the panel that a more conservative harvest rate might be warranted, such as that used by the North Pacific Fishery Management Council, which in similar swept-area applications assumes that q=1.0. In either case, given the high degree of uncertainty underlying the technical basis of this recommendation, and the real possibility that MacCall's findings are accurate, precautionary adjustments in setting the OY of the remaining rockfish are recommended.

The panel discussed the hardship to the fishing industry that the immediate application of these new, more restrictive, rates will cause. The National Standard Guidelines for implementation of the Magnuson-Stevens Act specify (Department of Commerce 1998): "Overfishing occurs whenever a stock of stock complex is subjected to a rate or level of fishing mortality that jeopardizes the capacity of a stock or stock complex to produce MSY on a continuing basis." The PFMC may, therefore, wish to consider the propriety and legality of a short-term phase-in of these new rates to ameliorate the immediate impact to the groundfish industry.

Surplus Production Models

During the workshop, methods considering an examination of the relationship between surplus production and stock biomass were discussed as potential alternatives to methods based on stock-recruit models for determining appropriate exploitation rates. The panel generally agreed that an examination of estimates of surplus production and their relationship with estimates of biomass or other variables is useful. However, the panel does not endorse the general replacement of a stock-recruitment based approach at this time, nor the requirement of using a biomass-based surplus production model as one approach for estimating MSY, F_{MSY} and B_{MSY} for all assessed stocks. The panel concluded that this is an area that could benefit from additional research.

There were three presentations dealing with biomass-based production model approaches on the agenda (Jacobson *et al*, MacCall, and Parrish; see Appendix A). The fundamental premise of these approaches was to use the output from a detailed age-structured model as an accurate representation of exploitable stock biomass (i.e., assume q = 1.0) and to estimate the relationship between catches and changes in biomass to determine production. Most of the panel concluded that this kind of approach has potential application when applied to estimates generated from age-structured or delay-difference assessments. This is possible because absolute stock biomass estimates are generally available from the assessment models and, by definition, estimated surplus production can be calculated from the time series of catch and estimated biomass. The disadvantage of this approach, however, is that the various biological processes underlying stock compensation are not directly addressed, whereas in age-structured approaches these processes can be treated explicitly. Whether surplus production is estimated internally within the model (e.g., Jacobson *et al*.) or externally after the fact (MacCall, Parrish), is an issue deserving of more

study (see also results from Ianelli).

Although the full panel saw benefits to explicit consideration of biomass production implied by assessments, some panelists expressed significant reservations regarding the use of production models to determine F_{MSY} and related quantities. These reservations were largely based on the view that this approach discards important information contained in the original age-structured model results. For example, age-structure can influence production because young fish generally have higher weight-specific growth rates than older fish. As a result, the same biomass can lead to different levels of production, depending upon the age composition of the population. Likewise, changes in selectivity over time will change the amount of surplus production at a given biomass. Although such variation in surplus production could be dealt with as correlated process error (Jacobson *et al*.) this converts variation explained by the age-structured model into additional error. In any event, age-structured analyses can provide specific information on the nature of compensation (e.g., in individual growth, maturation, or recruitment), which is not possible from an examination of the aggregate surplus production-biomass relationship alone.

Other panelists argued that estimates of F_{MSY} from surplus production models might be more robust than those that depend upon solely on stock-recruitment relationships. The idea here is that (1) error in assessment model estimates of biomass may cancel-out because production estimates involve differencing model biomass estimates, and (2) potentially biased estimates of recruitment (e.g., discards of small fish) play a less critical role in the analysis. Simulations presented by MacCall at the second Groundfish Productivity Workshop in Monterey, CA suggested this was the case. However, given the few number of replicate simulations and the limited suite of scenarios in that paper, the panel did not view this work as definitive.

Estimation of B_0, B_{40} and Related Problems

Although variable rate biomass-based harvest policies were not the primary focus of the workshop, the newly implemented 40-10 harvest policy was, nonetheless, the subject of much discussion. While in practice it is possible to consider F_{MSY} proxies in isolation from biomass targets and thresholds, in principle these two subjects are inextricably linked.

The main concern about the 40-10 harvest policy is that it involves the calculation of two biomass reference points, i.e., the virgin biomass that would exist in the absence of fishing (B_0) and the exploited biomass that is 40% of that pristine level ($B_{40\%}$). Within the PFMC, it appears that parameter B_0 is usually obtained from a stock assessment model and estimates of what biomass may have been in the far past.

A number of problems are likely to occur in the estimation of this parameter. First, its estimated value may be far larger than any historical observed biomass due to vagaries of parameter estimation and the age composition of the population at the start of the data series (e.g., Pacific ocean perch; see Ianelli in Appendix A). In some cases, it may be justifiable to constrain the value of B_0 to be near the historical maximum or some other value, as long as a

clear rationale is provided and the sensitivity of the constraint is examined.

A second problem is that models are frequently configured to assume that the age composition is at equilibrium at the start of the modeled period. If this assumption fails, then the estimate of parameter B_0 may be biased. Third, there is no guarantee that under any fishing mortality regime, including zero fishing, that the population will rebuild to this level. The reason for this is that the amount of recruitment needed to produce historical levels of spawning biomass may not occur in the future. Given that many West Coast stocks have been on a "one-way trip" downward, a sensible harvest policy would first reverse the decline, and then rebuild to a level that could be expected based on current and expected future conditions. Once that level of rebuilding is accomplished, it may then be possible to rebuild toward a level consistent with historical patterns.

Therefore, some alternatives for calculating B_0 that look toward the future instead of the past should probably be considered. Two clear alternatives involve determining: (1) whether a spawner-recruit model is used to project the population forward and (2) if not, what exact values of the recruitment time series are to be used in forecasting future biomass. If a spawner-recruit model is used, then it should be possible to determine pristine biomass and B_{MSY} as reference points automatically. These points can then be implemented in the harvest policy, as is done by the North Pacific Fishery Management Council. However, it is often quite difficult to assert that a reliable spawner-recruit relationship is known, so typically such a relationship would not be invoked. Nevertheless, it is often wise to provide for reduced recruitment at low spawning biomass levels, particularly if the stock has been fished down to a point where recruitment is believed to have been impacted. Some recent modeling efforts with ADMB and Bayesian considerations (e.g., Pacific hake) lend hope to better determining MSY parameters.

If a spawner-recruit relationship is not used, then a projection of future unfished equilibrium biomass can be made by multiplying contemporary recruitment values by the corresponding spawner biomass per recruit (SPR) function. For example, the average recruitment over the time series might be used with an SPR function at a fishing mortality of 0 to arrive at the expected equilibrium unfished biomass in the future, to be used as B_0. From this information $B_{40\%}$ could be obtained. This type of approach is especially appropriate if it is known there has been a change in stock productivity. A caveat to doing this, however, is that it can be very difficult to detect a change in productivity, so the rationale for restricting the time period must be carefully considered.

Whichever approach is used, it should be documented carefully and properly justified. The same methodology should be used for all biomass reference points and it should be clearly stated whether a reference point is based on SPR calculations that are fully independent of spawning biomass, or whether recruitments have been adjusted downward by a spawner-recruit relationship. We think justification for the calculation of biomass reference points should address consistency between the assumptions used in their derivation and those underlying F_{MSY} estimates or proxies.

We note that another type of calculation is required by the NMFS overfishing guidelines, which could lead to further confusion. Namely, a threshold level that provides for a 10-year rebuilding to a target level such as B_{MSY} must be found (Department of Commerce 1998). This level is also a function of the recruitment series used and depends on whether a spawner-recruit relation exists. Consequently, for consistency the same process that is used for determining other reference points should be used here. The PFMC has apparently been allowed to use $B_{25\%}$ for this threshold, but it is unclear how rebuilding plans, which are triggered when biomass drops below this value, will interface with the 40-10 rule, which in itself, is an automatic rebuilding plan. Other Councils are currently experiencing this confusion as well, so hopefully there will be more flexibility and clarity in the NMFS overfishing guidelines in the future.

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MacCall, A. An evaluation of alternative methods of calculating management reference points for west coast groundfish. (distributed at the March 1999 workshop in Monterey, CA).

MacCall, A. Addendum to second productivity workshop manuscript. (dated 3/30/99).

MacCall, A. Review of groundfish harvest rate analysis and management. (manuscript dated 6/17/99).

MacCall, A. Summary of known-biomass production model fits to west coast groundfish stocks. (distributed at the March 2000 workshop in Seattle, WA).

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Myers, R. A., N. J. Barrowman, and R. Hilborn. The meta-analysis of the maximum reproductive rate for fish populations to estimate harvest policy; a review. (distributed at the March 2000 workshop in Seattle, WA).

Nowlis, J. S. Alternative proxies for B_{MSY} and the overfished threshold. (distributed at the March 1999 workshop in Monterey, CA).

Nowlis, J. S. Maximum sustainable yield options paper. (distributed at the March 1999 workshop in Monterey, CA).

Parrish, R. H. A synthesis of the surplus production and exploitation rates of 10 west coast groundfish species. (distributed at the March 2000 workshop in Seattle, WA).

Sampson, D. B. FINDMSY: a fishery simulator for exploring constant harvest rate policies.

(distributed at the March 2000 workshop in Seattle, WA).

Thompson, G. Optimizing harvest control rules in the presence of natural variability and parameter uncertainty. (distributed at the March 1999 workshop in Monterey, CA).

Thompson, G. A comparison of risk aversion in management and estimation. (distributed at the March 1999 workshop in Monterey, CA).

Williams, E. H. The effects of unaccounted discards and mis-specified natural mortality on estimates of spawner-per-recruit based harvest policies. (distributed at the March 2000 workshop in Seattle, WA).

APPENDIX A — Agenda

WEST COAST GROUNDFISH PRODUCTIVITY WORKSHOP
Scientific & Statistical Committee, Pacific Fisheries Management Council
Room 2079, Building 4, Alaska Fisheries Science Center
7600 Sand Point Way NE, Seattle, Washington

AGENDA

Monday, March 20

1:00 pm Workshop Introduction
James Hastie: *An historical overview of Pacific Fishery Management Council groundfish harvest policy*.
William Clark: *$F_{35\%}$ revisited after ten years.*
Alec MacCall: *Designing fishery management and stock rebuilding policies for conditions of low frequency climate variability.* (preview of a paper to be presented at the PICES meeting in San Diego later this week)

Tuesday, March 21

8:00 am R. A. Myers: *The meta-analysis of the maximum reproductive rate for fish populations to estimate harvest policy; a review*.
Martin Dorn: *Advice on west coast rockfish harvest rates from Bayesian meta-analysis of stock-recruit dynamics*.
Ray Hilborn: *Exploitation rate reference points for west coast rockfish: are they robust and are there better alternatives?*
12:30 pm Lunch
1:30 pm Larry Jacobson: *Try and estimate F_{msy} in every stock assessment model!*
David Sampson: *FINDFMSY: a fishery simulator for exploring constant harvest rate policies.*

Wednesday, March 22

8:00 am Richard Parrish: *A synthesis of the surplus production and exploitation rates of 10 west coast groundfish species.*
Alec MacCall: *Summary of known-biomass production model fits to west coast groundfish stocks.*
Jon Brodziak: *In search of optimal harvest policies for west coast groundfish.*
12:30 pm Lunch
1:30 pm James N. Ianelli: *Simulation analyses testing the robustness of harvest rate determinations from typical west-coast rockfish stock assessment data.*
Erik Williams: *The effects of unaccounted discards and mis-specified natural mortality on estimates of spawner-per-recruit based harvest policies.*

Thursday, March 23

8:00 am Discussion / Public comment
12:00 Lunch
1:00 pm Panel deliberation

Friday, March 24

8:00 am Panel deliberation (if required)

EXEMPTED FISHING PERMITS: RESEARCH EFFORTS

Situation: National Marine Fisheries Service (NMFS) research efforts often include the use of commercial vessels as survey platforms and to collect information. These activities sometimes require the vessel to be exempted from commercial fishing regulations that would interfere with the data collection project. We anticipate NMFS will present three exempted fishing permit (EFP) proposals for Council review at this meeting; the 2000 continental slope trawl survey, the pre-recruit survey for Pacific whiting, and the depth-specific sampling program. NMFS will consider the Council's comments and recommendations as it makes the final preparations for these activities.

Council Action:

1. Comment on EFPs.

Reference Materials: None.

PFMC
03/17/00

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON EXEMPTED FISHING PERMITS: RESEARCH EFFORTS

The Groundfish Advisory Subpanel (GAP) was asked to comment on issuing exempted permits for continuation of the slope trawl survey. The GAP fully supports the survey and recommends the permits be issued.

PFMC
04/04/00

Compensation Fish for NWFSC Slope Trawl Survey

1999 Survey Results:
Four vessels were charted for the survey. The costs for each vessel's participation in the survey were paid with 50% cash and 50% compensation fish.

Compensation Fish:

Species	Amount Requested	Amount Granted
Sablefish	38.5 mt	34.4 mt
Dover Sole	132.0 mt	73.1 mt
Longspine Thornyhead	32.8 mt	11.2 mt
Shortspine Thornyhead	8.1 mt	6.1 mt

Exempted fishing permits (EFPs) were issued for the compensation fish which may be taken anytime until September 30, 2000. Under the EFPs, these fish may be taken in excess of landing limits; all other groundfish regulations apply. The amounts granted for compensation will be deducted from the 2001 ABCs.

2000 Survey Request:
As in 1999, 4 vessels will be chartered. The survey will begin on or about July 1 and end by September 30, 2000 and cover the same area as in 1999.

Proposed Compensation: 50% of the costs of the survey paid in cash and 50% paid as compensation fish. Compensation fish would be at least 50% Dover sole and the remainder a combination of sablefish, shortspine thornyhead, and longspine thornyhead, according to the preferences of the chartered vessels.

Maximum Amounts Required for the 2000 Survey compensation fish:

Species	Amount Requested	% of 2000 OY
Sablefish	34.7 mt	0.6
Dover Sole	131.7 mt	1.4
Longspine Thornyhead	23.8 mt	0.8
Shortspine Thornyhead	4.7 mt	0.5

The amounts actually granted for compensation are expected to be substantially less than that requested. An EFP will be issued to each vessel at the conclusion of its participation in the survey. If the survey is completed as scheduled, two EFPs would be issued in August and two would be issued in September. The duration of these EFPs would be for one year, concluding not later than September 30, 2001.

For any EFPs issued in time, the compensation fish would be deducted from the ABC for 2001. For EFPs not issued in time, the compensation fish would be deducted from the ABC for 2002.

CANARY ROCKFISH ALLOCATION AND INSEASON ADJUSTMENT IN THE PINK SHRIMP AND OTHER FISHERIES

Situation: At the March 2000 meeting, the Council reviewed the "placeholder" trip limit for the pink shrimp fishery and made several revisions. However, the Council intends to revisit the canary rockfish allowance at the April meeting. The pink shrimp fishery is classified as an open access groundfish fishery, although some vessels have groundfish limited entry permits. Catches by non-permitted vessels count towards the open access allocations, and catches by permitted vessels count towards the limited entry allocations. The open access allocation of canary rockfish is only 15 mt (33,000 pounds) for the entire open access fishery. The open access fleet includes vessels that target canary and other rockfish, salmon troll vessels, and other incidental fisheries.

Council members expressed concern vessels participating in the shrimp fishery might take the entire open access allocation of canary rockfish and began discussing ways to prevent that. At this meeting, the Council will continue the discussion and may decide to take action, which could include direct allocation to the shrimp fishery, adjustments to the trip limit, or other measures. The Council does not have management authority over the shrimp fishery at this time, but can limit the amount of groundfish shrimp vessels may retain and land. The issue of incidental catch of canary rockfish will also be discussed as the Council begins preparing a rebuilding plan for this species.

Council Action:

1. **Recommend action to prevent premature attainment of the open access canary rockfish allocation**.

Reference Materials: None.

PFMC
03/20/00

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON CANARY ROCKFISH ALLOCATION AND INSEASON ADJUSTMENT IN THE PINK SHRIMP AND OTHER FISHERIES

The Groundfish Advisory Subpanel (GAP) met jointly with the Groundfish Management Team (GMT) to discuss canary rockfish catches in the pink shrimp fishery.

The GMT pointed out that, since full mortality of canary rockfish needs to be accounted for, allocation among open access gears will not solve potential problems; because it will simply convert landings to discards.

The GAP agrees and notes further, no data yet exists on the extent of canary rockfish incidental catch, because the shrimp fishery has just opened.

Because the shrimp fishery is regulated by the states, rather than the Council, the GAP recommends the states take necessary and appropriate steps to address any incidental catch problems that may occur. In this regard, the GAP suggests the states develop a tri-state approach, similar to the successful effort that has been made in Dungeness crab management. No particular management measures were recommended by the GAP.

PFMC
04/04/00

GROUNDFISH MANAGEMENT TEAM COMMENTS ON CANARY ROCKFISH ALLOCATION AND INSEASON ADJUSTMENT IN THE PINK SHRIMP AND OTHER FISHERIES

The Groundfish Management Team (GMT) discussed the proposal for an inseason allocation of canary rockfish between pink shrimp trawl and line gears to avoid the potential situation where the bycatch of canary rockfish in the shrimp fishery reaches a level that could cause curtailment of the open access line fishery. The GMT feels that such an action this year is unlikely to achieve the intent of the allocation and would cause considerable complication of trip limit management which currently includes no rigid allocation among open access gear types.

Present canary limits in the shrimp fishery have been established to accommodate, to the degree possible, incidental catches of canary rockfish occurring during targeted shrimp fishing. Such catch would occur in the shrimp fishery whether or not an achieved allocation resulted in prohibiting canary *landings* by the shrimp fleet. The prohibition would not eliminate the catch nor avoid the need to continue to account for it in harvest calculations. That is, since the assumption is that canary currently taken in the shrimp fishery is an unavoidable bycatch, catch needs to be deducted from the optimum yield, irrespective of any allocation which may prohibit its landing.

Therefore, reducing canary bycatch in the shrimp fishery to remain within any given allocation can only be achieved by control of the shrimp fishery itself, such as reduction of the target shrimp fishery, area closures, or requirement of finfish excluders. Since the Council does not manage the shrimp fishery, any such action would need to be taken by the states. The GMT feels this is unlikely to occur during the 2000 season. The Council may wish to consider encouraging a tri-state process to address this issue.

PFMC
04/04/00

MEMORANDUM

OREGON DEPARTMENT OF FISH AND WILDLIFE
Marine Resources Program
2040 SE Marine Science Drive, Newport, OR 97365-5294
PH. 541-867-4741; FAX 541-867-0311

DATE: March 31, 2000

TO: Burnie Bohn

FROM: Neal Coenen

SUBJECT: Canary Rockfish Allocation in the Open Access Fishery

STATEMENT OF THE PROBLEM

The Council has announced its intent to consider, at the April meeting, management measures to prevent catches of canary rockfish in the shrimp trawl fishery from causing the shutdown of open access line gear fisheries mid-season. Options could include allocation between gears within Open Access (OA), adjustments to trip limits and other measures. The "other measure" which was discussed at the March PFMC meeting was to "prohibit the landing of groundfish by shrimp trawl without the use of a fish excluder device."

Background—Policy Issues

- Regarding management of the OA fishery, Amendment 6 states:

  "The open access fishery will be managed with the intent of maintaining the historic fishing opportunities for the participant groups and to keep the overall catch in line with historic harvests. For example, trip limits for non-permitted longline and fishpot gears operating in the open access fishery will likely be fairly low because the historic fishing levels of this group are low. Trip limits, when necessary, for exempted gears will probably be higher because their historic fishing levels are higher." (Appendix to Amendment 6, Section 14.2.2, #6.)

- The shrimp trawl fishery accounted for most of the rockfish catch in the OA segment during the catch history window (1984-88) for the Eureka-Vancouver areas; at least 61%, probably more like 70-75% for shelf rockfish species like canary and yellowtail rockfish. (See Section 4 and Tables 4-3 to 4-8, Amendment 6, SEIS and RIR.)

- With the decline of the California set net fishery, the Council allowed hook and line fishing to grow within OA with many new entrants and rely on the set net fisheries catch history. While Washington and Oregon have hook and line OA segments, these are still quite small, and large scale fleet changes do not appear to have

occurred. All three states, of course, have had limited access programs for their respective shrimp fisheries since the LE program window period.

The approaches discussed by the Council raise potentially serious policy issues:

1. Is the emerging policy to abandon the OA management decision of maintaining historic opportunities for the OA gear groups and move to a policy of keeping fisheries open for the gears with the least history, smallest historical share and largest number of new entrants?

2. Accept yield and value losses in a non-target fishery to allocate benefits to a target fishery. Will the benefits in the Open Access hook and line fishery be greater than the loss in the shrimp fishery?

3. A policy choice to attempt to maintain year-round fishing in the Open Access fishery seems to alter the historical basis of participation in the 1984-88 window period for allocation sharing...requiring a plan amendment?

4. Does the Council really want to address allocation within the Open Access sector on a species by species basis; particularly before: A) rebuilding plans are established for canary and perhaps widow rockfish; and B) the harvest rate policy decision is made affecting minor rockfish species? The aggregate of these effects might better be dealt with as a whole. Indeed, isn't the larger policy question for the Council how it uses the available rockfish to optimize economic value across the fisheries?

Discards and Reduced Limits for Canary Rockfish

- Decreased limits in the shrimp fishery are likely to simply increase discard with little or no reduction in total mortality, as the available data suggest targeting of rockfish is very minimal. Consider the data:

1. Although there was a small amount of targeting by one or two boats back in 1996, recent trip frequency analysis does not show any evidence of targeting:

   For example, yellowtail rockfish had fairly liberal limits in 1999 of 6,500 lbs per month; however, no Oregon shrimp vessel reached the limit, or even landed above 4,000 lbs in a month. Only twice did a vessel even go above 3,000 lbs. in a month. Certainly, if you were targeting you could get closer than that.

2. Preliminary data from our 1998 special bycatch logbook program show that the vast majority of shrimp fishing decisions are based on anticipated shrimp catch only, with avoiding unwanted bycatch as a distant second.

3. Targeting does not make economic sense for a shrimper. Why spend time pursuing rockfish that sell for 30-35¢ per pound and are under restrictive limits, when you can go after shrimp which sell for 50¢ and more and for which there is no limit? Why pursue rockfish when it jeopardizes your gear, which is not built for hard ground? A destroyed net can wipe out a whole trip and cost several

thousand dollars to boot. High catches of rockfish turn your shrimp to mush, also.

4. Targeting was not the cause of the high canary rockfish catch in the 1999 shrimp fishery. Canary rockfish were unusually abundant on the grounds where shrimp were concentrated in 1999. We observed the same effect on three shrimp research charter trips—unusually abundant canary rockfish.

Fish Excluder Devices

- It's unclear what percentage of excluded fish survive the experience.

- As worded (a prohibition on landing of groundfish without an excluder), the regulation could create an incentive to use an inefficient excluder so that rockfish could be retained.

- This may be an unenforceable option without an observer program and precise legal definition as to what an "excluder" is (in other areas of U.S. such as the Gulf of Mexico, certain designs are federally "certified" and only those may be used, and observers are part of the system).

- If implemented, a program may best be accomplished using a tri-state agreement under the PSMFC so that programs can be put in place to test, certify and legally define the devices. This would also allow the development of some objectives for implementing excluders (e.g. reduce rockfish catch by *X*%), something currently lacking. Perhaps the Council needs to think seriously about its goal...bycatch reduction or allocation?

- Washington and California no longer have active shrimp programs to work with the fleet on excluders. Implementation of an excluder program should require established programs and incentives for fleet cooperation...otherwise little of practical value may be accomplished.

Options

1. Allocate between gears based on historical share - preliminarily, 60% to shrimp.

   - Close hook and line fishery when allocation is reached. Require excluders when shrimp fishery allocation is reached, or

   - When allocations are reached, implement a "full retention" program in the shrimp fishery to eliminate any targeting (all fish landed are confiscated by the respective state) and close the hook and line fishery.

2. No action until a tri-state plan for shrimp is developed or an observer program is in place, and until rebuilding plans are in place for canary and possibly widow rockfish.

ADOPTION OF ROCKFISH BYCATCH ESTIMATES AND INSEASON ADJUSTMENTS IN RELEVANT FISHERIES

Situation: In November 1999, the Council adopted optimum yield (OY) recommendations for 2000, including new categories of minor rockfish. While most OYs were adjusted to account for anticipated bycatch, the OYs for minor rockfish and bocaccio were not adjusted. The Council asked the Groundfish Management Team (GMT) to evaluate the management measures adopted for the various 2000 groundfish fisheries, including anticipated bycatch amounts. At the March 2000 meeting, the GMT responded, without an observer program or some other program to collect bycatch data, it could not estimate how much bycatch may occur this year. The GMT suggested, as a temporary alternative, the Council consider asking a selected group of industry and managers to advise them about more reasonable estimates. The Council concurred and directed the GMT to consult with groundfish fishers and Groundfish Advisory Subpanel members to assess whether anecdotal information from the fleet may provide better insight into appropriate bycatch estimates, trip limit ratios, and catch projections for the remainder of the year. This approach is somewhat analogous to the salmon "drop-off mortality" question, where no data existed, and the Council adopted the Salmon Technical Team/Scientific and Statistical Committee estimate of 5% as reasonable.

Council Action:

1. **Adopt an estimate for rockfish bycatch where the default estimate is now zero, and adjust trip limits as necessary.**

Reference Materials: None.

PFMC
03/20/00

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON ADOPTION OF ROCKFISH BYCATCH ESTIMATE AND INSEASON ADJUSTMENTS IN RELEVANT FISHERIES

The Groundfish Advisory Subpanel (GAP) solicited anecdotal information on rockfish bycatch from its members and others in the audience. Discussions provided the following:

- → Regulations adopted for 2000 are causing major changes in fishing strategies.
- → The new regulations have compounded problems in estimating bycatch.
- → Limited entry vessels are not bumping up against trip limits, indicating bycatch is minimal.
- → Some limited entry vessels are encountering occasional overages, but these vary by area and depth fished and cannot be rationally spread across the entire fishery in a "one-size-fits-all" pattern.
- → Processors report low landings of rockfish, indicating lack of targeting.
- → Open access vessels have largely converted to the live fish market; since dead fish tend to be discarded, it is impossible to estimate the level of bycatch.
- → Recreational vessels encounter occasional undersize fish, which are discarded, but the recreational fleet has also developed new strategies (including changes in fishing depth) to comply with more restrictive regulations.

In summary, the GAP believes the combination of new regulations (including closures and emphasis on deep water fishing during the first two months of the year) and the lack of hard data on landings makes it impossible to estimate bycatch levels at this time. The Council should reconsider this issue in June when more data are available.

PFMC
04/04/00

INSEASON ADJUSTMENTS, INCLUDING ENGLISH SOLE AND REDBANDED ROCKFISH

Situation: In November 1999, the Council established three minor rockfish categories in order to protect overfished and depleted rockfish stocks while providing as much access as possible to healthier stocks. The Council listed the individual rockfish species included in the nearshore, shelf, and slope rockfish categories. Management measures for large and small footrope trawl gears were approved for each rockfish category and other species associated with each category. A primary objective of this management approach is to reduce fishing activities in areas where canary rockfish would likely be caught. Restrictions on shelf flatfish species were included in the management program; there is no poundage limit for "all other flatfish," but small footrope trawl gear is required. This means vessels fishing with large footrope trawl gear, even if they operate on the continental slope outside the area of concern, are not allowed to keep any of these flatfish. Unfortunately, some healthy flatfish stocks such as English sole extend into deeper water where they are taken incidentally by vessels targeting slope species (see Public Comment B.7.). The question is, how can we adjust the trip limit so vessels fishing with large footrope gear may keep their incidental catch of English sole without allowing targeting? Redbanded rockfish has also been identified as a species encountered in the large footrope trawl fishery on the slope. It may be appropriate to reclassify redbanded rockfish as a slope species rather than a shelf species. In any case, the Council should consider providing an allowance for this species in the large footrope trip limits.

Council Action:

1. Adjust trip limits as necessary.

Reference Materials:

1. Correspondence from Coos Bay Trawlers Association (Public Comment B.7.).

PFMC
03/20/00

Coos Bay Trawlers' Association, Inc.
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7960 Kingfisher Dr.
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E-mail ctrawl@mail.coos.or.us
A Non-Profit Organization

February 10, 2000

Jim Lone, Chairman
Pacific Fishery Management Council
2130 SW 5th Ave
Portland, OR 97201

Dear Chairman Lone,

This past fall when gear modifications were being discussed at the Council meeting by the GMT and the GAP no one realized the ramifications that these new regulations would usher in for the new millennium. But now that we have arrived, our 20/20 hind-sight vision shows us that our vision of the changes was flawed and our oversight is causing a major problem.
The new millennium's regulations have created another new discard of specie that have never been discarded before nor have any stock assessments shown that this specie needs to stop being harvested. Everyone knows the less fish we are allowed to harvest the more discards the limitations cause. The new trawl gear modifications are causing higher discard rates and it is not just one or two fish but thousands of pounds of English sole are now being discarded. Discards may be a tool used by managers but it is a tool that fishermen hate to see come out of the toolbox. Something needs to be adjusted very soon for this shortsightedness which is now causing senseless discards.
The solution is not just adjusting the discard rates to be taken off the top of the OY. The easiest solution would be to not have any restrictions on any flatfish landings from November 1 to February 29, in other words all flatfish would have the same gear restriction time frame as Petrale sole. At the February 7 to 9, 2000 GMT meeting held in Portland, the team members were aware of this problem but said there was nothing that could be done until November because there wasn't enough time to make the necessary changes before March 1 when regulation make the summer change-over. I know the Council and it's entities have had emergency meetings via telephone conferences when there is a need to shut down a fishery but they can't have similar meetings when they have acknowledged making a mistake that may give more fish to harvest. This error of gear use for flat fish will increase discards and take potential revenues from the harvesters. Are we losing sight of management goals and objectives?
We need to revisit this issue to adjust this error as soon as possible. Adjustments for this error could be implemented anytime during the summer regulation season under the emergency rule or by sheer will of the Council.

I sincerely thank you for your time in considering this situation,

Steve Bodnar

by Steve Bodnar, Executive Director, Coos Bay Trawlers' Association, Inc.
cc: Jim Hastie
Mark Saelens
Jim Glock

PACIFIC FISHERY MANAGEMENT COUNCIL

2130 SW Fifth Avenue, Suite 224
Portland, Oregon 97201

CHAIRMAN
Jim Lone

EXECUTIVE DIRECTOR
Donald O. McIsaac

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February 25, 2000

Mr. Steve Bodnar, Executive Director
Coos Bay Trawlers' Association, Inc.
PO Box 5050
Coos Bay, OR 97420

Dear Steve:

We received your letter of February 10 to Jim Lone regarding discard of English sole in the trawl fishery for continental slope species. As you recall, the management approach for the year 2000, including the trip limit structure, was proposed by the groundfish industry during the fall 1999 management process. These measures were discussed extensively by the Groundfish Advisory Subpanel, Groundfish Management Team (GMT) and public in attendance at the November 1999 Council meeting. The Council adopted the proposals with only minor modifications.

I understand that English sole and red-banded rockfish are being caught by trawlers targeting the complex of species that inhabit the continental shelf. As you point out, there is no provision for landing "shelf" species taken incidentally by those vessels. In adopting the industry proposal, the Council intended to reduce bycatch, not increase it, and it is unfortunate if additional bycatch it occurring. The GMT has advised me it has no specific information regarding the amount of bycatch occurring, associated species, and other information that would help the Council make an appropriate adjustment at this time. I am reluctant to call an emergency Council meeting to adjust trip limits between meetings without such information. I suggest you work with others in the industry to estimate or otherwise document the amount and distribution of bycatch (specifically, target species, associated catch, location, etc.) and provide the information to the GMT and GAP at its April meeting. If these committees recommend action, the Council could plan for adjustment considerations at that time.

Thanks for alerting us to this situation, and I hope we can work together to avoid such problems in the future.

Sincerely,

D. O. McIsaac, Ph.D.
Executive Director

JWG:rdh

c: Mr. Jim Lone
Mr. Jim Glock
Dr. Jim Hastie
Mr. Brian Culver

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February 28, 2000

D. O. McIsaac, Ph. D.
Pacific Fishery Management Council
2130 SW Fifth Ave Suite 224
Portland, OR 97201

Dear Donald McIsaac,

Thank you for responding to the letter we sent to Jim Lone about the English sole discard situation. I know very well that the industry, GAP and GMT worked hard to come up with the proposal that the Council passed in November. However, we all failed to see how this proposal would increase discards of English sole a fish that was never discarded before.

I will agree with you that the GMT has no specific information at this time about English sole discards and our letter to Jim was to alert the Council of an outcome of a proposal they have approved that has had an effect that the Council has been trying to avoid. While I believe that landing data is insignificant to determine discards I also believe that if you would look at the landings of English sole for January and February in 1997, 1998 and 1999 and compare that to landings in 2000 it just might produce a glimpse at the possible backlash of this proposal.

You have suggested that we "work with others in the industry to estimate or otherwise document the amount and distribution of bycatch and provide the information to the GMT and GAP..." Are you asking us conduct some specific research or data gathering task for you, the Council, NMFS, ODF&G, CDF&G and WDF&G? Are you suggesting we submit a proposal to coordinate the estimation documentation so that the information will be accepted when presented in April or do you think that some "anecdotal" information from a sampling of random trawl fishers would do? Are you thinking we will gather this information for free or for a contracted amount?

We suggested to Jim Lone, "not to have any restrictions on any flatfish landings from November 1 to March 1 so that all flatfish would have the same gear restriction time frame as Petrale sole" to avoid creating English discards. If you think our observation and solution warrants a data gathering project please reaffirm. April is not that far away.

I look forward to meeting and working with you. Our association tries to keep an active role in this management process.

Sincerely,

Steve Bodnar

by: Steve Bodnar, Executive Director,
Coos Bay Trawlers' Association, Inc.

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON
INSEASON ADJUSTMENTS INCLUDING ENGLISH SOLE AND REDBANDED ROCKFISH RETENTION REGULATIONS

The Groundfish Advisory Subpanel (GAP) discussed with the Groundfish Management Team proposed changes in classification of rockfish in management categories and means to avoid discarding incidentally caught flatfish. The GAP makes the following recommendations:

- → Classify redbanded rockfish as a slope rockfish species.
- → Classify flag rockfish as a slope rockfish species.
- → Modify regulations to allow English sole to be taken with large footrope gear during the time that petrale sole can be taken with that gear (November and December 2000).
- → Modify regulations to provide an incidental limit for flatfish included in the "all other flatfish" category of 400 pounds per trip when large footrope gear is used, effective May 1 through October 31, 2000.

The GAP believes these minor modifications will reduce discarding.

GROUNDFISH MANAGEMENT TEAM REPORT ON INSEASON PROGRESS AND ADJUSTMENTS

Early reports from the 2000 fishery have identified several issues requiring minor adjustments to the management framework initiated this year. Regarding the assignment of *Sebastes* species to the minor rockfish sub-groups, industry has requested that redbanded rockfish be shifted from the shelf to the slope sub-group, in order to reduce discard associated with large footrope fishing for slope species. The GMT supports this adjustment. The GMT and GAP also discussed the appropriate sub-group assignment for flag rockfish. Reports of incidental catch of flag rockfish were reported in slope fisheries as far north as Oregon. Further investigation by the GMT has lead us to believe that the primary range of flag rockfish is from Baja to Ft. Bragg, and between 15 and 100 fathoms. As a result, the GMT does not support re-assignment of flag rockfish from the shelf to slope sub-group at this time. Additionally, while POP was assigned to the minor slope rockfish subgroup in the area south of 40º10', the individual cumulative limit for POP was specified as a coastwide limit. The GMT recommends that this limit be restated to apply only to the area north of 40º10'.

The last issue involves incidental catch of English sole when fishing with large footropes for slope species. The GMT and GAP worked together last fall to try and identify and accommodate these kinds of cases, and recommended special provisions for petrale and Rex soles. English sole was not specifically addressed at that time, however, and there have been reports of small amounts of English that have had to be discarded when they have been caught with large footropes while fishing for slope species. At this time, the GMT feels that the safest way to reduce this discard, without creating an opportunity to target English sole with large footrope gear on the shelf, would be to provide an allowance when large footrope gear is onboard of 400 lb per trip of all flatfish species where retention is not specifically allowed with large footrope gear.

Inseason progress

Through February this year, the only fishery with landings approximate last year's rate is the DTS fishery. Landings through February were slightly higher than last year for all four species, and it appears as though landings through March will be very close to last years. Widow rockfish is the only other species with significant landings and those are running about 30-40% of 1999. However, the 3-month first period in the 1999 fishery stimulated much higher widow landings in 1999 than in previous years.

The QSM system reports very little tonnage of near-shore rockfish has been landed though March, in either limited entry or open access. And although these commercial non-trawl fisheries have always been subject to a high degree of seasonality, it appears unlikely that the current limits will encourage sufficient participation to fully utilize these commercial allocations. When the current limits were recommended in November, there was a clear need to reduce landings significantly. Those recommendations were based on the conservative assumption that the number of participants fishing for the new smaller limits would remain the same. Obviously, there is a relationship between the amount of limit that is offered and the number of participants that will be drawn to that opportunity. However, we are not in a position to quantify that relationship at this time. It does appear that current limits have shut down effort, to a significant degree. What is not clear is how quickly that effort would be drawn back into the fishery with higher limits.

The GMT recommends implementing cautious increases in near-shore limits beginning in May. The fishery response to the increases will be evaluated in June, and provided that participation remains below the level modeled last fall, further increases would be recommended beginning in July. Recommended nearshore-rockfish limits beginning in May are shown in the table below, acknowledging that black rockfish limits are the focus of agenda item B.8. Any of these increases runs some risk of accelerating the fisheries to the point where they would need to be closed before the end of the year. But this risk may be preferable to continuing limits which provide very little opportunity for profitable trips. Higher limits could be implemented in May, but with the understanding that the likelihood of early closure would increase.

The daily-trip-limit (DTL) fisheries for sablefish also appear to be running a bit behind. Higher rockfish limits may stimulate more trips on which sablefish would also be landed. However, it is probably

reasonable to consider increasing the monthly caps in both the LE and OA fisheries, as shown below, beginning in May, with evaluation in June.

GMT recommendations for May 1 cumulative limit changes.

Fishery	Area	Old limit	Proposed new limit, May 1
Limited entry Near-shore rockfish (fixed-gear)			
	North	2,400 lb / 2 months (max 1,200 non-black/blue)	3,000 lb / 2 months (max 1,400 non-black/blue)
	South	1,000 lb / 2 months	1,300 lb / 2 months
Open access Near-shore rockfish			
	North	1,000 lb / 2 months (max 500 non-black/blue)	1,500 lb / 2 months (max 700 non-black/blue)
	South	550 lb / 2 months	800 lb / 2 months
LE + OA Daily-Trip-Limit sablefish			
	N of 36	2,100 lb / 2 months	2,400 lb / 2 months

QSM also suggests that the current limited-entry limits for the shelf rockfish sub-group will result in landings that are well below the current allocation. However, the purpose of the shelf sub-group limits was to accommodate rockfish bycatch in the shelf flatfish fisheries without encouraging targeting that could undermine rebuilding efforts for bocaccio, canary, and lingcod. If the current landings pattern continues the GMT will explore available mechanisms for providing higher bycatch allowances of shelf rockfish when vessels are fishing for flatfish.

INSEASON ADJUSTMENT OF BLACK ROCKFISH TRIP LIMITS

Situation: In November 1999, the Council divided the minor rockfish species in the *Sebastes* complex into nearshore, shelf, and slope categories, and the Groundfish Management Team (GMT) calculated the allocations for open access and limited entry fisheries. Allocations between limited entry and open access are based, in principle, on the distribution of landings of a species during the limited-entry qualifying window. In previous years, the GMT and Council utilized the shares of all *Sebastes* landed during the qualifying window as representative shares for most individual or species-group allocations of *Sebastes* species. While this approach was adequate for dealing with the single generic *Sebastes* complex, it would not work well for the individual rockfish sub-groups in 2000. The GMT proposed maintaining the window-period *Sebastes* shares for the combined minor rockfish categories, but adjusting the percentages of the individual rockfish categories to better reflect traditional target species of the recreational, limited entry and open access sectors. Recreational and open access fishers generally operate in nearshore and shelf areas and target species that reside in those areas, while limited entry fishers (especially trawlers) tend to operate further off shore. In establishing limited entry and open access allocations, the anticipated recreational harvest is first deducted and then the allocation percentages are applied. Once the allocations are calculated, trip limits are developed with the intention of achieving the allocations while maintaining year-round fishing.

Black rockfish are included in the nearshore subgroup in both the northern and southern areas. The 1999 stock assessment, which looked at the portion of the stock north of Tillamook Head, Oregon, concluded the stock appears healthy relative to the 40-10 harvest policy and the full 700 mt acceptable biological catch was applied to the nearshore rockfish optimum yield (OY). The portion of the stock south of Tillamook Head has never been assessed; recent catch in the southern area has been about 500 mt. In accordance with the precautionary policy for unassessed stocks, only 50% of the recent catch amount (i.e., 250 mt) contributed to the nearshore rockfish OY. Thus, black rockfish contribute 950 mt to the nearshore rockfish OY in 2000.
The stock assessment and fishery evaluation (SAFE) document indicates the 1998 recreational harvest of black rockfish in Washington and Oregon was 807 mt, and California fishers took an additional 114 mt. It is unclear whether the bag limit reductions will reduce the recreational catch of black rockfish, but it is clear most of the available harvest will be taken by recreational fishers.

Several fishers protested about the open access trip limit (1,000 pounds per two months) when the Council proposed it in November 1999, because they recognized the economic impact on them would be substantial. The issue was raised again in public comment at the March meeting and in written comments (Public Comment B.8.). The Council agreed to revisit open access trip limits at this meeting.

Council Action:

1. Consider revisions to open access trip limits for black rockfish and other species.

Reference Materials:

1. Correspondence from Kenyon Hensel (Public Comment B.8.).

PFMC
03/21/00

Kenyon Hensel
707-465-6857

To the Pacific Fishery Management Council,
I have new numbers from Ms. Kate King from the N.M.F.S.; these numbers are from GMT Report G.3.(1). And explain the derivation of O.Y.'s of Miner Rockfish in 2000.

Still the alocation of black rock is skewed. These fish where targeted by the open access jig fisherman. To give 91% of these fish to closed access boats, simply causes these boats to regear and fish shallow to target black rock in the near shore. The long line fisherman only landed these fish as a low value by catch. The near shore open access fishermen have created high value markets for these fish. The council has ignored its mandates. If this were not true then the black rockfish limit would be in the near shore open access quota. These black rockfish represent a large economic contribution to our livelihoods and communities. Their lost out of the open access fishermen's hands, costs the fishermen and coastal communities much more then the closed access boats will make landing them. In this way the council has ignored the economic impact of its actions.

Look how confusing your numbers are. In the case of the .083% of fish given to the open access, this percentage does not make it to the end allocations. The open access allocation should be 316mts, not 253mts before distribution into the new depth categories. If I was to follow the federal register as printed in Jan, than my numbers would come out differently. I would use 75% of the remaining rockfish 3625mts, minis Black 950mts and chili 43mts. This number would be 1974mts. To this I would add 50% of other rockfish, 1034mts and the Blacks and chilies. The Minor rockfish OY north would be 4001 mts, not 3814. I hope in the future the figures make more sense.

Kenyon Hensel

Kenyon Hensel
871 Elk Valley rd
Crescent City Ca.
95531
707 465 6857

Dear Council Member,

Since my financial state is depleted, I must now resort to the least effective means of representation, the open letter. I wish that you would treat this as a person-to-person conversation between us. I encourage you to contact me personally to allow me to answer questions and fill in the gaps of this style of communication. That way, open access will have the representation it now lacks, and yet deserves.

My first and most pressing issue is the omission of 146mts of black rockfish left out of the northern areas near shore open access limit.

In the publication, Status of the Pacific Coast Ground Fishery through 1999 and recommended acceptable Biological Catches For 2000, on page 41-second paragraph it is stated that the black rockfish total contribution to OY is 950mts. Yet on the final allocations and OYs for 2000 the contribution of black rockfish is 67% of 1200mts, which equals 804mts. This equals a net loss of 146mts. This mistake should be rectified with an addition of 146mtns of black rockfish to our monthly quotas immediately. This would raise the bimonthly quota to 2000lbs of near shore rockfish. Of which 500lbs could other then black and blue rockfish.

It is understandable that some mistakes would be made in the gear restrictions confusion surrounding the turmoil of changing the accounting methods this fall. This would be a good time to show the fishermen that the council can and will rectify it's mistakes.

My second pressing consideration is surrounding the use of non-permitted gears by permit boats. If this decision is finalized, then the council must open the permit process to allow people like myself, who were denied permits due to the gear we use, permits also. We petitioned the council during the formation of closed access, and were denied licenses due to gear restrictions even though we met or exceeded landing requirements. If those gear restrictions are lifted, those of us who have the fishing history should be able to reapply for a closed access license.

My hope is that the council will begin to recognize gears that are the lest damaging to the environment, and are the most selective in the species that are caught, and work to preserve them. I would like to also point out that in most all gears, the way that they are fished influence greatly their effectiveness in the above categories. The loss of experienced fisherman will

greatly increase the problems facing management in understanding these considerations and implementing strategies that full the goal of more with less that has to be the guiding principle in the fishing industry today.

Sincerely,

Kenyon Hensel

c.c. Jim Glock
c.c. Thomas Barnes
c.c. Dr. Jim Hastie
c.c. Mark Saelens
c.c. Bill Robbinson

To all G.M.T. members,

Since I am unable to attend the Feb meeting due to monetary and other scheduling problems, I wanted to send a quick note to the team outlining the effects the new quotas are having on our northern area open access fishery. We fishermen are relying on the high price of live fish to survive the new management changes. With these prices, we might be able to gross as much as 5000$ a month when the ling cod fishing is allowed in May. There is no guarantee that the prices will stay high after the opening of the southern area. If prices fall to last year's level, we will make two thirds of that income. This is during our normal season of April till Sep. thus we will be reduced to a high price scenario of 30,000$ yearly income, or allow price income of 20,000$. This is a reduction of 1/3 to 1/2 of our normal yearly income.

None of us fisherman feel like we want to have more fish per month and run the risk of running out of fish mid summer. There is still the chance we will run out of fish. There is only enough OY to support 93 boats catching the monthly quotas for nine months. We here in Crescent City would rather that the Counsel tracks the catch and up the limits as the fishing efforts warrants.

Our county Supervisors are very upset that the local supply of fresh fish is not available under these conditions. There will be no local fish in our markets except the inferior drag fish component. Also the local drag fish may not even be on our market as prices are higher inland and the loss of supply will push sellers to chase that increase and leave our markets with import or little rock cod at a high price.

The filet business I have spent my life building is wiped out. I have no way to repay the money that I have invested over the last five years. I am not even sure that I can support my family on the income allowed to me. I am bitter and saddened that the community that is charged with management was not able to take the time and understanding to decrease the social impact of their actions.

I will continue to try to bring the fisherman's perspective to the near shore northern area's management group.

Kenyon Hensel

c.c. Tom Barnes, Dave Thomas
Brain Culver, Jim Glock
Dr. Hastie, MS. Kate King
Dr. MaCCall, Mark Saelens

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON INSEASON ADJUSTMENT OF BLACK ROCKFISH TRIP LIMITS

The Groundfish Advisory Subpanel (GAP) met with the Groundfish Management Team (GMT) to discuss inseason adjustments. The GAP agrees with the following cumulative and trip limit recommendations made by the GMT:

Limited Entry Fixed Gear

Nearshore Rockfish in the North: 3,000 pounds/2 months, with a maximum of 1,400 pounds of species other than black/blue rockfish.

Nearshore Rockfish in the South: 1,300 pounds/2 months.

Open Access Gear

Nearshore Rockfish in the North: 1,500 pounds/2 months, with a maximum of 700 pounds of species other than black/blue rockfish.

Near Shore Rockfish in the South: 800 pounds/2 months.

Limited Entry and Open Access Daily-Trip-Limit Sablefish

2,400 pounds/2 months. All new limits to be in effect May 1 through June 30, 2000.

In addition to the increase in open access limits noted above, the GAP supports the recommendation of the GMT for an increase for vessels landing black and blue rockfish in Pacific City, Oregon, with the limits on time and area proposed by the GMT. The GAP is aware of the unique nature of this fishery and the extra hardship imposed by this year's regulations. The GAP agrees a limited exception is appropriate.

PFMC
04/05/00

GROUNDFISH MANAGEMENT TEAM OR OREGON DEPARTMENT OF FISH AND WILDLIFE STATEMENT ON INSEASON ADJUSTMENTS INCLUDING ENGLISH SOLE AND REDBANDED ROCKFISH RETENTION REGULATIONS FOR PACIFIC CITY

- Small Dory Fleet
  + 10 to 11 vessels
  + Only 6 active vessels

- Fairly remote geographic location - no local processor.

- New effort unlikely to be attractive to Pacific City.

- Low limits have not allowed the fishery to produce enough catch to even attract the interest of a processor sending a truck from another port.

- Even with the higher limits during 1999, Pacific City fishers had to pay to have their fish trucked halfway to Garibaldi to get them sold for processing.

- Annual specifications speak to the desire of the Council to continue allowing for the harvest of black rockfish nearshore, while not exceeding the catch of other nearshore rockfish.

- Schools of black/blue rockfish are highly targetable. Options assume the current fleet profile.

Options

Option 1 (GMT) - 1,500/2 months of minor nearshore rockfish of which no more than 700 may be other than black/blue rockfish (Eureka/Vancouver area).

Option 2a - Same as Option 1 plus 1,500/month May through October (six months) of Black/Blue rockfish for deliveries into Pacific City only. No more than 700 pounds species other than black/blue rockfish.

Option 2b - Same as Option 2a, but 1,800/month May through September (five months).

Option 2c - Same as Option 2a, but 2,200/month May through September (five months.

PFMC
04/04/00

Derivation of OY for Minor Rockfish

	NORTH	SOUTH	ABC	OY	OY factor	oy contribution north	oy contribution south		
Minor Rockfish-North	5,693		5,693						
Minor Rockfish-South	--	3,382	--						
bank		81	81	81	0.75		60.75		
black	**1,200**		**1,200**	**700**	**1**	**700**		n	see pg 21 of GMT report G.3.(1), Nov. 1999
				500	**0.5**	**250**		n	
blackgill t/		440	440	365	0.75		273.8	n	
				75	0.5		37.5	s	
bocaccio	424		424	424	0.75	318		n	
chilipepper	43		43	43	1	43		n	
darkblotched	237	19	256	237	0.75	177.75		n	
				19	0.75		14.25	s	
redstripe	768		768	768	0.75	576		n	
sharpchin	409	60	469	409	0.75	306.75		n	
				60	0.75		45	s	
silvergrey	51		51	51	0.75	38.25		n	
splitnose	322		322	322	0.75	241.5		n	
yelloweye	39		39	39	0.75	29.25		n	
yellowmouth	132		132	132	0.75	99		n	
yellowtail-S		155	155	155	0.75		116.3	s	
Other rockfish v/	2,068	2,702	--		0.5	1,034	1,351		
totals						**3,813.5**	**1,899**		

source: Kate King, NMFS/GMT, March 6, 2000

PLAN AMENDMENT FOR STOCK REBUILDING

Situation: Groundfish fishery management plan (FMP) amendment 12 addresses the Council's responsibility to prepare rebuilding plans for overfished stocks under its jurisdiction. The draft amendment (Attachment B.9.a.), which the Council first reviewed in September 1999, will establish a process the Council and NMFS will follow in developing rebuilding plans for overfished groundfish stocks. Amendment 12 would (1) establish rebuilding goals; (2) authorize suspension of the open access percentages so they may be modified without requiring another amendment; (3) authorize the Council to prohibit the vessels with limited entry permits from fishing in the open access fishery when the limited entry fishery is closed; and (4) declare the entire groundfish resource to be fully utilized, prohibiting foreign fishing and processing unless the FMP is amended to allow it. No specific regulations to implement the amendment are proposed at this time. However, the amendment will give the Council the authority to proposed regulations in the future.

The Council had scheduled final action on the amendment in November 1999. However, the Northwest Regional Office of NMFS advised the Council to delay final action until this meeting in order to free up staff resources to concentrate on preparing the annual specifications for the 2000 fishing year.

Council Action:

1. Final action on FMP amendment 12.

Reference Materials:

1. Draft amendment 12 (Attachment B.9.a.).
2. Draft environmental assessment (Supplemental Attachment (B.9.b.).

PFMC
03/21/00

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON PLAN AMENDMENT FOR STOCK REBUILDING

The Groundfish Advisory Subpanel (GAP) discussed with Council staff *Draft Amendment 12 to the Pacific Coast Groundfish Fishery Management Plan*. The GAP agrees a framework process for rebuilding plans is the most practical option and supports Alternative 2.

However, the GAP is concerned that adequate monitoring of the rebuilding process not be ignored. The GAP notes that NMFS recently convened a meeting to develop such a monitoring process, at which all of the Council advisory bodies were represented, and a draft monitoring process was established. The GAP understands that objections from the Scientific and Statistical Committee have now delayed further work on putting a monitoring process in place. Failure to adequately monitor rebuilding progress violates the law, jeopardizes stocks that are not rebuilding as expected, and penalizes harvesters and processors who accept drastically reduced harvests over the term of a rebuilding program. Monitoring of rebuilding is essential.

PFMC
04/05/00

Draft Amendment 12 to the Pacific Coast Groundfish Fishery Management Plan:
Rebuilding Plan Process

Alternative 1 (Status quo) Do not amend the fishery management plan (FMP). The Council will prepare rebuilding plans as stated in the FMP, during the annual management process. Optimum yield (OY) recommendations will be consistent with the Pacific Fishery Management Council's (Council) rebuilding plans. Allocations and other non-routine measures will be implemented though the appropriate rule-making process.

Synopsis: this is a simple and less formal approach for both the Council and NMFS. The FMP currently says whenever the Council is notified or believes a stock is overfished, it will develop a rebuilding plan as part of the annual management process. Under this option, a rebuilding plan would be neither part of the FMP nor a regulation. Rather, it could be classified as a Council or National Marine Fisheries Service (NMFS) policy statement or given some other designation. The FMP also says "The recommended numerical OY values will include any necessary actions to rebuild any stock determined to be below its overfished/rebuilding threshold and may include adjustments to address uncertainty in the status of the stock." Thus, NMFS currently approves or disapproves the Council's overall harvest recommendations for each overfished stock on an annual basis. If NMFS believes the recommended OY is inconsistent with the rebuilding plan, including the plan's goals, objectives and schedules, NMFS could disapprove the recommended OY and/or associated management measures. This approach does not provide any additional policy guidance or procedures and may be perceived as not providing adequate certainty and continuity.

Alternative 2 (Framework amendment). The FMP will be amended to (1) clarify the process for preparing and approving rebuilding programs; (2) establish rebuilding goals and objectives; (3) authorize temporary adjustments to the open access allocation for any overfished stock without FMP amendment for the duration of the rebuilding program; the original shares may be reinstated at any time without FMP or regulatory amendment; (4) authorize the Council and NMFS to prohibit vessels with limited entry permits from fishing in the open access fishery when the limited entry fishery is closed (that is, limited entry vessels would be prohibited from landing a groundfish species when the limited entry fishery for that species is closed); (5)revise procedures for preparing and distributing the SAFE document; and (6) declare the groundfish resource to be fully utilized by U.S. fishers and processors, eliminating foreign and joint venture fishing unless the FMP is amended to reinstate such opportunities.

Under this alternative, individual rebuilding programs would not be FMP amendments or regulatory amendments; they would generally be submitted to NMFS along with the Council's annual management recommendations. NMFS would be able to approve, disapprove, or partially approve a rebuilding plan; whatever the decision, the Council would be informed in writing, including any reasons for not concurring with the Council's recommendations. Rebuilding plans would be revised through the same process, and would remain in effect for the duration of the rebuilding period or until revised. The Council would make available its proposed rebuilding plans and those approved by NMFS in the SAFE document or by similar means. Any non-routine management measures would be implemented through the appropriate rule-making process.

Synopsis: this alternative would similar to alternative 1 but would establish clearer procedures for developing rebuilding plans and would establish general rebuilding goals and objectives. It would authorize temporary revisions to the open access allocation share for the overfished stock through regulatory amendments, if necessary, but only until the stock is rebuilt. Alternative 2 would clarify the procedure for NMFS to review and approve each rebuilding plan or plan revision and specify that each plan will remain in effect from year to year. It would describe the contents of rebuilding plans and provide a clearer statement that OYs will be consistent with the rebuilding plan. Rebuilding plans will be made available by means of the SAFE document or other method. Limited entry and open access provisions will be amended, and foreign fishing would be eliminated.

Chapter 5 of the FMP describes how rebuilding plans will be developed and implemented, beginning with a description of the annual Stock Assessment and Fishery Evaluation document. *(Proposed changes to the FMP are identified in shaded italics text like this)*

5.0 SPECIFICATION AND APPORTIONMENT OF HARVEST LEVELS

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The annual specification process, in general terms, occurs as follows:

1. The Council will determine the MSY or MSY proxy and ABC for each major stock. Typically, the MSY proxy will be in terms of a fishing mortality rate (Fx%,) and ABC will be the Fx% applied to the current biomass estimate.

2. Every species will either have its own designated OY or be included in a multispecies OY. Species which are included in a multispecies OY may also have individual OYs, have individual HGs, or be included in a HG for a subgroup of the multispecies OY. Stocks without quantitative or qualitative assessment information may be included in a numerical or non-numerical OY.

3. To determine the OY for each stock, the Council will determine the best estimate of current abundance and its relation to its precautionary and overfished thresholds. If the abundance is above the precautionary threshold, OY will be equal to or less than ABC. If abundance falls below the precautionary threshold, OY will be reduced according to the harvest control rule for that stock. If abundance falls below the overfished/rebuilding threshold, OY will be set according to the interim rebuilding rule until the Council develops a formal rebuilding plan for that species.

4. For any stock the Secretary has declared overfished or approaching the overfished condition, or for any stock the Council determines is in need of rebuilding, the Council will develop a rebuilding plan *and submit it in the same manner as recommendations of the annual management process. Once approved, a rebuilding plan will remain in effect for the specified duration or until the Council recommends and the Secretary approves revision.*

5. The Council may reserve and deduct a portion of the ABC of any stock to provide for compensation for vessels conducting scientific research authorized by NMFS. Prior to the research activities, the Council will authorize amounts to be made available to a research reserve. However, the deduction from the ABC will be made in the year after the "compensation fishing"; the amounts deducted from the ABC will reflect the actual catch during compensation fishing activities.

6. The Council will identify stocks which are likely to be fully harvested (i.e., the ABC, OY, or HG achieved) in the absence of specific management measures and for which allocation between limited entry and open access sectors of the fishery is appropriate.

7. ~~The Council will recommend the apportionment of numerical specifications between DAH, DAP, JVP, TALFF, and the reserve.~~ *The groundfish resource is fully utilized by U.S. fishing vessels and seafood processors. The Council may entertain applications for foreign or joint venture fishing or processing at any time, but fishing opportunities may be established only through amendment to this FMP. This section supercedes other provisions of this FMP relating to foreign and joint venture fishing.*

This chapter describes the steps in this process.

5.1 SAFE Document

For the purpose of providing the best available scientific information to the Council for evaluating the status of the fisheries relative to the MSY and overfishing definition, developing ABCs, determining the need for individual species or species group management, setting and adjusting numerical harvest levels, assessing social and economic conditions in the fishery, and updating the appendices of this fishery management plan

(FMP); a SAFE document is prepared annually. Not all species and species groups can be reevaluated every year due to limited state and federal resources. However, the SAFE document will in general contain the following information:

1. A report on the current status of Washington, Oregon, and California groundfish resources by major species or species group.
2. Specify and update estimates of harvest control rule parameters for those species or species groups for which information is available.
3. Estimates of MSY and ABC for major species or species groups.
4. Catch statistics (landings and value) for commercial, recreational, and charter sectors.
5. Recommendations of species or species groups for individual management by OYs.
6. A brief history of the harvesting sector of the fishery, including recreational sectors.
7. A brief history of regional groundfish management.
8. A summary of the most recent economic information available, including number of vessels and economic characteristics by gear type.
9. Other relevant biological, social, economic, ecological, and essential fish habitat information which may be useful to the Council.
10. *A description of any rebuilding plans currently in effect, a summary of the information relevant to the rebuilding plans, and any management measures proposed or currently in effect to achieve the rebuilding plan goals and objectives.*

The *preliminary* SAFE document is normally completed late in the year, generally late October, when the most current stock assessment and fisheries performance information is available *and prior to the meeting at which the Council approves its final management recommendations for the upcoming year.* The Council will make the *preliminary* SAFE document available to the public by such means as mailing lists or newsletters and will provide copies upon request. *A final SAFE may be prepared after the Council has made its final recommendations for the upcoming year and will include the final recommendations, including summaries of proposed and pre-existing rebuilding plans. The final SAFE document, if prepared, will also be made available upon request.*

5.3.2 Determination of OY

Reduction in catches or fishing rates for either precautionary or rebuilding purposes is an important component of converting values of ABC to values of OY. This relationship is specified by the harvest control rule. All OYs will remain in effect until revised, and, whether revised or not, will be announced at the beginning of the year along with other specifications.

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Determination of Numerical OYs If Stock Assessment Information Is Available (Category 1)

The Council will follow these steps in determining numerical OYs. **The recommended numerical OY values will include any necessary actions to rebuild any stock determined to be below its overfished/rebuilding threshold and may include adjustments to address uncertainty in the status of the stock.** (Current text with emphasis added)

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4. . . . If the abundance falls below the overfished/rebuilding threshold, the harvest control rule will generally specify a greater reduction in exploitation as an interim management response toward rebuilding the stock while a formal rebuilding plan is being developed. The rebuilding plan will include a specific harvest control rule designed to rebuild the stock, and that control rule will be used in this stage of the determination of OY.

5. *OY recommendations will be consistent with established rebuilding plans and achievement of their goals and objectives unless otherwise adjusted in accordance with section 6 below.*
   (a) In cases where overfishing is occurring, Council action will be sufficient to end overfishing.
   (b) In cases where a stock or stock complex is overfished, Council action will specify a time period for rebuilding the stock or stock complex that satisfies the requirements of section 304(e)(4)(A) of the Magnuson-Stevens Act.
      (i) The Council will consider a number of factors in determining the time period for rebuilding:
         (1) The status and biology of the stock or stock complex.
         (2) Interactions between the stock or stock complex and other components of the marine ecosystem (also referred to as "other environmental conditions").
         (3) The needs of fishing communities.
         (4) Recommendations by international organizations in which the United States participates.
         (5) Management measures under an international agreement in which the United States participates.
      (ii) These factors enter into the specification of the time period for rebuilding as follows:
         (1) The lower limit of the specified time period for rebuilding is determined by the status and biology of the stock or stock complex and its interactions with other components of the marine ecosystem and is defined as the amount of time that would be required for rebuilding if fishing mortality were eliminated entirely.
         (2) If the lower limit is less than ten years, then the specified time period for rebuilding may be adjusted upward to the extent warranted by the needs of fishing communities and recommendations by international organizations in which the United States participates, except that no such upward adjustment can result in the specified time period exceeding ten years, unless management measures under an international agreement in which the United States participates dictate otherwise.
         (3) If the lower limit is ten years or greater, then the specified time period for rebuilding may be adjusted upward to the extent warranted by the needs of fishing communities and recommendations by international organizations in which the United States participates, except that no such upward adjustment can exceed the rebuilding period calculated in the absence of fishing mortality, plus one mean generation time or equivalent period based on the species' life-history characteristics. For example, suppose a stock could be rebuilt within twelve years in the absence of any fishing mortality, and has a mean generation time of eight years. The rebuilding period, in this case, could be as long as 20 years.
      (iii) Any new rebuilding program will commence as soon as the first measures to rebuild the stock or stock complex are implemented.
      (iv) Any pre-existing rebuilding plans will be reviewed to determine whether they are in compliance with all requirements of the Magnuson-Stevens Act. (Note: Only Pacific ocean perch falls into this category.)
   (c) For fisheries managed under an international agreement, Council action must reflect traditional participation in the fishery, relative to other nations, by fishermen of the United States.
   (d) For any stock that has been declared overfished, the open access/limited entry allocation shares may be temporarily revised for the duration of the rebuilding period by amendment to the regulations in accordance with the normal allocation process described in this FMP. However, the Council may at any time recommend the shares specified in chapter 12 of this FMP be reinstated without requiring further analysis. Once reinstated, any change may be made only through the allocation process.
   (e) For any stock that has been declared overfished, any vessel with a limited entry permit may be prohibited from operating in the open access fishery when the limited entry fishery has been closed.
6. (The first sentence is moved from 5 above and revised as follows). ~~These~~ *A*djustments to OY could include increasing OY above the default value up to the overfishing level as long as the management still allows achievement of *established rebuilding goals and objectives.* ~~the rebuilding specified in the National Standard Guidelines:~~ *In limited circumstances, t*hese adjustments could include increasing OY above the overfishing level as long as the harvest meets the standards of the mixed stock exception in the National Standard Guidelines: * * *

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5.3.6 Stock Rebuilding *Requirements*

As required by the Magnuson-Stevens Act within one year of being notified by the Secretary that a stock is overfished or approaching a condition of being overfished, the Council will prepare a recommendation to end the overfished condition and rebuild the stock(s) or to prevent the overfished condition from occurring. *A new rebuilding plan or revision to an existing plan proposed by the Council will be submitted to the Secretary along with annual management recommendations as part of the regular annual management process. Once approved by the Secretary, a rebuilding plan will remain in effect for the specified duration of the rebuilding program, or until modified. The Council will make all approved rebuilding plans available in the annual SAFE document or by other means.* The Council may recommend the Secretary implement interim measures to reduce overfishing until the Council's program has been developed and implemented.

The Council intends its stock rebuilding plans to provide targets, checkpoints and guidance for rebuilding overfished stocks to healthy and productive levels. The rebuilding plans themselves will not be regulations but principles and policies. They are intended to provide a clear vision of the intended results and the means to achieve those results. They will provide the strategies and objectives that regulations are intended to achieve, and proposed regulations and results will be measured against the rebuilding plans. It is likely that rebuilding plans will be revised over time to respond to new information, changing conditions and success or lack of success in achieving the rebuilding schedule and other goals. As with all Council activities, public participation is critical to the development, implementation and success of management programs.

5.3.6.1 Goals and Objectives of Rebuilding Plans

The goals of rebuilding programs are to (1) achieve the population size and structure that will support the maximum sustainable yield within the specified time period; (2) minimize, to the extent practicable, the social and economic impacts associated with rebuilding, including adverse impacts on fishing communities; (3) fairly and equitably distribute both the conservation burdens (overfishing restrictions) and recovery benefits among commercial, recreational and charter fishing sectors; (4) protect the quantity and quality of habitat necessary to support the stock at healthy levels in the future; and (5) promote widespread public awareness, understanding and support for the rebuilding program.

5.6.3.2 Contents of Rebuilding Plans

To achieve the rebuilding goals, the Council will strive to (1) explain the status of the overfished stock, pointing out where lack of information and uncertainty may require that conservative assumptions be made in order to maintain a risk-averse management approach; (2) identify present and historical harvesters of the stock; (3) develop harvest sharing plans for the rebuilding period and for when rebuilding is completed; (4) set harvest levels that will achieve the specified rebuilding schedule; (5) implement any necessary measures to allocate the resource in accordance with harvest sharing plans; (6) promote innovative methods to reduce bycatch and bycatch mortality of the overfished stock; (7) monitor fishing mortality and the condition of the stock at least every two years to ensure the goals and objectives are being achieved; (8) identify any critical or important habitat areas and implement measures to ensure their protection; and (9) promote public education regarding these goals, objectives and the measures intended to achieve them.

~~For a stock that is overfished, t~~The rebuilding plan will specify *any individual goals and objectives including* a time period for ending the overfished condition and rebuilding the stock *and the target biomass to be achieved. The plan will explain how the rebuilding period was determined, including any calculations that demonstrate the scientific validity of the rebuilding period. The plan will identify potential or likely allocations among sectors, identify the types of management measures that will likely be imposed to ensure rebuilding in the specified period, and provide other information that may be useful to achieve the goals and objectives.*

The Council may consider a number of factors in determining the time period for rebuilding, including:

1. The status and biology of the stock or stock complex.
2. Interactions between the stock or stock complex and other components of the marine ecosystem or environmental conditions.

3. The needs of fishing communities.
4. Recommendations by international organizations in which the United States participates.
5. Management measures under an international agreement in which the United States participates.

The lower limit of the specified time period for rebuilding will be determined by the status and biology of the stock or stock complex and its interactions with other components of the marine ecosystem or environmental conditions and is defined as the amount of time that would be required for rebuilding if fishing mortality were eliminated entirely.

If the lower limit is less than ten years, then the specified time period for rebuilding may be adjusted upward to the extent warranted by the needs of fishing communities and recommendations by international organizations in which the United States participates, except that no such upward adjustment may result in the specified time period exceeding ten years, unless management measures under an international agreement in which the United States participates dictate otherwise.

If the lower limit is ten years or greater, then the specified time period for rebuilding may be adjusted upward to the extent warranted by the needs of fishing communities and recommendations by international organizations in which the United States participates, except that no such upward adjustment can exceed the rebuilding period calculated in the absence of fishing mortality, plus one mean generation time or equivalent period based on the species' life-history characteristics. For example, if a stock could be rebuilt within 12 years in the absence of any fishing mortality, and has a mean generation time of eight years, the rebuilding period could be as long as 20 years.

In general, the Council will *also* consider the following questions in developing rebuilding plans.

1. What is the apparent cause of the current condition (historical fishing patterns, a declining abundance or recruitment trend, a change in assessment methodology, or other factors)?
2. Is there a downward trend in recruitment that may indicate insufficient compensation in the spawner-recruitment relationship?
3. Based on an comparison of historical harvest levels (including discards) relative to recommended ABC levels, has there been chronic over harvest?
4. Is human-induced environmental degradation implicated in the current stock condition? Have natural environmental changes been observed that may be affecting growth, reproduction, and/or survival?
5. Would reduction in fishing mortality be likely to improve the condition of the stock?
6. Is the particular species caught incidentally with other species? Is it a major or minor component in a mixed-stock complex?
7. *What types of management measures are anticipated and/or appropriate to achieve the biological, social, economic and community goals and objectives of the rebuilding plan?*

5.6.3.3 Process for Development and Approval of Rebuilding Plans

Upon receiving notification that a stock is overfished, the Council will identify one or more individuals to draft the rebuilding plan. If possible, the Council will schedule review and adoption of the proposed rebuilding plan to coincide with the annual management process. A draft of the plan will be reviewed and preliminary action taken (tentative adoption or identification of preferred alternatives), followed by final adoption at a subsequent meeting. The tentative plan or alternatives will be made available to the public and considered by the Council at a minimum of two meetings unless stock conditions suggest more immediate action is warranted. Upon completing it final recommendations, the Council will submit the proposed rebuilding plan or revision to an existing plan to NMFS for concurrence. In most cases, this will be concurrent with its recommendations for annual management measures. In addition, any proposed regulations to implement the plan will be developed in accordance with the framework procedures of this FMP. The Council may designate a state or states to take the lead in working with its citizens to develop management proposals to achieve the rebuilding. Allocation proposals require consideration at a minimum of three Council meetings, as specified in the allocation framework. Rebuilding plans will be reviewed periodically, at least every 2 years, and the Council may propose revisions to existing plans at any time, although in general this will be occur only during the annual management process.

NMFS will review the Council's recommendations and supporting information upon receipt and may approve, disapprove, or partially approve each rebuilding plan. The Council will be notified in writing of the NMFS decision. If NMFS does not concur with the Council's recommendation, reasons for the disapproval will be included in the notification. Once approved, a rebuilding plan will remain in effect for the length of the specified rebuilding period or until revised. Any revisions to a rebuilding plan must also be approved by NMFS.

ENVIRONMENTAL ASSESSMENT (EA) FOR AMENDMENT 12 TO THE PACIFIC GROUNDFISH FISHERY MANAGEMENT PLAN: PROCESS FOR DEVELOPING STOCK REBUILDING PLANS, AND PLAN CONTENTS

Prepared by the staff of the
Pacific Fishery Management Council

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1.0 INTRODUCTION

This document describes a proposed amendment (the 12th) to the Pacific coast groundfish fishery management plan (FMP). This proposed amendment addresses plans for rebuilding overfished groundfish stocks. Rebuilding measures were included in FMP Amendment 11 the Pacific Fishery Management Council (Council) completed late in 1998. That amendment included a definition of "overfished" and, according to the definition, the Secretary of Commerce (through its fishery management agency, the National Marine Fisheries Service, NMFS) notified the Council that three stocks meet the definition.

Official rebuilding plans are a new invention, and NMFS and the various councils are debating what form these plans should take, how the councils should prepare them, and other factors. Some of the questions are: should rebuilding plans be FMP amendments, regulations, or take some different status? Are there ways to avoid the cumbersome and time-consuming FMP amendment process and regulatory process? If so, what document would NMFS review and approve? What are appropriate administrative procedures? How can NMFS and the public be certain these plans will be appropriate and adequate and, when completed and approved, that the council will act in accordance with the plans over time?

The Council is firmly committed to rebuilding overfished groundfish stocks and intends to establish an efficient process to ensure its rebuilding plans are comprehensive, timely, flexible and successful. To accomplish these objectives, the Council intends to amend the FMP to provide clearer guidance for development of rebuilding plans, better describe the administrative procedures, and clarify its intentions to develop management proposals to implement the plans until the stock has fully recovered. In addition to this FMP amendment, the Council has already prepared and submitted rebuilding plans for the three stocks and has begun development of two additional plans. Management measures to implement the first three plans were included in the annual specifications published in the Federal Register on January 4, 2000. Those plans and management measures are discussed briefly in this document as examples of the types of measures that may be necessary to rebuild overfished stocks.

1.1 Background

The groundfish fisheries in the Exclusive Economic Zone (EEZ) offshore of Washington, Oregon, and California are managed by the Pacific Coast Groundfish Fishery Management Plan (FMP). The FMP was prepared by the Pacific Fishery Management Council (Council) under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). Actions taken to amend the FMP or implement other regulations governing the groundfish fisheries must meet the requirements of Federal laws and regulations. In addition to the Magnuson-Stevens Act, the most important of these are the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), Executive Order (EO) 12866, and the Regulatory Flexibility Act (RFA). NEPA, EO 12866 and the RFA require a description of the purpose and need for the proposed action as well as a description of alternative actions which may address the problem. However, in this case no regulations are proposed; this amendment to the FMP (Amendment 12) is intended to bring it into compliance with the Magnuson-Stevens Act by revising and clarifying the administrative procedures for preparing plans to rebuild overfished groundfish stocks.

The Magnuson-Stevens Act, as revised in 1996, contains a number of provisions pertaining to the content of FMPs and a requirement that all FMPs be updated so as to be consistent with those provisions by October 11, 1998. In early 1997, the Council reviewed the FMP and began the process to amend it as necessary to bring it back into compliance with new requirements. Among the provisions of that amendment were definitions of "overfishing" and "overfished." When NMFS approved those provisions, the agency notified the Council that three groundfish stocks are now determined to be overfished according to the amended FMP. The Magnuson-Stevens Act requires councils to prepare rebuilding plans within 12 months of such a notification. This document discusses options to address this mandate.

Section 303 of the Magnuson-Stevens Act, titled "Contents of Fishery Management Plans," lists the required provisions each FMP must contain or address. The specific provision addressed in this FMP amendment is

(10) specify objective and measurable criteria for identifying when the fishery to which the plan applies is overfished (with an analysis of how the criteria were determined and the relationship of the criteria to the reproductive potential of stocks of fish in that fishery) and, ***in the case of a fishery which the Council or the Secretary has determined is approaching an overfished condition or is overfished, contain conservation and management measures to prevent overfishing or end overfishing and rebuild the fishery;*** (emphasis added)

The Secretary of Commerce has established advisory guidelines, based on the Magnuson-Stevens Act's "National Standards," to assist in this process of developing FMPs and FMP amendments. The final rule revising the national standard guidelines was published in the Federal Register on May 1, 1998.

1.2 Council Decision Process and Public Hearings

On March 3, 1999, the Council was notified that Amendment 11 to the groundfish FMP had been approved and that according to the FMP's revised definition of "overfished" stocks, three species met the criteria and must be rebuilt. With the help of NMFS and the authors of the recent assessments for these three species, the Council began developing the information necessary for developing rebuilding plans. At its June 1999 meeting, the Council reviewed preliminary scientific analyses of current stock condition, maximum sustainable yield (MSY) stock size, and the time period required to allow each of the three stocks to rebuild. The Council also held discussions with NMFS and the public about what a rebuilding plan would look like, since the Council had never prepared one under the new legal requirements. A range of opinions was discussed, from requiring an FMP amendment each time a rebuilding plan is prepared or revised, to informal procedures that avoid "red tape." However, opinions appear to be nearly unanimous that (1) rebuilding plans are necessary and appropriate, (2) the public should be involved in their development, (3) the best science should provide the basis for determining the necessary harvest reductions, (4) that rebuilding plans should not disrupt traditional fishing more than necessary, and (5) that the needs for fishing sectors and fishing communities should be considered and, if necessary, conservation burdens and benefits should be shared equitably.

2.0 DEVELOPMENT OF REBUILDING PLANS FOR OVERFISHED GROUNDFISH STOCKS

2.1 Purpose and Need for Action

The Magnuson-Stevens Act and National Standard Guidelines state that within one year of notification that a stock is overfished, the Council must prepare and submit a rebuilding plan for the stock. Amendment 11 echoed most of the provisions of the Magnuson-Stevens Act and guidelines but did not clearly specify the administrative procedures to develop and approve these plans, nor did it establish clear goals and objectives or describe the contents of rebuilding plans. The Council has already prepared and submitted rebuilding plans for three stocks (bocaccio in California, Pacific ocean perch primarily in Oregon and Washington, and lingcod along the entire coast) that meet the criteria of "overfished." The Council is also preparing plans for two additional species (cowcod and canary rockfish) which will be completed and submitted around December 2000.

2.2 Alternatives Including Proposed Action

Alternative 1 (Status quo or no action). Do not amend the FMP. The Council will prepare rebuilding plans as stated in the FMP, during the annual management process. OY recommendations will be consistent with the Council's rebuilding plans. Allocations and other non-routine measures will be implemented though the appropriate rule-making process. No regulations are proposed at this time.

Alternative 2 (Framework amendment). The Council will prepare a plan amendment that clarifies the process for preparing and approving rebuilding plans. Rebuilding goals and objectives will be included in the FMP; the open access allocation for each overfished stock may be suspended for the duration of the plan but may be reinstated without FMP or regulatory amendment. Individual rebuilding plans are expected to be submitted to NMFS along with the Council's annual management recommendations. NMFS may approve, disapprove, or partially approve a rebuilding plan; whatever the decision, the Council will be informed in writing, including any reasons for not concurring with the Council's recommendations. Rebuilding plans may be revised through the same process, and will remain in effect for the duration of the rebuilding period or until revised. The Council will make available its proposed rebuilding plans and those approved by NMFS in the SAFE document or by similar means. Any non-routine management measures will be implemented through the appropriate rule-making process. No regulations are proposed at this time.

2.3 Synopsis of Alternatives

Alternative 1 is simpler and less formal for both the Council and NMFS. The FMP currently says whenever the Council is notified or believes a stock is overfished, it will develop a rebuilding plan as part of annual management process. Under this option, a rebuilding plan is neither part of the FMP nor a regulation. Rather, it may be a Council policy statement or other classification. The FMP also says "The recommended numerical OY values will include any necessary actions to rebuild any stock determined to be below its overfished/rebuilding threshold and may include adjustments to address uncertainty in the status of the stock." Thus, NMFS will have to approve or disapprove the Council's overall harvest recommendations for each overfished stock on an annual basis. If NMFS believes the recommended OY is inconsistent with the rebuilding plan, including the plan's goals, objectives and schedules, the RA could disapprove the recommended OY. This approach may not provide the certainty and continuity NMFS is seeking.

Alternative 2 would be similar to Alternative 1 but would establish clearer procedures for developing rebuilding plans and would establish general rebuilding goals and objectives. It would authorize suspension of the open access allocation share, but would require regulatory amendment to establish a different percentage. Alternative 2 would clarify the procedure for NMFS to review and approve each rebuilding plan or plan revision and specify that each plan will remain in effect from year to year. It would describe the contents of rebuilding plans, procedures for preparing them, and provide a clearer statement that OYs and other Council management recommendations will be consistent with the rebuilding plan.

2.4 Background

There are strong opinions and disagreements about rebuilding plans for west coast groundfish stocks, due in large part to the absence of adequate information about how many fish are in the ocean, how much the populations have changed over the years, and what has caused abundances to decline. Stock assessments for west coast groundfish are typically based on several sources of information that often conflict. The primary data source is usually the series of surveys conducted by NMFS to determine population trends over the years. Unfortunately, these surveys have been conducted infrequently and do not measure abundance of some species (especially rockfish) as well as we would like. Some people tend to believe the survey information more than other sources of information that may not be "scientifically validated." Other people, especially fishers who may frequently encounter these species and may have many years of their own personal experience and observations, may tend to disbelieve survey information that conflicts with their observations. When a new stock assessment indicates a stock is overfished, the absence of undisputed information becomes a much more serious problem.

While there may be general agreement about the condition of a stock, which is the case with bocaccio and POP, it is extremely difficult to decide how best to protect the overfished stock. The magnitude of catch reductions necessary is likely to severely disrupt individual fishers, communities, and even entire fishing sectors. As a stock declines, it is less likely to be encountered by individual fishers. However, it may be impossible to avoid bycatch of an overfished stock in the course of fishing for non-overfished ones. In order to achieve the rebuilding schedule, it may be necessary to curtail fishing for healthier stocks in some areas or to restrict some gears more than others.

2.5 Environmental Consequences

A stock that has declined in abundance to the degree it triggers the overfished definition is in trouble and needs protection from fishing pressure. At the same time, an industry that depends on such a stock may also be suffering due to the harvest opportunity that has already been lost. Therefore, rebuilding plans must deal with both biological and socioeconomic issues. The biological components of a rebuilding plan include estimation of the time it would take the stock to fully recover in the absence of all fishing, that is a complete cessation of mortality from fishing gear and activities. This evaluation may be based mainly on theory, because many aspects of most species' life histories are poorly understood and unpredictable. For example, environmental conditions such as water temperature may improve or impede reproductive success. Abundance of predators or competitors will affect recovery rate. The species' inherent productivity and longevity are only estimated, and estimates are likely overly optimistic or overly pessimistic. The current condition and MSY stock size are typically only rough estimates. The stock's response to harvest protection will depend on environmental factors beyond human control. Frequent adjustments may be necessary in response to the measured progress, and the Council intends to review the progress every two years.

Groundfish species are not distributed evenly along the coast; there are "hot spots" and areas that have few of any given species. Therefore, the burdens of rebuilding will affect different geographic areas differently. Likewise, fishers using different fishing strategies will be affected differently.

2.5.1 Socioeconomic Impacts

Neither the status quo nor the preferred alternative has direct regulatory impacts; each merely describes the process the Council will adhere to in developing rebuilding plans for overfished stocks. However, any rebuilding plan will require fishing restrictions to reduce harvests. Stock protection measures will impose impacts on the industry and may result in severe economic hardship. If the geographic distribution of the overfished stock and the extent of its decline are small, it may be possible to soften the extent and intensity of economic impacts. In cases of severe stock depletion, widespread harvest restrictions may be necessary, not just for the overfished stock but also for other species that inhabit similar habitats. The Council intends to allocate the conservation burdens in an equitable manner, which will often require allocation of fishing privileges among various fishing sectors, geographic regions or time periods. To the extent possible, the impacts and tradeoffs will be evaluated before regulatory actions are taken. However, in many cases the

extent of social and economic impacts will unfold over time and may be only crudely estimated in advance.

Although neither of the alternatives is regulatory in nature, the following discussion is provided to provide an example of how rebuilding plans under either alternative may affect the human environment in the future.

2.5.1.1 Example: Year 2000 management measures to begin the rebuilding process for lingcod, bocaccio and canary rockfish

Although canary rockfish was not declared overfished until January 2000, in November 1999 the Council adopted management measures to ensure its protection from further overfishing. The management strategy adopted by the Council separates the major rockfish stocks from the *Sebastes* complex and divides the remaining species into assemblages. The intent is to bring harvest levels more closely in line with the ABCs for individual species and the various rockfish groups. In previous years, the single OY for the *Sebastes* complex inadvertently created an opportunity to overharvest some (generally higher-valued or more easily caught) species in the complex rather than spreading harvest over the entire complex. In effect, the ABCs for some species were subsidizing other species. By grouping the species differently and establishing management measures for each group, the Council intends to maintain fishing opportunities for abundant stocks while improving protection for depleted ones. Most of the stocks known to be overfished or depleted are shelf species, and the new strategy provides a way to reduce harvest of shelf species while allowing continued fishing for other species. In Washington and Oregon, recreational fishers primarily target nearshore stocks, with a lower level of fishing for shelf species and virtually no fishing for slope species. Therefor, most of the anticipated recreational harvest is deducted from the nearshore rockfish component, with the remainder deducted from the shelf component. In California, recreational catch spreads from the nearshore component into the shelf component. Deducting recreational harvest from the minor nearshore and shelf rockfish categories leaves less for the commercial sectors, especially with respect to nearshore rockfish. The strategy is expected to spread fishing effort more appropriately over the various stocks, but it will likely impact open access and limited entry nontrawl fishers more than some other groups since they have been the primary commercial harvesters of nearshore stocks. Although a greater portion of the shelf rockfish category is provided to the commercial sectors, the occurrence of depleted and overfished stocks in continental shelf areas results in limited fishing for those species and co-occurring species.

The FMP specifies that commercial (limited entry and open access) allocations are determined after the anticipated recreational harvest levels have been deducted from the total optimum yield. The Council may make specific allocations between the recreational and commercial sectors and within sectors as well. For the year 2000, the Council did not specify allocation shares, but rather took a more general approach. To achieve the necessary harvest reductions, the Council approved measures to reduce the overall recreational harvest of bocaccio and lingcod, determined the amount of reduction expected from the measures, and then allocated the remainder among limited entry and open access sectors. The reductions were not necessarily proportional between the sectors, but the Council believes they were fair and equitable.

Recreational fisheries examples Each of the three coastal states proposed measures to reduce recreational catch in its waters, and the Council generally endorsed those proposals. This resulted in different restrictions from state to state. However, similar catch reductions are intended and expected in each state. The states and the Council considered the tradeoffs between shortened seasons, reduced bag limits, size limits, and area restrictions.

Washington recreational fishery example The following is a summary of the recreational measures the Council adopted for next year.

- For lingcod, the open season is April 1 through October 31 with a bag limit of 1 fish, minimum size limit of 24 inches.
- Fishing for rockfish is allowed all year, with a 10-fish bag limit of which no more than 2 fish may be canary rockfish and no more than 2 fish may be yelloweye rockfish.

The recreational fishery for lingcod is closed 5 months in order to achieve the necessary catch reduction. The closure generally corresponds with the nest-guarding period when lingcod eggs and male lingcod are

particularly vulnerable. The magnitude of catch reduction that will result from the canary rockfish sub-limit is not clear. Previous recreational bag limits allowed fishers to take 10 canary rockfish, but fishers rarely caught that many. The main benefit of the sub-limit may be to discourage fishers from targeting canary rockfish.

Oregon recreational fishery example

- Fishing for lingcod and rockfish will be allowed all year.
- The rockfish bag limit will be reduced to 10 of which no more than 3 may be canary rockfish.
- For lingcod, the bag limit will be 1 fish with a minimum size limit of 24 inches and maximum size of 34 inches.

Oregon was able to maintain a year-round recreational season by imposing a "slot limit" for lingcod, that is, a minimum and maximum size. The necessary catch reduction results from the 34 inches maximum size.

California recreational fishery example

- The rockfish and lingcod season will be closed south of 36° N latitude (near Point Lopez) during January and February; between 36° N latitude and 40°10' N latitude (near Cape Mendocino), the rockfish and lingcod season will be closed during March and April.
- For lingcod, the bag limit will be 2 per day with a minimum size of 26 inches.
- For rockfish, the bag limit will be 10 per day of which no more than 3 each may be bocaccio or canary rockfish and not more than 1 cowcod per angler, but not over 2 cowcod per boat.
- Not more than 3 hooks per angler may be used while fishing for rockfish or lingcod, and the entire skin must remain on rockfish fillets that are filleted at sea; no filleting of cabezon at sea will be allowed.

The following minimum size limits will be in effect for recreational fishing in California: bocaccio - 10 inches; cabezon - 14 inches; greenling - 12 inches; and sculpins (family Scorpaenidae) - 10 inches. These size limits are the same as those for the commercial fishery.

Limited entry trawl fishery example In order to reduce harvest of shelf rockfish species, the Council endorsed an idea proposed by limited entry commercial fishing industry representatives to restrict the use of bottom trawls with large rollers on the footrope. The footrope of a bottom trawl is the line along the bottom front edge of the net that contacts the ocean floor. In recent years, innovative limited entry trawl fishers learned that, by stringing large rollers on their footropes, they could pull their nets over rocky terrain without snagging. Without the protection of such rollers, trawls cannot be fished as effectively in the rocky areas where canary rockfish and lingcod live. The Council chose to prohibit vessels that use large footropes, defined as more than 8 inches maximum diameter, from landing nearshore and shelf rockfish and most flatfish species. The Council also recommended that chafing gear to protect the bottom of trawl nets be prohibited. (Chafing gear is material that protects the trawl from abrasion and tearing on rough areas of the ocean floor.) Although limited entry trawl vessels are not prohibited from using large footropes in nearshore and continental shelf areas, they are not allowed to retain and sell most of the fish they might catch there. The Council believes this will provide enough disincentive to prevent inappropriate trawl activity in these areas and effectively reduce both catch and bycatch of shelf rockfish species. Any trawls, including those with footropes larger than 8 inches diameter, may be used to harvest a limited number of species that inhabit the deeper areas of the shelf and continental slope, primarily Dover and rex soles, thornyheads, sablefish, and deep-water rockfish. During some periods, large-diameter footrope trawls may also be used for arrowtooth flounder and petrale sole.

Another part of the strategy to allow commercial limited entry harvest of relatively abundant stocks without impacting depleted ones involves the use of midwater or pelagic trawls. Midwater trawls are pulled through the water column, usually without touching the bottom. These nets are very effective for catching species that live above the ocean floor, such as Pacific whiting and widow rockfish. Current restrictions ensure these nets may not be fortified for fishing on the bottom. Bottom trawl nets can also catch widow rockfish, but typically canary and yellowtail rockfish are caught at the same time. The Council believes the only way the

widow rockfish OY can be caught without impacting canary rockfish is with midwater trawl gear. Midwater gear may also be the best way to harvest yellowtail rockfish without harming canary rockfish.

Fishers will need to alter their fishing strategies as well as change gear. In order to comply with these regulations and continue fishing for other species on the continental shelf, many trawl fishers will modify their trawl nets. This means either replacing all rollers on the footrope that are larger than 8 inches in diameter or totally replacing the footrope. Those limited entry trawl vessels that did not have midwater nets would choose to obtain it or forego the larger trip limits for widow, chilipepper and yellowtail rockfish. In many cases, purchase of midwater gear would not be practical. Not all vessels have sufficient horsepower and electronic gear to fish midwater nets effectively. In some cases, the vessel may not be near enough to adequate densities of midwater species to make gear purchases cost effective. Others may not have capital available to purchase this expensive gear.

Vessels that target primarily continental slope species (e.g., the Dover sole, thornyheads and trawl-caught sablefish complex) and already have midwater trawl gear would tend to be less affected than vessels that have traditionally targeted nearshore and/or shelf rockfish species. Also, vessels with permits to fish non-groundfish species such as pink shrimp and Dungeness crab would be less affected.

The management strategy for 2000 will require trawl fishers to make a conscious effort to avoid species of concern. A number of small trip limits have been established to provide for unavoidable bycatch, but these would not provide enough revenue for profitable fishing. If fishers treat these bycatch allowances as targets, discard mortality would increase and thwart the conservation efforts.

Limited Entry Fixed-gear (Non-trawl) Fisheries example

Most limited entry fixed-gear vessels primarily target sablefish with some incidental catch of other species. These fisheries seldom take any of the overfished species, and have the same trip limits as the limited entry trawl sector, with the exception of sablefish.

Open access fisheries example

The commercial open access fishery operates primarily in nearshore and shelf areas and includes vessels that use a wide variety of mobile and stationary gears. Among the gear types used are various vertical hook-and-line gears, trolled hook-and-line gear, fixed longline gear, pot gear, and non-groundfish trawl gears. Lingcod and many species of rockfish are extremely susceptible to hook-and-line gear. In some cases, hook-and-line gears can be used to selectively harvest a single species or group of closely associated species. However, such selective harvest requires specific gear and expertise. Due to the small open access allocations in 2000, open access trip limits are much smaller than in previous years.

2.5.2 Socioeconomic Summary

Rebuilding overfished stocks will require sacrifices by all harvesters during the rebuilding period. It is likely that measures will be necessary to allocate the conservation burdens among the various sectors that participate in harvesting the overfished stock and, possibly, to ensure the benefits of rebuilding are shared equitably.

The alternatives under consideration, including the status quo, have no regulatory effect and are only administrative and procedure in nature. The Council does not expect any economic impacts from any of the FMP amendment alternatives themselves; it is the regulations and other management measures that will cause economic impacts. However, there may be more or less confusion about the goals and procedures under the various alternatives, and the administrative costs of preparing rebuilding plans will differ. Likewise, there is no direct impact on groundfish populations, the ecosystem or the marine environment. The Council would likely develop similar or identical rebuilding plans and harvest limits under all the alternatives, including the status quo.

2.5.3 Physical and Biological Impacts

The environmental impacts generally associated with fishery management actions are effects resulting from (1) harvest of fish stocks which may result in changes in food availability to predators and scavengers, changes in the population structure of target fish stocks, and changes in the marine ecosystem community structure; (2) changes in the physical and biological structure of the marine environment as a result of fishing practices, e.g., effects of gear use and fish processing discards; and (3) entanglement/entrapment of non-target organisms in active or inactive fishing gear.

Amendment 11 established an OY "control rule" (Figure 1) that includes a default interim rebuilding plan for stocks with biomass smaller than the established overfished/rebuilding threshold (the proxy is 25% of the estimated unfished stock size or reproductive potential). This default interim rebuilding adjustment is intended to be in effect until a formal rebuilding plan is developed. One consideration is that formal rebuilding plans will attempt to phase into the default OY rule when the stock exceeds the rebuilding threshold, maintaining the intention to rebuild within the approved schedule.

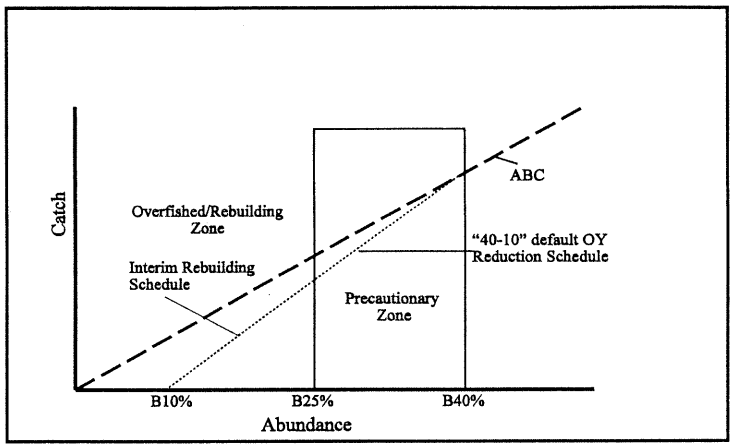

Figure 1. Illustration of interim rebuilding rule compared to ABC and default OY rules.

Alternative 1. Under the status quo alternative, the Council would develop rebuilding plans in accordance with the Magnuson-Stevens Act. The intended effect would be to immediately prevent further depletion of the overfished stock and reduce human fishing impacts to the extent the stock may recover as quickly as possible (within 10 years, if possible, in accordance with the National Standard Guidelines). The length of each rebuilding program will depend on the inherent productivity of the species, environmental conditions (including availability of prey and habitat, abundance of predators, water temperature, etc.), and fishing. Of these, fishing often has the smallest impact but is the only factor the Council and NMFS can control. Reduced fishing will reduce any effects of fishing gear on the physical structure of the ocean floor, such as overturned rocks and boulders, crushed and dislodged benthic creatures such as corals and anemones, and suspension and redisposition of sediments.

Alternative 2. Under the preferred alternative, the same impacts on the physical and biological environment are anticipated (both type and quantity).

2.5.4 Administrative, Research and Funding Impacts

The research and management agencies will need to develop better information on the condition of the overfished stock and to monitor changes in stock condition over time. Every two years there must be a review and evaluation of the program to ensure the rebuilding time period and other objectives are achieved. The requirement to evaluate stock condition every two years will severely strain the stock assessment resources available to the west coast management process. Typically, stocks are assessed in a three year rotation pattern, and the assessment program is strained to the max already. Currently, three species have been classified as overfished, and two more are expected in the 1999 assessments. It is very possible the assessment resources could become consumed by reassessing overfished stocks every year with no time to evaluate the condition of other stocks, some of which may be overfished also. The data collection programs must be substantially improved and expanded to provide the data necessary to monitor progress without bogging down the entire management process.

2.6 Summary

The primary social effect of Alternative 2 in the short term might be intangible benefits from a clearer, more consistent policy for setting harvest levels.

3.0 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

This assessment has been prepared according to 40 CFR 1501.3, 1508.27, and 1508.9 and National Oceanic and Atmospheric Administration (NOAA) Administrative Order 216-6 in order to determine whether an Environmental Impact Statement is required for any major action that will have a significant impact on the quality of the human environment. An EIS is not required if the EA concludes that there is no significant impact.

The need for action, alternatives, and impacts are covered in Section 2 of this document. No immediate regulatory change is anticipated under either alternative.

The implementation of proposed changes to the groundfish FMP would not be a major action having significant impact on the quality of the marine or human environment of the West Coast. Mitigating measures related to such changes would be unnecessary. No unavoidable, adverse impacts on protected species, wetlands, or the marine environment would be expected to result from the recommended action.

Section 1508.27 of the CEQ Regulations lists ten specific points to be considered in determining whether or not impacts are significant. These ten points cover the five criteria for non-significance listed in Section 6.11 of NOAA Administrative Order 216-6.

Beneficial and Adverse Impacts

Over the short term there will be some adverse economic impacts resulting from the reductions in harvest levels, however, over the long terms benefits are expected to be greater than would have occurred if higher harvest levels had been maintained.

Neither of the alternatives would jeopardize the productive capability of the target resource species or any related stocks. In general, the Council's actions are directed at preventing overfishing and maintaining optimum yield. The Council relies on the best scientific information available, which typically comes from stock assessment documents prepared each year by various authors and the advice of its GMT and SSC. Short-term harvest reductions may result in some shift of effort onto other species. Vessels may seek to make-up any short-term reduction in revenue with effort increases in other fisheries. These effort shifts are expected to be monitored and controlled either as part of the management program for groundfish or other state and federal management programs for the species to which effort is redirected.

Public Health or Safety

The proposed actions are not expected to adversely impact public health or safety.

Unique Characteristics

The proposed actions are not expected to have any significant adverse impact on unique characteristics of the area such as historic or cultural resources, park lands, wetlands, or ecologically critical areas.

Controversial Effects

The proposed actions are not expected to involve significant controversial issues for the broader public. The reductions in biomass indicated by recent stock assessments are being challenged by some fishery participants; harvest reductions that are likely to result from rebuilding plans are likely to exacerbate this situation. On the other hand, a different sector of the public has supported more conservative management

to ensure that overfished stocks are rebuilt as quickly as possible, that no overfishing be allowed, and that rebuilding plans place the needs of the fish as the highest priority.

Uncertainty or Unique/Unknown Risks

The proposed actions would not be expected to have any significant effects on the human environment that are highly uncertain or involve unique or unknown risks.

Precedent/Principle Setting

The proposed actions are not expected to have any significant effects in establishing a precedent and do not include actions which would represent a decision in principle about a future consideration.

Relationship/Cumulative Impact

The proposed actions are not expected to have any significant cumulative impacts that could have a substantial adverse effect on the fishery resources or any related resource.

Historical/Cultural Impacts

The proposed actions are not expected to have any significant effects on historical sites listed in the National Register of Historic Places and will not result in any significant impacts on significant scientific, cultural, or historic resources.

Interaction with Existing Laws for Habitat Protection

The proposed actions are not expected to have any significant interaction which might threaten a violation of Federal, state, or local law or requirements imposed for the protection of the environment. The proposed action has no direct effect on ocean or coastal habitat.

3.1 Other Applicable Law

3.1.1 Endangered Species Act (ESA)

NMFS issued Biological Opinions under the ESA on August 10, 1990, November 26, 1991, August 28, 1992, September 27, 1993, and May 14, 1996 pertaining to the impacts of the groundfish fishery on Snake River spring/summer chinook, Snake River fall chinook, and Sacramento River winter chinook. The opinions concluded that implementation of the FMP for the Pacific Coast Groundfish Fishery is not expected to jeopardize the continued existence of any endangered or threatened species under the jurisdiction of NMFS, or result in the destruction or adverse modification of critical habitat. Each alternative is within the scope of these consultations. Because the impacts of this action fall within the scope of the impacts considered in these Biological Opinions, NMFS has determined that additional consultations are not required for this action. In addition, coho salmon south of Cape Blanco, Oregon, have been listed as threatened (northern California/southern Oregon) and endangered (central California) under the ESA; steelhead have been listed as threatened (Snake River Basin/central California/south-central California) and endangered (upper Columbia River/southern California) under the ESA. Neither alternative, including the status quo, will affect coho salmon or steelhead.

3.1.2 National Environmental Policy Act (NEPA)

NMFS initially has determined that implementation of either alternative for this issue would not significantly affect the quality of the human environment, and therefore preparation of an environmental impact statement is not required by Section 102(C) of NEPA or its implementing regulations.

3.1.3 Executive Order 12866 (EO 12866)

No rule has been proposed under the preferred alternative, and therefore EO 12866 is not relevant.

3.1.4 Regulatory Flexibility Act (RFA)

No rule is proposed in conjunction with this action. However, rebuilding plans under either alternative would require federal implementing regulations, which will be evaluated at that time. The following discussion is not immediately relevant to the proposed action, but provided for an overview of impacts that may occur from future related actions.

An RIR also is designed to determine whether a proposed rule has a "significant economic impact on a substantial number of small entities" under the RFA. The purpose of the RFA is to relieve small businesses, small organizations, and small governmental entities from burdensome regulations and record keeping requirements. If the proposed action meets both the "significant" and "substantial" criteria, preparation of an Initial Regulatory Flexibility Analysis (IRFA) is required.

No immediate regulatory change is anticipated from the proposed amendment to the groundfish FMP. The category of small businesses potentially affected by future regulations to rebuild overfished stocks is virtually the entire groundfish fishery, including the catcher/processor fleet of ten vessels that operates only in the offshore whiting fishery. An example of the types of impacts that may be expected when rebuilding plans are developed and implemented was discussed above in section 2.5.1, particularly 2.5.1.1. An IRFA is conducted to make a preliminary determination as to whether a proposed action would have a "significant economic impact on a substantial number of small entities." In addition, an IRFA provides an estimate of the number of small businesses affected, a description of the small businesses affected, and a discussion of the nature and size of the impacts.

Section 8 describes the vessels that participate in the groundfish fishery. For the purposes of the RFA, all fishing vessels that operate in the Pacific groundfish fishery would be considered "small entities," with the exception of the 10 catcher/processors in the Pacific whiting fishery. Shore-based groundfish processors also may be considered "small entities." Motherships operating in the whiting fishery are not small businesses; they are floating processing facilities that do not harvest groundfish. (The Small Business Administration defines a small business in the commercial fishing activity as a firm with receipts of up to $2 million annually (thus eliminating at-sea processing vessels) and a processor with fewer than 500 employees. The average at-sea processor during 1991 earned $33 million in revenues from pollock, whiting, cod and other species and so does not meet the definition of a "small entity.") Therefore, all but 10 vessels operating in the groundfish fishery off Washington, Oregon, and California would be considered small businesses, and these 2,260 vessels (478 limited entry + 1,792 open access - 10 catcher/processors) would be considered the universe for purposes of an analysis under the RFA.

The proposed FMP amendment is required under the mandate of the Magnuson-Stevens Act, and regulations to implement rebuilding plans could affect a maximum of 2,270 vessels. Of these, approximately 2,260 (almost 100%) are considered small entities.

Substantial number of small entities. Under the FMP's license limitation (limited entry) program, approximately 468 vessels landed groundfish shoreside in 1996, and approximately 1,792 vessels operated in the open access fishery, for a total of 2,260 small businesses. An undetermined number also participate in recreational fisheries. In general NMFS has indicated that a "substantial number" of small entities to be more than 20% of those small entities engaged in the fishery. In this case, all vessels participating in the groundfish fishery potentially could be affected by rebuilding plans, depending on the species identified as overfished and harvest reductions necessary to rebuild them to maximum sustainable levels.

Significant economic impacts. Economic impacts on small business entities are considered to be "significant" if the proposed action would result in any of the following: (a) reduction in annual gross revenues by more than 5%; (b) increase in total costs of production by more than 5% as a result of an increase in compliance costs; (c) compliance costs as a percent of sales for small entities are at least 10%

higher than compliance costs as a percent of sales for large entities; (d) capital cost of compliance represent a significant portion of capital available to small entities, considering internal cash flow and external financing capabilities; or, (e) as a rule of thumb, 2% of small business entities being forced to cease business operations. There is no rule proposed in conjunction with this action, and therefore this is not a directly relevant issue. However, rebuilding plans are required under the Magnuson-Stevens Act. Regulations implementing such plans, whether developed under the status quo or preferred alternative, are likely to be significant as defined in (a) and (e). It is likely many small businesses will see reduction in annual gross revenues by more than 5%, and it is likely that more than 2% of small business entities will be forced to cease business operations. The Council is supportive of ongoing efforts by various state and federal agencies to mitigate the social and economic impacts of regulations necessary to rebuild overfished stocks.
Section 2.5 presents the potential impacts which would be used in making determinations under the RFA. Many small businesses could experience greatly reduced income because the amount available for harvest will be reduced in order to hasten stock recovery. Vessels that routinely depend on overfished species, or that take overfished species incidentally to normal fishing operations, are expected to be affected most severely.

3.1.5 Paperwork Reduction Act (PRA)

The proposed FMP amendment contains no collection-of-information requirement subject to the PRA.

3.1.6 Coastal Zone Management Act (CZMA)

Either of the alternatives considered would be implemented in a manner that is consistent to the maximum extent practicable with applicable State coastal zone management programs. NMFS will corresponded with the responsible State agencies under Section 307 of the CZMA to obtain their concurrence in this finding.

3.1.7 Executive Order 12612 (EO 12612)

This action does not contain policies with federalism implications sufficient to warrant preparation of a federalism assessment under EO 12612.

3.2 Coordination and Consultation

Measures to reduce recreational and commercial fishing in order to initiate the rebuilding programs were discussed and endorsed by the Council at it's the November 1999 meeting in Sacramento, California.

Finding of no Significant Impact

For the reasons discussed in this document, neither implementation of the proposed action nor the status quo would significantly affect the quality of the human environment, and the preparation of an environmental impact statement on the final action is not required by Section 102 (2)(C) of NEPA or its implementing regulations.

_____

Assistant Administrator for Fisheries Date

4.0 LIST OF PREPARERS

This document was prepared by the Council staff with contributions from NMFS scientists and managers, in consultation with NOAA General Counsel, Northwest Region:

Mr. Jim Glock, Pacific Fishery Management Council

REBUILDING PLANS FOR CANARY ROCKFISH AND COWCOD

Situation: In 1999, stock assessments were prepared for canary rockfish (coastwide) and cowcod (Conception area) that indicated these two stocks have fallen into overfished status. In early January 2000, National Marine Fisheries Service (NMFS) notified the Council of its responsibility to prepare rebuilding plans for each stock. These plans must be completed within one year. Although the technical analyses for these rebuilding plans have not yet been prepared, the Council needs to begin considering the elements to be included in the plans and the process for developing them. In order to avoid resorting to emergency rulemaking to implement the plans, the Council may need to take final action in September. If the Council wishes to consider allocating either stock among the various harvest sectors, the issue must be discussed at a minimum of three Council meetings. Based on Council discussions at the March 2000 meeting about canary rockfish catches in the pink shrimp fishery, it appears allocation may be a part of the canary rockfish plan.

The Council will need to adopt a process and schedule for these required rebuilding plans. Draft rebuilding analyses for these two stocks are expected to be available at the June 2000 meeting. Until then, the Council could consider the rebuilding harvest levels will be similar to the current acceptable biological catches and optimum yields. Questions that should be considered at this time include:

- Who will work with the various constituent groups and begin the necessary outreach programs?
- Will state-to-state allocations be necessary?
- Is it possible that seasons or area management will be appropriate?

Council Action:

1. Adopt draft process and schedule for preparing canary rockfish and cowcod rebuilding plans.

Reference Materials:

1. Proposed schedule for developing rebuilding plans for canary rockfish and cowcod (Supplemental Attachment B.10.a.).

PFMC
03/20/00

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON REBUILDING PLANS FOR CANARY ROCKFISH AND COWCOD

The Groundfish Advisory Subpanel (GAP) discussed with Council staff the proposed schedule for developing and implementing rebuilding plans for canary rockfish and cowcod. The GAP recognizes the need to comply with statutory provisions on rebuilding and agrees the time schedule provided will be necessary. However, the GAP recommends that any management actions taken under the rebuilding plan not go into effect until the beginning of the 2001 season. The GAP understands this is the intent of the schedule.

PFMC
04/05/00

SCIENTIFIC AND STATISTICAL COMMITTEE STATEMENT ON REBUILDING PLANS FOR CANARY ROCKFISH AND COWCOD

The Scientific and Statistical Committee (SSC) discussed the proposed schedule for development of rebuilding plans for canary rockfish and cowcod. Supplemental Attachment B.10.a. was not available for review, but Mr. Jim Glock was present to brief the SSC on this schedule.

The canary rockfish and cowcod rebuilding plan authors will be performing the analyses and drafting technical reports for review at the June Council meeting. Since the Council will need to take final action on these rebuilding plans in September, the SSC emphasizes these draft plans should be completed in time for adequate review prior to the June meeting. The SSC's Groundfish Subcommittee would like an opportunity to review the draft rebuilding plans prior to the June meeting, with inclusion in the June Council meeting Briefing Book as an absolute deadline. In addition, the SSC would like the authors to present their analyses to the committee at the June meeting.

The SSC also discussed the status and schedules for lingcod, Pacific ocean perch, and any other species that may fall into the overfished category and require a rebuilding plan. Results from new assessments should be incorporated into rebuilding projections, and any modifications to rebuilding plans for these species should be reviewed by the SSC either at the June or September Council meetings.

PFMC
04/05/00

PROPOSED PROCESS AND SCHEDULE FOR DEVELOPING REBUILDING PLANS
FOR COWCOD AND CANARY ROCKFISH

When	What	Who
April Council meeting	Identify allocation issues, components of rebuilding plans, and fishing sectors involved	Council
	Identify who will work with constituent groups	Council
	Identify components of plans, including general management proposals	GAP, GMT, Council
	Schedule state meetings, if appropriate	States
May - June	Initial constituent meetings/workshops	States?
June Council meeting	Review preliminary technical analysis and preliminary estimate of OY	SSC
	Feedback from state workshops	states, to Council
	Refine alternatives/proposals; guidance to plan drafters	Council
July - September	Complete analysis of alternatives/proposals	GMT/states
	Complete review of technical analysis	SSC/ GMT
	Additional constituent meetings, if appropriate	States
September Council meeting	Final Council action on proposed implementing regulation package (including allocations and economic analysis)	Council
	Identify routine management measures that may be considered	Council
	Final action on rebuilding plans, if completed	Council
early October	Send proposed regulation package (if any) to NMFS	staff
November Council meeting	Final adoption of rebuilding plans; approve routine management measures to implement plans	Council
October - December	Implementation of regulations and annual specifications/ routine measures	NMFS

PFMC
04/04/00

STATUS OF GROUNDFISH STRATEGIC PLAN

Situation: At the March meeting, the Ad-Hoc Groundfish Strategic Plan Development Committee advised the Council to expect initial review of the draft plan at the April meeting. The Council adopted a revised schedule that includes the first comprehensive review of the plan at the June meeting (Attachment B.11.a.) and final adoption in September. The committee expects to have an initial draft ready for presentation to the Council at the April meeting.

Council Action:

1. Provide guidance to committee.

Reference Materials:

1. Revised schedule adopted in March (Attachment B.11.a.).

PFMC
03/17/00

JOINT GROUNDFISH ADVISORY SUBPANEL GROUNDFISH MANAGEMENT TEAM, AND HABITAT STEERING GROUP STATEMENT ON STATUS OF GROUNDFISH STRATEGIC PLAN

The Groundfish Advisory Subpanel, Groundfish Management Team, and Habitat Steering Group would like to receive a briefing on the groundfish strategic plan. To that end, we would recommend a joint meeting of the Council's advisory entities; perhaps an evening session at the June Council meeting, so all the advisory entities can receive the same presentation at the one time.

In addition, we would appreciate receiving copies of the draft plan prior to the June meeting to allow adequate time for review.

PFMC
04/06/00

Gene Kramer, Executive Director
Abalone and Marine Resources Council
297 Juanita Ave.
Pacifica, CA 94044
Mar 13, 2000

Mr. Jim Lone, Chairman,
PFMC, 2130 SW Fifth Ave., Suite 224,
Portland, OR 97201.

Re: Near Shore Limited Entry

Dear Sirs:

In considering limited entry for this fishery, I urge the council to take a conservative and cautionary approach that sets the limits at a level that insures some reasonable chance of economic viability for the fishermen who stay in the fishery. The rockfish are in trouble, and it makes no sense to invite more people to the table than can reasonably be supported. Sport fishermen also have some rights to the catch.

We don't have enough fish for all the fishermen who want to catch them and support their families. While we don't yet have enough scientific information to adequately set total allowable catches, and we have to rely on cruder bag and season limits, we need to recognize human nature for what it is. A fishermen who is behind on his boat payments or house payments will do whatever he has to in order to survive. Sometimes commercial fishermen underestimate their catch or bycatch, or look for other means to skirt the letter or the intent of the law.

In California we are looking at 900 permits for the nearshore fishery, each with a monthly bag limit of 250 pounds. These guys will starve on 250 pounds per month, or find some back door to operate through. It is far better to have one tenth the number of fishermen and set the limit at 2500 pounds per month, provided that the fishery will actually support that amount.

Allocations inevitably make some fishermen prosperous and put others out of business. The history of fisheries management is full of managers who had too much compassion for the fishermen, and not enough for a sustainable resource. The fish lost and the fishermen lost too.

Closing the door at November of last year is not enough. You will need to make harder allocation choices and restrict the fishery even further. It is better to do it now, so the losers can make other plans. We have too many fishermen and not enough fish.

This allocation choice is a tough one, but one that has to be made. You can do it by historical landings, by lottery, by auction or by some combination of the three. But the fishery has to be restricted.

Sincerely,

Gene Kramer

Gene Kramer

Post-it® Fax Note 7671	Date 3-1	# of pages ▶ 2
To Debra Nudelman	From Kenyon Hensel	
Co./Dept.	Co.	
Phone #	Phone # 707-465-6857	
Fax #	Fax #	

Kenyon Hensel
871 Elk Valley rd
Crescent City Ca.
95531
707-465-6857

Dear Debra Nudelman,

I am a commercial fisherman who works in the near shore open access northern area. I am very concerned with the way the council is influencing the rock cod fishery with their restructuring of the fishing quotas, and lack of research before implementation. Much change is being done without any documentation, and many fishermen are being displaced before their contribution to local communities is understood.

I am one example of this change. I had made a niche for myself, and my fishing type, that I have been forced to abandon due to last Nov.'s changes. I have spent the last 18 years fishing for rock cod with rod and reel. I have supported myself, and then my family, fishing near shore during the day. Landing my catch each night. At first I fished for the local companies in our harbor, then I developed a clientele for my fish filleted at our local restaurants. It took me years to convince many of these business people to use my product. The natural superiority of bled, cut the same day as caught, fish finally convinced them. These clients worked their markets until I could not catch enough fish to supply them. I was able to sell my fish at a price doubling what I could get over the dock for them dead. I was able to catch half as much fish as I had previously, and still make more money as my marketing improved. I was leaving fish in the bank every day as I left the fishing grounds to filet my catch.

Now since the counsel ignored our entreaties to redistribute the burden of the sport catch, there is not enough fish for me to continue my business. The other open access fisherman and closed access hook and line fisherman are going to land as much live fish as possible because of their high prices. We will be lucky to make a fraction of our living this way.

Many of us will leave the fishery, taking a large amount of experience and ability that developed over decades of on the job training. You cannot reestablish this experience easily. Your submission of guidelines for future fishery direction is limited by the fact that the proven methods and existing institutions are being lost this year because of the severity of the changes in the regulations. Instead you should be trying to save some of the already proven institutions that were practicing the fundaments of conservation and maximum utilization of the resource that already exist. My business was one of these institutions. The values of my activities could be transferred to

many, if not all fishing operations, other fisherman in my harbor have successfully done just that. My business principles could be transferred to larger boats. With modification, any size boat could fish the way I do, and increase their value per pound. Maximizing, the most for the least, which has always been my guiding principle.

You should understand how these principles are applied if you ever wish to see them in operation in the field. There is no replacement for experience when you try to implement a tested or untested program. I am entreating you to make every effort possible to preserve the methods proven to save resources that are already in use. Please contact me for any further information or explanations you may require.

Sincerely

Kenyon Hensel

MIDWATER TRAWLERS COOPERATIVE

880 SE Bay Blvd
P.O. Box 2352
NEWPORT, OREGON 97365

MTC

Jim Lone
2130 SW Fifth Avenue
Suite 224
Portland, OR 97201

March 24, 2000

Dear Mr. Lone;

The practices and management of the Pacific Fisheries Management Council have failed both the renewable ground fish marine resources and those of the groundfish fishery who depend upon these resources for their livelihoods both directly and indirectly. As all of you well know, we are now entering an "economic disaster or natural economic disaster" that has been occasioned by the PFMC management failures. In simple words the system is broken—it does not work.

There are many of us who have tried to work with the system arguing that there should be more management information provided before management decisions were made. We have had good reason to doubt the directions and recommendations of the marine scientists. We users were not the only ones who were recognizing discrepancies.

A very few years ago, I believe in 1995, a Peer Panel Review Panel Team of the National Academy of Science was put together to examine a management plan for the deepwater species, which had been prepared by the Groundfish Management Team of the Pacific Fishery Management Council. Their findings are a matter of record. They told the Council bluntly not to use the proposed Groundfish Management Team because, amongst other reasons, "the data had been misused and abused". Also, they talked about the pancity of the data.

A great many trawl industry people for much better than a decade have tried to interest the Council in using fishermen's experience in such areas as resource availability in the ocean and stock assessment. The Council did nothing to further this. Some scientists involved with the Council and the Groundfish Management Teams exhibited strong feelings of mistrust of fishermen and their data. Others said that fishermen's data is only anecdotal. The overall point is that we fishermen in the coastal states keep data in state supplied logbooks for the purpose of being used as a database for purposes of management. We must keep this data and surrender it to state officials or suffer state penalties as prescribed by the law. Only in the last couple of years has some logbook data been used after extensive work by two fine scientists proved that logbook data on two species of fish over a five or six year period constituted much superior statistical significance than other sources.

Captain R. Barry Fisher, President
P.O. Box 2352 • Newport, OR 97365 • Phone: (541) 265-9317 • Fax: (541) 265-4557 • Email: fishface@teleport.com

We've long called for not only the inclusion of hard data but also that fishermen's testimony about ocean conditions and fish stocks be listened to. This has won no support from the Council.

Not too long ago, I and the head of the Council's Scientific and Statistical Committee informed the Council that it was impossible to scientifically review proposed management measures because they did not relate to any set of coherent Council objectives and/or goals and it was doubly difficult to carry out strategies for management measures that would relate to the goals and objectives. We strongly urged the Council to obtain the services of a good facilitator and take time out to try and come up with coherent goals and objectives. I've been informed that the Council is behind in whatever deliberations it must do to complete this work.

For the above and a variety of other reasons that ensue from a lack of overview of the Council's actions we are still cursed with a system in which the coastal states pursue their own political agendas relative to management of the ground fishery off the coast of the three states. In many, many instances the needs of the resources or of the coastal communities are sacrificed to these separate agendas.

I believe the critical flaw in this whole system is the fact that neither the PFMC or the National Marine Fisheries Service in the Seattle regional office are held accountable for their management efforts and their practices. In essence they are being allowed to divorce themselves of their responsibilities and nobody has blown the whistle even after year after year of fishing stock destruction.

Each one of you are responsible to your constituents and you are held by them to be accountable for your actions. The CEO's of private business concerns also are accountable to both the markets and their shareholders. The same is true of almost any profession. Why then can a system continue to function with no time keeper or referee to say, "You are not living up to the intent of the framers of Fisheries Conservation and Management Act your management of the stocks is failing; it has failed the resources and its users". There are current attempts in the reauthorization of the FCMA to tweak this and to tweak that. Perhaps the FCMA framed in 1976 established its primary goals, getting rid of the foreigners on America fishing grounds and supposedly regionalising fishery management decisions into regional groups. This second agenda item is my opinion being diluted by the National Marine Fisheries Service. More and more they proceed to enact their own agenda and their top officials ignore letters of dissent or questions, and of most importance, Council votes.

If I am wrong and the system is "working" why is our groundfish fishery at the point of ruin? Why have quotas gone down year after year. It is not over fishing. Fishermen have caught only (or less) of species quotas laid down by the PFMC.

Enforcement records attest that 98 or 99% of all over views of boat landings for violations have been positive, i.e. miniscule violations.

Once again I would urge you to recognize that the needs for accountability be brought into at least the Pacific Regional management area. I also believe that these needs exist in other regional management areas, certainly New England and the Southeast Region. Without accountability it is impossible to place the responsibilities for practices and actions, either positive or negative.

I urge you to begin a meaningful inquiry into this matter.

R. Barry Fisher

Capt. R. Barry Fisher

Originals sent to:

Senator Ron Wyden, OR
Senator Gordon Smith, OR
Senator Slade Gorton, WA
Senator Patty Murray, WA
Senator Olympia Snowe, ME
Senator Ted Stevens, AK
Senator Barbara Boxer, CA
Senator Dianne Feinstein, CA
William Daley, Secretary Of Commerce
Penelope Dalton, NOAA/NMFS

Gray Davis, Governor of California
John Kitzhaber, Governor of Oregon
Gary Locke, Governor of Washington
Mr. Jim Lone, Chairman, PFMC
Will Stelle, Jr, NMFS NW Regional
Rod Moore, West Coast Seafood Processors
Ralph Brown, Fishermen's Marketing Assoc.
Joe Easley, Oregon Trawl Commission
Pete Leipzig, Fishermen's Marketing Assoc
Bob Schoning, Resource Consultant

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON STATUS OF GROUNDFISH STRATEGIC PLAN

Ms. Debra Nudelman from Resolve, Inc. gave the Scientific and Statistical Committee (SSC) an update on the status of the groundfish strategic plan. The SSC is encouraged by the progress the Ad-Hoc Groundfish Strategic Plan Committee has made on the plan. The SSC recognizes the importance of this report and looks forward to the draft report in June.

PFMC
04/05/00

Pacific Fishery Management Council Ad-Hoc Committee
Pacific Groundfish Fishery Strategic Plan
Timeline & Schedule

(updated 2/16/00)

SEPTEMBER 1999		OCTOBER 1999		NOVEMBER 1999		DECEMBER 1999	
DATE	**TASK**	**DATE**	**TASK**	**DATE**	**TASK**	**DATE**	**TASK**
13-16	Facilitator conducts convening meetings with PFMC and Council Committee members	**14**	Convening summary document to Committee	**1-5**	Council meeting – provide update and status report regarding proposed framework; receive guidance and direction	**14-15**	Meeting to continue preparation of draft Strategic Plan including brainstorming a range of options for addressing issues
17	Ad-Hoc Committee meets to review convening process	**18-19**	Committee meeting to discuss results of convening process and begin developing strategic plan framework	**16-17**	Committee meeting to begin preparation of draft Strategic Plan- discuss issues, key questions, obstacles and barriers		

JANUARY 2000		FEBRUARY 2000		MARCH 2000		APRIL 2000	
DATE	**TASK**	**DATE**	**TASK**	**DATE**	**TASK**	**DATE**	**TASK**
17-18	Committee meeting to review, discuss, and revise proposed options and strategies	**14-16**	Committee meeting to continue development of proposed range of strategies; start to bring together the overall draft framework	**6-10**	Brief update at Council meeting	**3-7**	Update and Status Report at Council meeting
				21	Conference call to discuss strategies and prepare for April meeting	**18-19**	Committee meeting to finalize proposed range of options and strategies and review overall draft plan

(over please)

Attachment B.11.a.
April 2000

Pacific Fishery Management Council Ad-Hoc Committee
Pacific Groundfish Fishery Strategic Plan
Timeline & Schedule

(updated 2/16/00)

MAY 2000		JUNE 2000		JULY 2000		AUGUST 2000	
DATE	**TASK**	**DATE**	**TASK**	**DATE**	**TASK**	**DATE**	**TASK**
22-24	Committee meeting	**14-15**	Committee meeting		Conduct public involvement activities to encourage broad constituent review and comment of draft strategic plan		Conduct public involvement activities to encourage broad constituent review and comment of draft strategic plan
		26-30	Request Council approval of Draft Strategic Plan (plan amendment scoping process: Council advisory review and comment)			**TBD**	Committee meeting for review of comments; revise and finalize strategic plan
			Release for public review and comment				

SEPTEMBER 2000		OCTOBER 2000		NOVEMBER 2000		DECEMBER 2000	
DATE	**TASK**	**DATE**	**TASK**	**DATE**	**TASK**	**DATE**	**TASK**
11-15	Seek final Council approval for Strategic Plan (Identify alternatives and select preferred FMP amendment alternatives)		Council submits Strategic Plan to NMFS		Tasks to be determined		Tasks to be determined

EXECUTIVE MEMORANDUM

DATE: MARCH 16, 2000

TO: PACIFIC FISHERIES MANAGEMENT COUNCIL (PFMC)

FROM: ECONOMIC SUBCOMMITTEE – SCIENTIFIC AND STATISTICAL COMMITTEE (SSC)

REGARDING: REPORT ON OVERCAPITALIZATION IN THE WEST COAST GROUNDFISH FISHERY

Attached is our report titled *Overcapitalization in the West Coast Groundfish Fishery: Background, Issues and Solutions*. At the November1999 PFMC meeting, amid SSC discussions regarding the severity of the overcapitalization problem in the groundfish fishery, the SSC Economic Subcommittee volunteered to author a report on the topic. With Council support, the Subcommittee held a two day public workshop on January 13-14, 2000 in Portland to discuss capacity reduction issues and strategies. In addition to Subcommittee members, meeting participants included economists from the NMFS Northwest Region, industry representatives and various members of the Council Family.

The report was designed with three primary objectives: (1) describe and evaluate capacity trends and status of the West Coast groundfish fishery, (2) review alternative programs for reducing and managing fishing capacity, and (3) evaluate a range of alternatives for reducing West Coast groundfish capacity. The report is intended to provide input to the Council as it develops short and long run plans for improving management of the West Coast groundfish fishery. The key findings (which are discussed more fully in Section IV.E of the report) are highlighted below.

Overcapitalization is the single most serious problem facing the West Coast groundfish fishery. The effectiveness of traditional management measures (e.g., landings limits, seasons) in ensuring that discards are minimized and that a reasonable economic livelihood can be made from the groundfish fishery has been seriously eroded in recent years. Given that OYs are unlikely to increase any time soon, the only viable option for reducing overcapitalization is to reduce potential harvest capacity.

The problems associated with overcapacity will not be resolved by waiting for vessels to leave the fishery. The extremely high amount of latent (i.e., unutilized) capacity present in the fishery means that a significant amount of effort is available for mobilization at any sign of improved fishing opportunities. The current problems associated with low landings limits, short seasons and complex and contentious management will not go away unless the Council takes deliberate action to permanently remove latent capacity from the fishery.

There are no quick or easy fixes for the problems caused by excess capacity. Eliminating excess capacity will be complex, costly and time consuming, regardless of which capacity reduction approach or combination of approaches is used. However, the status quo is also complex, costly and time consuming, and provides no solution to excess capacity and its associated problems.

The Council should take immediate action to develop stringent capacity reduction programs for all sectors of the West Coast groundfish fishery. Given the current moratorium on IFQs and the complexities of designing an IFQ system, IFQs are best viewed as a long term management strategy for West Coast groundfish. Other potential solutions, including limited entry for the open access fishery and buyouts and/or permit stacking for the limited entry fishery, should be explored immediately.

As a first step, the Council should establish clear goals and objectives for capacity reduction in each fishery sector. Goals and objectives have a direct bearing on the design of the capacity reduction program and the measures used to monitor program success.

Long term allocation decisions must be made to ensure that capacity reduction represents an acceptable financial risk to those who will pay for it. All capacity reduction approaches require that someone (industry, government or both) bear the financial risks associated with harvest, market and regulatory uncertainties. Allocation of groundfish OYs among fishery sectors (including recreation) will alleviate a major component of that risk.

Spillover effects on other fisheries should not deter the Council from addressing overcapitalization in the groundfish fishery. While scrapping of vessels is highly desirable, it is not clear whether it will be affordable. If vessels are not scrapped, it will be important that the capacity reduction program include design features that discourage spillover to the extent possible. Some spillover, however, will be inevitable, regardless of which capacity reduction approach is adopted (including the status quo). In any case, the groundfish fishery should not be held hostage to inadequate capacity regulation in other fisheries.

An ad hoc committee should be assigned to develop and evaluate "straw man" capacity reduction options for the Council. The committee could explore any number of management options. For instance, the committee could evaluate alternative mandatory permit stacking schemes in terms of their effects on harvest capacity and the landings limit per permit. The committee could analyze the effect of alternative limited entry criteria on the open access fleet. The committee could evaluate the feasibility of obtaining funding for a buyout and how much capacity could be bought out with different levels of funding. ***Council input regarding its capacity reduction objectives and which of the broad range of capacity reduction approaches it is interested in pursuing will be essential for focusing the committee's efforts. Industry involvement will be critical to the success of this endeavor.***

DRAFT REPORT FOR REVIEW

OVERCAPITALIZATION IN THE WEST COAST GROUNDFISH FISHERY:

BACKGROUND, ISSUES AND SOLUTIONS

Economic Subcommittee
Scientific and Statistical Committee
Pacific Fishery Management Council

March 16, 2000

This report was prepared for the Pacific Fishery Management Council by the SSC Economic Subcommittee. It is currently under review by the SSC.

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ACKNOWLEDGEMENTS

Dan Waldeck (PFMC staff member) played a key organizational role in the completion of this document. He handled meeting logistics, prepared meeting minutes, served as the SSC's liaison with the PFMC Strategic Plan Committee and generally provided services beyond the call of duty. Jim Hastie (NMFS/NWFSC), Co-Chair of the PFMC Groundfish Management Team, and Steve Freese (NMFS/NWR) were invited participants at the January 13-14, 2000 meeting at which capacity reduction approaches were explored for West Coast groundfish. Jim Hastie and Kevin Ford (NMFS/NWR) provided much of the fleet information contained in the document, and Kate King (NMFS/NWR) provided information regarding management aspects of the fishery.

ES. EXECUTIVE SUMMARY

ES.A. Trends in the West Coast Commercial Groundfish Fishery

From 1983 to 1999, aggregate commercial shoreside groundfish landings on the West Coast increased by 12% from 108,500 metric tons (mt) to 121,500 mt (Table ES-1, Figure ES-1), while shoreside ex-vessel revenues (in 1999 dollars) decreased by 47% from $100.2 million to $52.9 million (Table ES-2, Figure ES-2). These patterns are the result of two distinct trends: an increase in low-valued whiting landings and a decrease in landings of other higher-priced groundfish species.

The increase in shoreside whiting landings from 21,000 mt in 1991 (when the whiting fishery was Americanized) to over 80,000 mt annually during 1997-1999 contrasts sharply with the decline in the non-whiting fishery. During 1983-1999, non-whiting landings fell by 65% from 107.4 thousand mt to 38.1 thousand mt, while non-whiting revenues fell from by 54% from $99.9 million to $46.2 million. The decline was particularly severe for *sebastes* rockfish and flatfishes, which annually account for 50%-60% of non-whiting groundfish revenues. During 1983-1999, *sebastes* landings fell by 78% and *sebastes* revenues by 69%; flatfish landings fell by 41% and flatfish revenues by 73% (Tables ES-1 and ES-2).

ES.B. Biological and Regulatory Factors Affecting the Fishery

The decline in non-whiting groundfish landings experienced in the early 1990s has accelerated in recent years, as increasingly restrictive management measures have been adopted in response to new scientific information and new statutory requirements. In 1998 the Council changed the F_{msy} proxy for *sebastes* rockfish from $F_{35\%}$ to $F_{40\%}$ on the basis of scientific information suggesting that more stringent harvest restrictions were warranted for those stocks. In 1999, in order to meet provisions of the Sustainable Fisheries Act (SFA), the Council adopted a default harvest rate policy (Groundfish FMP Amendment 11, PFMC 1998) that imposed stringent rebuilding requirements on "overfished" stocks. Under this new policy, formal rebuilding plans were initiated in 2000 for lingcod, bocaccio and Pacific ocean perch, and will be in initiated in 2001 for canary and cowcod. In 2000, the Council changed the F_{msy} proxy from $F_{35\%}$ to $F_{40\%}$ for shortspine thornyhead and from $F_{40\%}$ to $F_{45\%}$ for widow rockfish, on the basis of their low abundance. The Council has also been presented with new scientific information suggesting that the productivity of West Coast groundfish is unusually low relative to other groundfish stocks worldwide. To more fully investigate and evaluate this evidence, the Council's Scientific and Statistical Committee will convene a Harvest Rate Policy Review Workshop in March 2000 to evaluate the appropriateness of the current default F_{spr} values being used by the Council as proxies for F_{msy}.

The declines in abundance observed for many West Coast groundfish stocks have been inadvertently fostered by harvest policies that -- while based on the best scientific information available at the time-- are now thought to contribute to overfishing. New scientific information and new statutory requirements have resulted in much more conservative harvest policies. Given

the depressed status of many groundfish stocks, the long periods required to rebuild overfished stocks, and the possibility of additional rounds of OY reductions once the results of the SSC Harvest Rate Policy Review Workshop become available, allowable non-whiting harvests are likely to remain restricted for many years to come.

ES.C. Overcapitalization and Its Effects on the Fishery

In 1994, the Council implemented a limited entry program for the commercial groundfish fishery. Of the vessels that initially qualified for a limited entry permit, 245 held fixed gear endorsements and 384 held trawl endorsements. Currently, the limited entry fleet includes 236 fixed gear endorsements, 264 trawl endorsements held by catcher boats, and 10 catcher-processor permits. The entry of catcher-processors into the fishery, which occurred in 1994-1995, was largely accomplished by the transfer of trawl permits to catcher-processors. The decline in trawl permits and increase in catcher-processor permits have been the only significant change in groundfish fleet configuration since the inception of limited entry.

Potential harvest capacity includes both unutilized (i.e., latent) as well as utilized capacity. Although limited entry has likely had the effect of "freezing" potential harvest capacity at its 1994 level, the low eligibility requirements for limited entry assured that even vessels with marginal involvement in the fishery were eligible for a permit. As a result, a significant proportion of the harvest capacity initially admitted into the fishery consisted of latent capacity. This overcapitalization, which is measured by the difference between potential harvest capacity and available harvest, has been further exacerbated by the severe harvest restrictions of recent years. Current capital utilization rates are exceedingly low for all sectors of the commercial groundfish fishery: 9% and 12% respectively for the sablefish and non-sablefish components of the limited entry fixed gear fishery, 27%-41% for limited entry trawlers who deliver shoreside, and 6%-13% for open access vessels targeting groundfish.

In order to ensure that current fishery participants -- who are capable of expending much more fishing effort than needed to harvest the OYs -- do not exceed the OYs, the Council has drastically reduced cumulative vessel landings limits. Expressed in comparable monthly-equivalent terms, landings limits in the limited entry fishery have declined from 120,000 pounds in the mid-1980s to 13,000 pounds in 2000 for *sebastes* north; 100,000 pounds in the early 1990s to 22,000 pounds in 2000 for *sebastes* south; and 110,000 pounds in the early 1990s to 27,000 pounds in 2000 for the Dover/thornyhead/sablefish complex (Figure ES-3). In the open access fishery, monthly-equivalent *sebastes* limits have fallen from 35,000-40,000 pounds during 1994-1998 to about 5,000 pounds during 1999-2000. The fixed gear sablefish season, which was year-round in the early 1980s, has been reduced to 6-9 days in recent years (Figure ES-4). The sablefish season (with its regular and mop-up components and its three-tiered structure) has also become more complex to administer.

The economic hardship and uncertainty being experienced by the industry is intensifying competition among fishery sectors for access to the resource. Protecting groundfish stocks while

ensuring that the burden of conservation measures is distributed equitably among sectors of the fishery is becoming increasingly difficult to accomplish. Even if groundfish OYs were to increase significantly (an unlikely scenario), the latent capacity in the fishery will be mobilized at any sign of improved fishing opportunities. The current problems associated with low landings limits, short seasons and complex regulations will not go away unless latent capacity is permanently removed from the fishery.

ES.D. Comparison of Capacity Reduction Strategies

Table ES-3 qualitatively summarizes the potential effects of alternative groundfish capacity reduction approaches relative to the status quo. The status quo pertains not just to the current state of the fishery under the current management approach but also what will likely occur if the current approach is continued indefinitely into the future. Each approach is described in terms of potential outcomes, that is, outcomes that probably can but will not necessarily be realized, depending on the specific details of the program actually adopted. Although each approach is evaluated in isolation, the eventual goal is to encourage discussion regarding how various approaches could be combined in ways that allow the strengths of one approach to offset the weaknesses of another, and vice versa.

Immediate Feasibility: IFQs are not feasible at this time due to a Congressionally imposed moratorium, although that moratorium may be lifted in 2000. Funding for a government financed buyout is not currently available, and it is uncertain whether such funding will be available in the future. It is also not clear whether industry can afford to fund a buyout, given the low OYs and uncertainty regarding permit prices. Nevertheless IFQs and buyout programs are included in this evaluation, based on the possibility that IFQs will become legal, that an industry buyout will be viable and that a government buyout can be funded.

Groundfish capacity reduction: The status quo will not result in any significant capacity reduction, as permit holders are much more likely to retain or transfer their permits than allow them to lapse, even under current depressed fishery conditions. Limited entry and mandatory permit stacking are "command and control" approaches that can be designed to achieve significant capacity reduction. Given that industry will fund a buyout only if it expects it to result in a profitable fishery, an industry buyout -- if affordable -- can also result in significant capacity reduction. Government funded buyouts, which have typically been used in other fisheries as a source of short term financial relief, can -- given sufficient political will -- be designed to achieve capacity reduction. However, given the difficulty of fully dampening the speculative increase in permit prices that typically accompanies government programs, a government buyout will be less successful at reducing groundfish capacity than a similarly funded industry buyout. A government buyout designed to retire vessels will have a smaller impact on groundfish capacity than a similarly funded government buyout that retires groundfish permits only, since the monetary incentive needed to induce a vessel to retire from all fisheries will be greater than the monetary incentive needed to induce retirement of the vessel's groundfish permit. The success of voluntary permit stacking in achieving capacity reduction is highly

uncertain, given the difficulty of predicting the number of vessels that will choose to stack under any given set of circumstances. IFQs are similar in some respects to the cumulative landings limits already used in the groundfish fishery, except that IFQ shares (unlike landings limits) vary across individual vessels. Non-transferable IFQs will produce modest capacity reduction, at best, and only to the extent that the number of vessels receiving initial IFQ allocations is smaller than the number of vessels participating in the fishery under the status quo. Transferable IFQs may produce significant capacity reduction as quota shares are transferred from less to more efficient producers. However, capacity reduction will likely take longer to accomplish with transferable IFQs than with limited entry, buyouts or permit stacking.

Long term groundfish capacity management: Effective long term capacity management requires that industry be provided with incentives to efficiently adjust capacity in response to changes in technology, markets and resources. A necessary condition for facilitating industry adjustments is that the fishing privilege be freely transferable. For this reason, non-transferable IFQs are no more likely to achieve capacity management than the status quo. Transferable IFQs, which allow quota holders to adjust capacity in response to changes in economic and harvest conditions, are well suited to long term capacity management. Programs that regulate inputs (e.g., limited entry, permit stacking, buyouts) rather than outputs are intended, by design, to restrict the ability of permit holders to change the existing level of capacity; they are therefore less conducive to achieving long term capacity management than transferable IFQs. However, an input control program that incorporates transferable permits can still facilitate movement of existing harvest capacity among fishery sectors in response to changing conditions. Input control programs can also contribute to capacity management by incorporating features (e.g., trip limits) that discourage the race for fish and the wasteful capital stuffing resulting thereof.

Economic efficiency and profitability, discards, management costs, monitoring and enforcement costs: The success of a capacity reduction approach in enhancing efficiency and profitability, reducing discards, and reducing management and monitoring/enforcement costs will be correlated with its success in achieving capacity reduction. With regard to the input control approaches described in Table ES-3, government sponsored vessel retirement and voluntary permit stacking will be somewhat likely to enhance groundfish profitability, reduce discards, and reduce management and monitoring/enforcement costs relative to the status quo. Limited entry, mandatory permit stacking and government or industry buyout of groundfish permits will perform even better in each of these respects. With regard to the output control approaches included in the table, non-transferable IFQs will likely produce little change from the status quo and transferable IFQs will produce mixed results. Profitability will be highest with transferable IFQs, since the incentive to race for fish will be replaced with the opportunity and incentive to enhance the value of quota shares. Management costs will be lowest, since transferable IFQs remove the competitive incentive for capital stuffing, allow capacity to adjust to changes in OYs and provide market solutions to allocation issues. However, transferable IFQs will have an uncertain effect on discards, depending on whether the reduction in discards that eventually occurs as quota shares are consolidated among fewer quota holders is offset by the incentive for highgrading. Transferable IFQs also have the potential to generate significant

monitoring/enforcement costs, given the need to monitor each IFQ holder's quota availability and quota use, and track quota transfers across individuals. This task becomes particularly burdensome if tracking must be done for individual species caught in multispecies complexes.

Spillover effects: The low cumulative landings limits and other regulatory restrictions that characterize the status quo provide an incentive for existing groundfish permit holders to seek alternative opportunities in non-groundfish fisheries. Limited entry, voluntary or mandatory permit stacking, and government or industry funded buyout of groundfish permits all have the potential to exclude some groundfish participants, who will subsequently become fully committed to non-groundfish fisheries. Conversely, however, those who remain in the fishery may be more likely to specialize in groundfish and less likely to diversify into other fisheries. Given the difficulty of predicting the spillover effects associated with these capacity reduction approaches relative to the status quo, they are considered to be indistinguishable for purposes of the table. Government funded vessel retirement will result in less spillover than any other approaches, since it removes vessels from other fisheries as well as groundfish. IFQs, because they allow quota holders to time their groundfish harvests to enhance their fishing opportunities in non-groundfish fisheries, will provide greater opportunity for spillover than the other approaches.

ES.E. Conclusions and Recommendations

The current problems associated with low landings limits, short seasons and complex and contentious management will not go away unless the Council takes deliberate action to permanently remove latent capacity from the groundfish fishery. Eliminating excess capacity will be complex, costly and time consuming, regardless of which capacity reduction approach or combination of approaches is used. However, the status quo is also complex, costly and time consuming, and provides no solution to excess capacity and its associated problems.

The need to address groundfish overcapacity is urgent. Potential solutions -- including limited entry, buyouts and permit stacking -- should be subject to immediate consideration. Given the current moratorium on IFQs and the potentially complex design requirements of IFQ systems, IFQs are best viewed as a long term management strategy for West Coast groundfish.

The Council should establish clear goals and objectives for capacity reduction in each fishery sector, and should incorporate design features into the program that provide a realistic basis for achieving those objectives. The Council should consider using different capacity reduction approaches for different sectors of the fishery, and also consider combinations of approaches that allow the strengths of one approach to offset the weaknesses of another, and vice versa.

While achieving an immediate reduction in capacity is critical, it is equally critical that the Council address the fundamental cause of overcapacity. This will require development of management approaches that end the race for fish and provide incentives for industry to adjust capacity in response to changes in technology, markets and the resource.

Resolution of the capacity problem will require that a number of related issues be addressed.

- *Long term allocation decisions must be made to ensure that the benefits of capacity reduction accrue to those who bear the costs.*

- ***Spillover effects on other fisheries, while a legitimate and serious concern, are not an adequate justification for ignoring the overcapitalization problem in the groundfish fishery.*** Spillover effects should be mitigated to the extent possible. However, groundfish should not be held hostage to inadequate capacity regulation in other fisheries.

Table ES-1 . Commercial shoreside groundfish landings (metric tons), by state and year, 1983-1999.[1]

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sebastes Rockfish:																	
WA	11,834	7,060	6,343	8,128	8,960	9,273	8,421	6,800	5,351	4,852	5,608	4,169	3,935	3,581	2,457	2,091	1,697
OR	15,254	12,227	11,980	11,095	13,910	14,105	15,847	12,445	12,462	13,069	14,858	11,862	10,002	10,602	8,441	7,148	6,067
CA	18,399	17,551	14,911	14,164	21,638	17,573	17,062	16,536	15,612	14,845	12,407	7,494	8,048	7,453	7,284	6,727	2,369
Total	45,487	36,838	33,234	33,387	44,508	40,951	41,330	35,781	33,425	32,766	32,873	23,525	21,985	21,636	18,182	15,966	10,133
Thornyheads:																	
WA	118	253	56	25	63	69	131	156	134	214	604	685	580	430	365	162	84
OR	835	795	1,117	673	727	1,043	2,553	4,529	3,506	4,281	4,460	4,043	3,336	2,786	2,326	1,460	1,058
CA	1,711	2,126	2,940	2,950	3,697	4,939	6,549	7,044	4,398	7,092	6,119	3,316	3,634	3,313	1,597	1,908	1,308
Total	2,664	3,174	4,113	3,648	4,487	6,051	9,233	11,729	8,038	11,587	11,183	8,044	7,550	6,529	4,288	3,530	2,450
Flatfish:																	
WA	5,529	6,284	6,025	4,177	5,115	4,704	6,190	7,045	5,706	3,668	3,119	3,060	2,388	3,641	2,648	2,773	4,143
OR	12,456	8,830	8,628	7,368	9,074	10,564	12,381	11,326	14,042	10,418	10,485	7,562	7,074	8,553	7,192	7,092	8,457
CA	11,648	12,586	15,786	14,583	14,679	11,774	11,326	9,328	10,767	10,719	8,490	6,923	8,755	9,328	8,375	5,561	4,826
Total	29,633	27,700	30,439	26,128	28,868	27,042	29,897	27,699	30,515	24,805	22,094	17,545	18,217	21,522	18,215	15,426	17,426
Sablefish:																	
WA	3,363	4,413	3,869	2,415	3,144	2,938	2,416	1,724	2,237	1,790	1,713	1,388	1,951	1,947	2,036	1,159	1,688
OR	4,641	4,835	5,275	4,653	5,238	4,082	3,948	3,705	3,906	3,856	3,835	4,005	3,133	3,175	2,925	1,750	2,967
CA	6,694	4,826	5,171	6,220	4,404	3,856	4,075	3,750	3,353	3,714	2,597	2,186	2,818	3,195	2,967	1,436	1,653
Total	14,698	14,074	14,315	13,288	12,786	10,876	10,439	9,179	9,496	9,360	8,145	7,579	7,902	8,317	7,928	4,345	6,308
Lingcod:																	
WA	1,524	2,043	2,130	714	1,023	757	1,137	993	892	561	676	477	278	360	290	38	41
OR	1,734	1,057	1,052	656	717	1,004	1,174	874	1,486	708	833	859	649	717	767	161	174
CA	898	951	695	524	812	867	1,257	1,064	788	613	685	568	539	479	480	149	131
Total	4,156	4,051	3,877	1,894	2,552	2,628	3,568	2,931	3,166	1,882	2,194	1,904	1,466	1,556	1,537	348	346
Other Non-Whiting:																	
WA	543	791	672	436	1,718	2,522	1,722	1,311	2,123	2,415	2,111	2,019	741	1,348	957	961	633
OR	173	127	86	66	681	1,070	841	333	706	622	901	647	616	7,942	4,055	1,663	278
CA	10,082	9,367	7,111	4,984	8,290	5,283	10,906	3,397	1,867	1,561	2,216	3,423	2,345	2,930	2,717	2,037	489
Total	10,798	10,285	7,869	5,486	10,689	8,875	13,469	5,041	4,686	4,598	5,228	6,089	3,702	12,220	7,729	4,661	1,400

Table ES-1 (cont)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
All Non-Whiting																	
WA	22,911	20,844	19,095	15,895	20,023	20,263	20,017	18,029	16,443	13,500	13,831	11,798	9,873	11,307	8,753	7,184	8,286
OR	35,093	27,871	28,138	24,511	30,347	31,868	36,744	33,212	36,108	32,954	35,372	28,978	24,810	33,775	25,706	19,274	19,001
CA	49,432	47,407	46,614	43,425	53,520	44,292	51,175	41,119	36,785	38,544	32,514	23,910	26,139	26,698	23,420	17,818	10,775
Total	107,436	96,122	93,847	83,831	103,890	96,423	107,936	92,360	89,336	84,998	81,717	64,686	60,822	71,780	57,879	44,276	38,062
Shoreside Whiting:																	
WA	6	47	14	61	95	88	27	302	504	2,237	3,188	4,884	4,037	10,905	7,241	10,513	9,099
OR	65	338	885	420	183	246	89	2,294	13,643	48,961	35,820	65,110	66,840	62,991	70,875	71,626	73,012
CA	980	2,335	2,996	2,982	4,518	6,533	7,298	5,519	6,893	4,930	3,100	3,613	4,091	2,901	6,332	5,723	1,308
Total	1,051	2,720	3,895	3,463	4,796	6,867	7,414	8,115	21,040	56,128	42,108	73,607	74,968	76,797	84,448	87,862	83,419
All Groundfish Species:																	
WA	22,917	20,891	19,109	15,956	20,118	20,351	20,044	18,331	16,947	15,737	17,019	16,682	13,910	22,212	15,994	17,697	17,385
OR	35,158	28,209	29,023	24,931	30,530	32,114	36,833	35,506	49,751	81,915	71,192	94,088	91,650	96,766	96,581	90,900	92,013
CA	50,412	49,742	49,610	46,407	58,038	50,825	58,473	46,638	43,678	43,474	35,614	27,523	30,230	29,599	29,752	23,541	12,083
Total	108,487	98,842	97,742	87,294	108,686	103,290	115,350	100,475	110,376	141,126	123,825	138,293	135,790	148,577	142,327	132,138	121,481

[1] Sources: 1983-1998 data obtained from PFMC (1999a; pp. T-13, T-15 and T-17). 1999 data obtained from PacFIN state reports as of January 26, 2000 and are preliminary.

Table ES-2 . Ex-vessel value of commercial shoreside groundfish landings ($1000s, base year=1999), by state and year, 1983-1999.[1]

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sebastes Rockfish:																	
WA	8,225	5,025	5,187	7,171	8,939	7,758	6,340	5,040	4,173	3,833	4,167	3,445	3,403	2,809	1,951	1,755	1,498
OR	10,597	9,461	9,739	9,832	13,916	11,815	11,902	9,183	9,745	10,100	11,127	9,307	8,397	8,320	6,703	6,440	5,703
CA	16,365	16,419	15,658	16,384	25,029	19,144	18,216	17,445	16,538	16,274	13,782	9,487	10,231	9,155	8,742	7,933	3,714
Total	35,186	30,905	30,583	33,387	47,884	38,717	36,458	31,669	30,456	30,207	29,076	22,238	22,032	20,283	17,396	16,128	10,915
Thornyheads:																	
WA	89	175	45	23	61	67	123	140	149	217	624	1,078	1,289	813	600	229	138
OR	616	627	898	596	724	1,074	2,644	4,725	4,106	4,694	4,894	6,900	7,762	5,512	3,935	2,114	1,787
CA	1,372	1,739	2,375	2,576	3,650	5,119	6,852	7,317	5,233	8,733	7,636	6,062	8,847	6,830	2,952	3,344	2,716
Total	2,077	2,541	3,318	3,196	4,434	6,259	9,619	12,182	9,488	13,644	13,153	14,040	17,897	13,155	7,487	5,687	4,641
Flatfish:																	
WA	6,879	4,754	4,634	3,250	4,915	4,322	4,512	3,980	3,529	2,418	2,100	1,776	1,915	2,058	1,679	1,680	1,836
OR	18,914	8,575	8,098	7,593	10,182	11,058	11,040	9,012	11,812	7,733	7,554	5,554	6,001	6,316	5,609	5,509	5,881
CA	17,467	11,394	14,512	13,965	15,669	12,324	10,699	8,148	9,701	8,726	6,736	6,007	7,699	7,924	6,927	4,958	4,073
Total	43,260	24,724	27,244	24,808	30,766	27,704	26,251	21,140	25,041	18,877	16,390	13,337	15,615	16,298	14,215	12,148	11,790
Sablefish:																	
WA	3,035	3,668	6,177	3,848	6,258	6,150	4,253	3,213	6,542	4,376	3,412	3,321	7,508	7,425	8,754	3,336	5,012
OR	3,526	3,278	4,978	5,140	7,015	5,941	4,918	4,280	5,988	6,200	5,005	8,043	9,741	10,575	10,492	4,683	7,683
CA	5,492	3,336	4,214	6,620	5,265	4,561	4,630	4,345	4,358	5,063	2,768	3,661	7,759	9,097	9,319	3,407	3,578
Total	12,053	10,283	15,368	15,608	18,539	16,651	13,802	11,839	16,889	15,638	11,185	15,025	25,008	27,096	28,566	11,426	16,273
Lingcod:																	
WA	1,287	1,582	1,718	663	1,131	739	1,006	869	785	524	579	433	282	362	274	47	52
OR	1,489	882	882	631	827	1,063	1,114	800	1,276	660	748	824	652	722	808	255	290
CA	798	834	669	588	978	1,017	1,408	1,138	833	671	730	640	652	597	569	275	261
Total	3,575	3,298	3,269	1,882	2,936	2,819	3,527	2,807	2,895	1,855	2,056	1,897	1,585	1,681	1,651	577	603
Other Non-Whiting:																	
WA	425	468	377	303	1,620	1,847	1,148	793	1,311	1,492	1,088	1,006	493	468	622	510	360
OR	147	107	80	63	685	858	606	202	466	483	513	287	255	313	548	434	178
CA	3,134	2,485	2,285	1,553	2,033	1,351	2,273	744	488	494	700	986	1,143	2,672	1,951	1,905	1,399
Total	3,706	3,061	2,752	1,919	4,337	4,056	4,027	1,739	2,264	2,469	2,301	2,279	1,891	3,454	3,121	2,849	1,936

Table ES-2 (cont.)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
All Non-Whiting:																	
WA	19,941	15,673	18,138	15,258	22,923	20,883	17,381	14,035	16,488	12,860	11,970	11,060	14,889	13,934	13,881	7,557	8,896
OR	35,290	22,931	24,675	23,854	33,348	31,809	32,224	28,203	33,393	29,869	29,841	30,915	32,808	31,757	28,096	19,435	21,522
CA	44,627	36,208	39,722	41,687	52,624	43,515	44,079	39,138	37,151	39,961	32,352	26,842	36,330	36,275	30,459	21,824	15,741
Total	99,858	74,812	82,535	80,798	108,896	96,207	93,684	81,376	87,003	82,691	74,162	68,817	84,027	81,967	72,436	48,815	46,159
Shoreside whiting:																	
WA	0	9	3	11	25	25	6	56	94	240	235	276	388	755	733	609	748
OR	50	89	270	80	47	55	19	268	1,689	5,824	2,558	4,693	7,468	4,343	6,731	3,826	5,918
CA	254	515	578	547	844	1,434	1,345	961	1,040	685	383	386	486	250	599	401	116
Total	304	613	852	638	916	1,514	1,370	1,285	2,823	6,749	3,176	5,356	8,343	5,348	8,063	4,835	6,782
All Groundfish Species:																	
WA	19,941	15,682	18,141	15,269	22,948	20,908	17,388	14,091	16,583	13,100	12,204	11,336	15,278	14,689	14,614	8,165	9,644
OR	35,340	23,020	24,945	23,934	33,395	31,864	32,243	28,472	35,082	35,693	32,399	35,608	40,276	36,100	34,826	23,261	27,440
CA	44,881	36,723	40,301	42,233	53,468	44,949	45,424	40,098	38,191	40,646	32,735	27,228	36,817	36,525	31,059	22,225	15,857
Total	100,162	75,425	83,386	81,436	109,812	97,721	95,054	82,661	89,855	89,440	77,338	74,172	92,370	87,315	80,499	53,650	52,941

[1] Sources: 1983-1998 data obtained from PFMC (1999a; pp. T-14, T-16, T18). 1999 data obtained from PacFIN state reports as of January 26, 2000 and are preliminary. All values corrected to 1999 dollars using the Implicit Price Deflator for Gross Domestic Product.

Table ES-3. **Potential** effects of alternative capacity reduction approaches **relative to the status quo.**[1]

	Immediate Feasibility	Groundfish Cap Reduction	Long Term Groundfish Cap Mgmt[2]	Economic Efficiency and Profitability	Groundfish Discards	Groundfish Management Costs	Gr Monitoring &Enforcement Costs	Spillover Effects
Status Quo	YES	NONE	NONE	LOW	HIGH	HIGH	HIGH	SOME
Govt Buyout (Vessel Retirement)[3]	Maybe	Some	Some	Somewhat higher	Somewhat lower	Somewhat lower	Somewhat lower	Lower
Govt Buyout (Gr Permits Only)[3]	Maybe	More	Some	Higher	Lower	Lower	Lower	Same as status quo
Industry Buyout (Gr Permits Only)[3]	Maybe	Most	Some	Higher	Lower	Lower	Lower	Same as s.q.
Limited Entry	Yes	Most	Some	Higher	Lower	Lower	Lower	Same as s.q.
Permit Stacking (Mandatory)	Yes	Most	Some	Higher	Lower	Lower	Lower	Same as s.q.
Permit Stacking (Voluntary)	Yes	Some	Some	Somewhat higher	Somewhat lower	Somewhat lower	Somewhat lower	Same as s.q.
IFQs (Non-transferable)	No	None/some	Same as status quo	Same as s.q.	Same as s.q.	Same as s.q.	Same as s.q.	Higher
IFQs (Transferable)	No	Most (not immediate)	Most	Highest	Don't know	Lowest	Higher	Higher

Table ES-3 (cont.)

[1] Each capacity reduction option is described relative to the status quo. The status quo pertains not just to the current state of the fishery under the current management approach but also what will likely occur if the current approach is continued indefinitely into the future. All effects are described as "potential" to highlight the fact that they probably can but will not necessarily be realized, depending on the specific details of the program actually adopted.

[2] "Long term capacity management" refers to effectiveness of capacity reduction program in providing incentives for industry to efficiently adjust capacity in response to long term changes in technology, markets and resources.

[3] The evaluation of buyout programs reflects what would occur if a similar amount of money were available for each type of buyout.

Figure ES-1. Annual West Coast Commercial Shoreside Groundfish Landings, by Species Category, 1983-1999

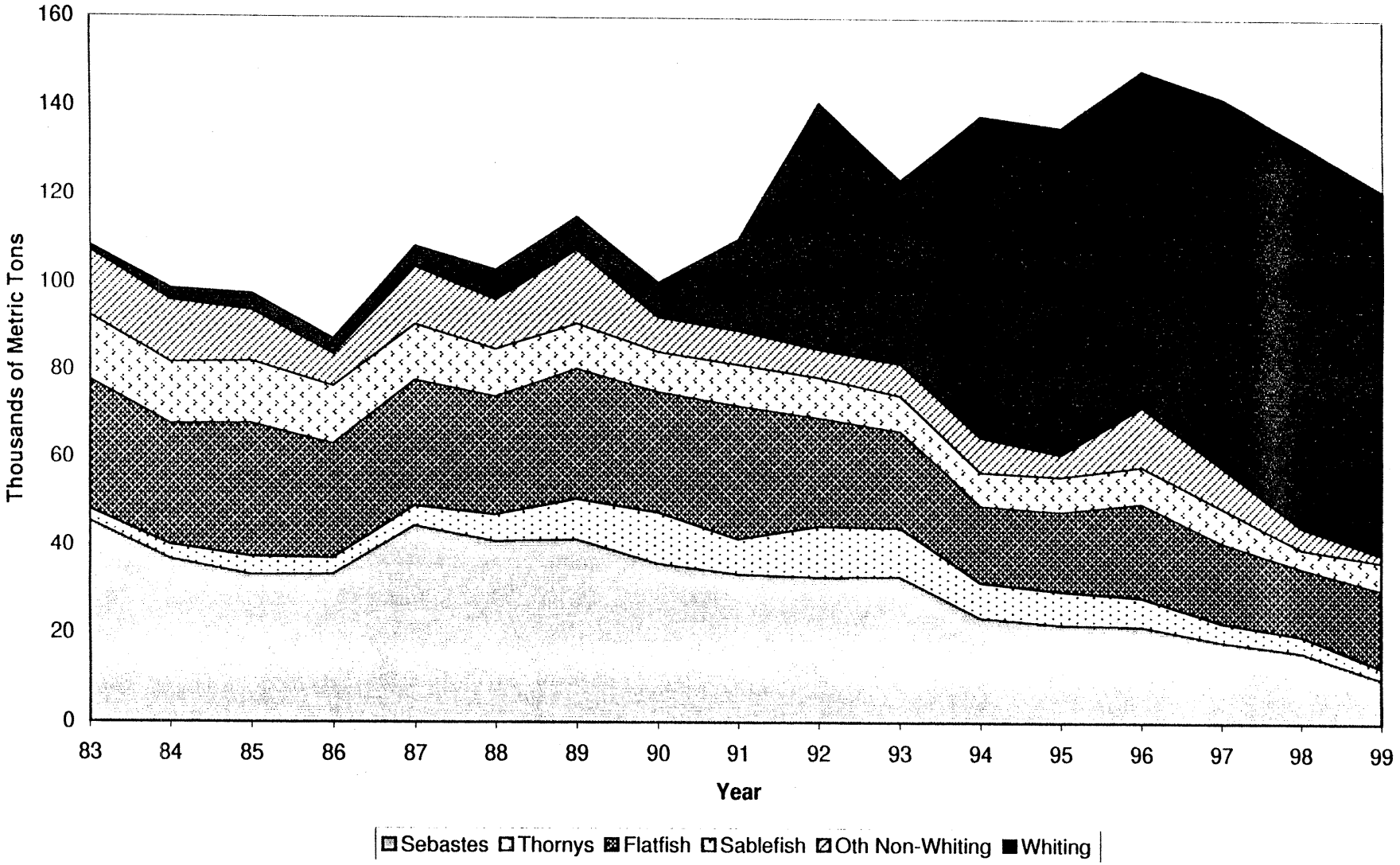


Figure ES-2. Annual West Coast Commercial Shoreside Groundfish Revenues, by Species Category, 1983-1999

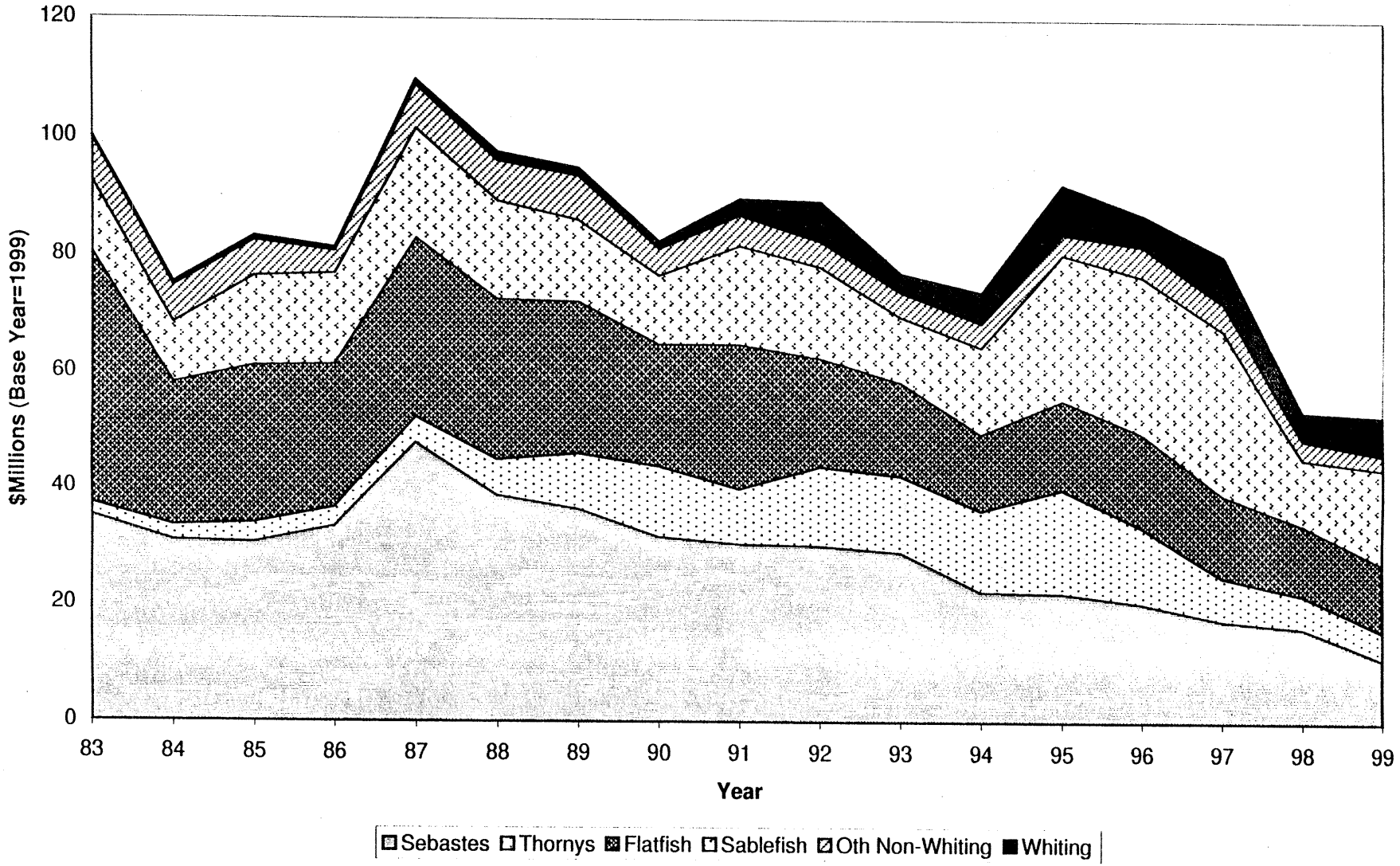


Figure ES-3. Monthly-Equivalent Cumulative Landings Limits for the Groundfish Limited Entry Fleet, by Major Species Complex, 1984-2000

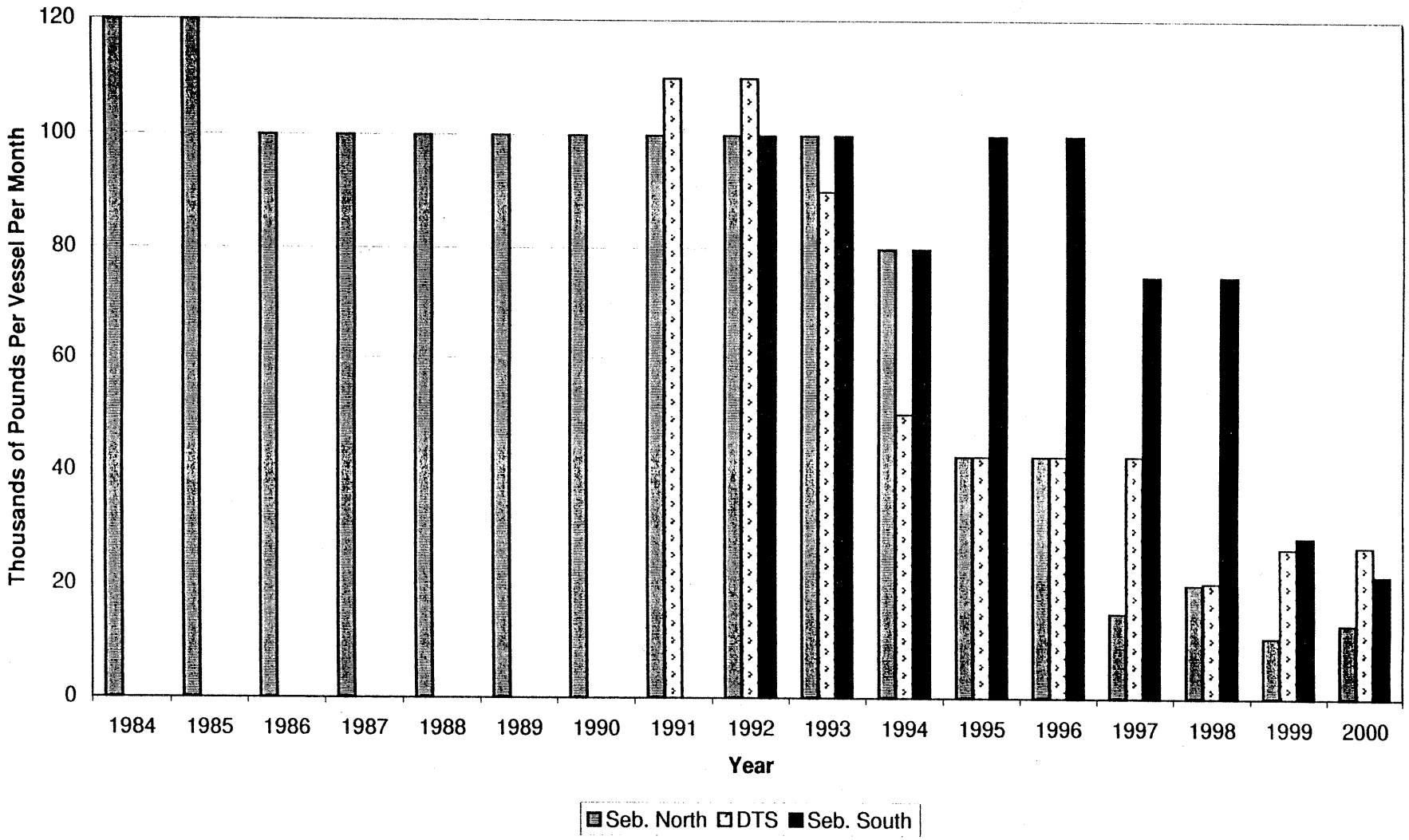
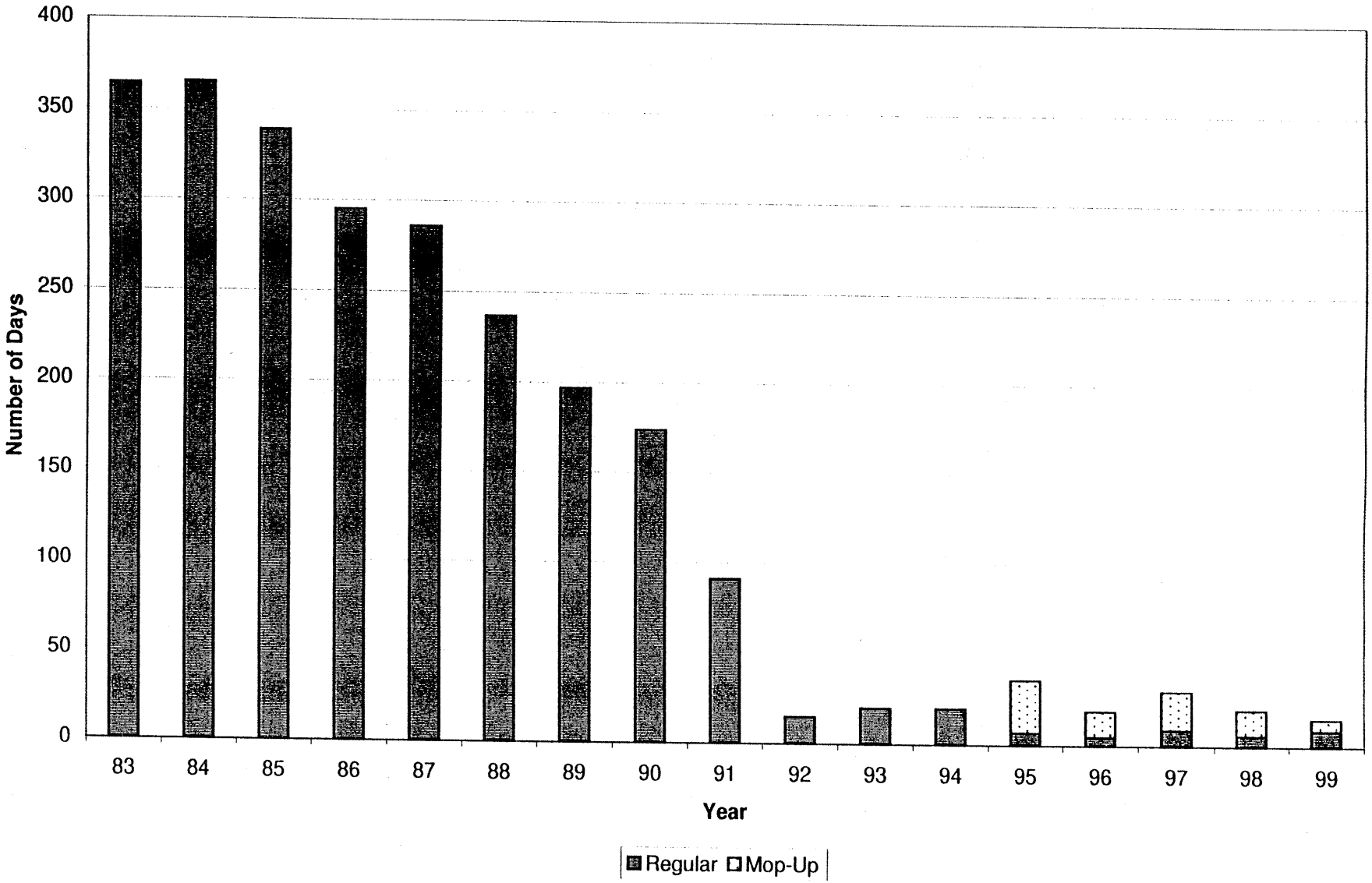


Figure ES-4. Length of Limited Entry Fixed Gear Sablefish Season, by Year



EXECUTIVE MEMORANDUM

DATE: MARCH 16, 2000

TO: PACIFIC FISHERIES MANAGEMENT COUNCIL (PFMC)

FROM: ECONOMIC SUBCOMMITTEE – SCIENTIFIC AND STATISTICAL COMMITTEE (SSC)

REGARDING: REPORT ON OVERCAPITALIZATION IN THE WEST COAST GROUNDFISH FISHERY

Attached is our report titled *Overcapitalization in the West Coast Groundfish Fishery: Background, Issues and Solutions*. At the November1999 PFMC meeting, amid SSC discussions regarding the severity of the overcapitalization problem in the groundfish fishery, the SSC Economic Subcommittee volunteered to author a report on the topic. With Council support, the Subcommittee held a two day public workshop on January 13-14, 2000 in Portland to discuss capacity reduction issues and strategies. In addition to Subcommittee members, meeting participants included economists from the NMFS Northwest Region, industry representatives and various members of the Council Family.

The report was designed with three primary objectives: (1) describe and evaluate capacity trends and status of the West Coast groundfish fishery, (2) review alternative programs for reducing and managing fishing capacity, and (3) evaluate a range of alternatives for reducing West Coast groundfish capacity. The report is intended to provide input to the Council as it develops short and long run plans for improving management of the West Coast groundfish fishery. The key findings (which are discussed more fully in Section IV.E of the report) are highlighted below.

Overcapitalization is the single most serious problem facing the West Coast groundfish fishery. The effectiveness of traditional management measures (e.g., landings limits, seasons) in ensuring that discards are minimized and that a reasonable economic livelihood can be made from the groundfish fishery has been seriously eroded in recent years. Given that OYs are unlikely to increase any time soon, the only viable option for reducing overcapitalization is to reduce potential harvest capacity.

The problems associated with overcapacity will not be resolved by waiting for vessels to leave the fishery. The extremely high amount of latent (i.e., unutilized) capacity present in the fishery means that a significant amount of effort is available for mobilization at any sign of improved fishing opportunities. The current problems associated with low landings limits, short seasons and complex and contentious management will not go away unless the Council takes deliberate action to permanently remove latent capacity from the fishery.

There are no quick or easy fixes for the problems caused by excess capacity. Eliminating excess capacity will be complex, costly and time consuming, regardless of which capacity reduction approach or combination of approaches is used. However, the status quo is also complex, costly and time consuming, and provides no solution to excess capacity and its associated problems.

The Council should take immediate action to develop stringent capacity reduction programs for all sectors of the West Coast groundfish fishery. Given the current moratorium on IFQs and the complexities of designing an IFQ system, IFQs are best viewed as a long term management strategy for West Coast groundfish. Other potential solutions, including limited entry for the open access fishery and buyouts and/or permit stacking for the limited entry fishery, should be explored immediately.

As a first step, the Council should establish clear goals and objectives for capacity reduction in each fishery sector. Goals and objectives have a direct bearing on the design of the capacity reduction program and the measures used to monitor program success.

Long term allocation decisions must be made to ensure that capacity reduction represents an acceptable financial risk to those who will pay for it. All capacity reduction approaches require that someone (industry, government or both) bear the financial risks associated with harvest, market and regulatory uncertainties. Allocation of groundfish OYs among fishery sectors (including recreation) will alleviate a major component of that risk.

Spillover effects on other fisheries should not deter the Council from addressing overcapitalization in the groundfish fishery. While scrapping of vessels is highly desirable, it is not clear whether it will be affordable. If vessels are not scrapped, it will be important that the capacity reduction program include design features that discourage spillover to the extent possible. Some spillover, however, will be inevitable, regardless of which capacity reduction approach is adopted (including the status quo). In any case, the groundfish fishery should not be held hostage to inadequate capacity regulation in other fisheries.

An ad hoc committee should be assigned to develop and evaluate "straw man" capacity reduction options for the Council. The committee could explore any number of management options. For instance, the committee could evaluate alternative mandatory permit stacking schemes in terms of their effects on harvest capacity and the landings limit per permit. The committee could analyze the effect of alternative limited entry criteria on the open access fleet. The committee could evaluate the feasibility of obtaining funding for a buyout and how much capacity could be bought out with different levels of funding. ***Council input regarding its capacity reduction objectives and which of the broad range of capacity reduction approaches it is interested in pursuing will be essential for focusing the committee's efforts. Industry involvement will be critical to the success of this endeavor.***

DRAFT REPORT FOR REVIEW

OVERCAPITALIZATION IN THE WEST COAST GROUNDFISH FISHERY:

BACKGROUND, ISSUES AND SOLUTIONS

Economic Subcommittee
Scientific and Statistical Committee
Pacific Fishery Management Council

March 16, 2000

This report was prepared for the Pacific Fishery Management Council by the SSC Economic Subcommittee. It is currently under review by the SSC.

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ACKNOWLEDGEMENTS

Dan Waldeck (PFMC staff member) played a key organizational role in the completion of this document. He handled meeting logistics, prepared meeting minutes, served as the SSC's liaison with the PFMC Strategic Plan Committee and generally provided services beyond the call of duty. Jim Hastie (NMFS/NWFSC), Co-Chair of the PFMC Groundfish Management Team, and Steve Freese (NMFS/NWR) were invited participants at the January 13-14, 2000 meeting at which capacity reduction approaches were explored for West Coast groundfish. Jim Hastie and Kevin Ford (NMFS/NWR) provided much of the fleet information contained in the document, and Kate King (NMFS/NWR) provided information regarding management aspects of the fishery.

ES. EXECUTIVE SUMMARY

ES.A. Trends in the West Coast Commercial Groundfish Fishery

From 1983 to 1999, aggregate commercial shoreside groundfish landings on the West Coast increased by 12% from 108,500 metric tons (mt) to 121,500 mt (Table ES-1, Figure ES-1), while shoreside ex-vessel revenues (in 1999 dollars) decreased by 47% from $100.2 million to $52.9 million (Table ES-2, Figure ES-2). These patterns are the result of two distinct trends: an increase in low-valued whiting landings and a decrease in landings of other higher-priced groundfish species.

The increase in shoreside whiting landings from 21,000 mt in 1991 (when the whiting fishery was Americanized) to over 80,000 mt annually during 1997-1999 contrasts sharply with the decline in the non-whiting fishery. During 1983-1999, non-whiting landings fell by 65% from 107.4 thousand mt to 38.1 thousand mt, while non-whiting revenues fell from by 54% from $99.9 million to $46.2 million. The decline was particularly severe for *sebastes* rockfish and flatfishes, which annually account for 50%-60% of non-whiting groundfish revenues. During 1983-1999, *sebastes* landings fell by 78% and *sebastes* revenues by 69%; flatfish landings fell by 41% and flatfish revenues by 73% (Tables ES-1 and ES-2).

ES.B. Biological and Regulatory Factors Affecting the Fishery

The decline in non-whiting groundfish landings experienced in the early 1990s has accelerated in recent years, as increasingly restrictive management measures have been adopted in response to new scientific information and new statutory requirements. In 1998 the Council changed the F_{msy} proxy for *sebastes* rockfish from $F_{35\%}$ to $F_{40\%}$ on the basis of scientific information suggesting that more stringent harvest restrictions were warranted for those stocks. In 1999, in order to meet provisions of the Sustainable Fisheries Act (SFA), the Council adopted a default harvest rate policy (Groundfish FMP Amendment 11, PFMC 1998) that imposed stringent rebuilding requirements on "overfished" stocks. Under this new policy, formal rebuilding plans were initiated in 2000 for lingcod, bocaccio and Pacific ocean perch, and will be in initiated in 2001 for canary and cowcod. In 2000, the Council changed the F_{msy} proxy from $F_{35\%}$ to $F_{40\%}$ for shortspine thornyhead and from $F_{40\%}$ to $F_{45\%}$ for widow rockfish, on the basis of their low abundance. The Council has also been presented with new scientific information suggesting that the productivity of West Coast groundfish is unusually low relative to other groundfish stocks worldwide. To more fully investigate and evaluate this evidence, the Council's Scientific and Statistical Committee will convene a Harvest Rate Policy Review Workshop in March 2000 to evaluate the appropriateness of the current default F_{spr} values being used by the Council as proxies for F_{msy}.

The declines in abundance observed for many West Coast groundfish stocks have been inadvertently fostered by harvest policies that -- while based on the best scientific information available at the time-- are now thought to contribute to overfishing. New scientific information and new statutory requirements have resulted in much more conservative harvest policies. Given

the depressed status of many groundfish stocks, the long periods required to rebuild overfished stocks, and the possibility of additional rounds of OY reductions once the results of the SSC Harvest Rate Policy Review Workshop become available, allowable non-whiting harvests are likely to remain restricted for many years to come.

ES.C. Overcapitalization and Its Effects on the Fishery

In 1994, the Council implemented a limited entry program for the commercial groundfish fishery. Of the vessels that initially qualified for a limited entry permit, 245 held fixed gear endorsements and 384 held trawl endorsements. Currently, the limited entry fleet includes 236 fixed gear endorsements, 264 trawl endorsements held by catcher boats, and 10 catcher-processor permits. The entry of catcher-processors into the fishery, which occurred in 1994-1995, was largely accomplished by the transfer of trawl permits to catcher-processors. The decline in trawl permits and increase in catcher-processor permits have been the only significant change in groundfish fleet configuration since the inception of limited entry.

Potential harvest capacity includes both unutilized (i.e., latent) as well as utilized capacity. Although limited entry has likely had the effect of "freezing" potential harvest capacity at its 1994 level, the low eligibility requirements for limited entry assured that even vessels with marginal involvement in the fishery were eligible for a permit. As a result, a significant proportion of the harvest capacity initially admitted into the fishery consisted of latent capacity. This overcapitalization, which is measured by the difference between potential harvest capacity and available harvest, has been further exacerbated by the severe harvest restrictions of recent years. Current capital utilization rates are exceedingly low for all sectors of the commercial groundfish fishery: 9% and 12% respectively for the sablefish and non-sablefish components of the limited entry fixed gear fishery, 27%-41% for limited entry trawlers who deliver shoreside, and 6%-13% for open access vessels targeting groundfish.

In order to ensure that current fishery participants -- who are capable of expending much more fishing effort than needed to harvest the OYs -- do not exceed the OYs, the Council has drastically reduced cumulative vessel landings limits. Expressed in comparable monthly-equivalent terms, landings limits in the limited entry fishery have declined from 120,000 pounds in the mid-1980s to 13,000 pounds in 2000 for *sebastes* north; 100,000 pounds in the early 1990s to 22,000 pounds in 2000 for *sebastes* south; and 110,000 pounds in the early 1990s to 27,000 pounds in 2000 for the Dover/thornyhead/sablefish complex (Figure ES-3). In the open access fishery, monthly-equivalent *sebastes* limits have fallen from 35,000-40,000 pounds during 1994-1998 to about 5,000 pounds during 1999-2000. The fixed gear sablefish season, which was year-round in the early 1980s, has been reduced to 6-9 days in recent years (Figure ES-4). The sablefish season (with its regular and mop-up components and its three-tiered structure) has also become more complex to administer.

The economic hardship and uncertainty being experienced by the industry is intensifying competition among fishery sectors for access to the resource. Protecting groundfish stocks while

ensuring that the burden of conservation measures is distributed equitably among sectors of the fishery is becoming increasingly difficult to accomplish. Even if groundfish OYs were to increase significantly (an unlikely scenario), the latent capacity in the fishery will be mobilized at any sign of improved fishing opportunities. The current problems associated with low landings limits, short seasons and complex regulations will not go away unless latent capacity is permanently removed from the fishery.

ES.D. Comparison of Capacity Reduction Strategies

Table ES-3 qualitatively summarizes the potential effects of alternative groundfish capacity reduction approaches relative to the status quo. The status quo pertains not just to the current state of the fishery under the current management approach but also what will likely occur if the current approach is continued indefinitely into the future. Each approach is described in terms of potential outcomes, that is, outcomes that probably can but will not necessarily be realized, depending on the specific details of the program actually adopted. Although each approach is evaluated in isolation, the eventual goal is to encourage discussion regarding how various approaches could be combined in ways that allow the strengths of one approach to offset the weaknesses of another, and vice versa.

Immediate Feasibility: IFQs are not feasible at this time due to a Congressionally imposed moratorium, although that moratorium may be lifted in 2000. Funding for a government financed buyout is not currently available, and it is uncertain whether such funding will be available in the future. It is also not clear whether industry can afford to fund a buyout, given the low OYs and uncertainty regarding permit prices. Nevertheless IFQs and buyout programs are included in this evaluation, based on the possibility that IFQs will become legal, that an industry buyout will be viable and that a government buyout can be funded.

Groundfish capacity reduction: The status quo will not result in any significant capacity reduction, as permit holders are much more likely to retain or transfer their permits than allow them to lapse, even under current depressed fishery conditions. Limited entry and mandatory permit stacking are "command and control" approaches that can be designed to achieve significant capacity reduction. Given that industry will fund a buyout only if it expects it to result in a profitable fishery, an industry buyout -- if affordable -- can also result in significant capacity reduction. Government funded buyouts, which have typically been used in other fisheries as a source of short term financial relief, can -- given sufficient political will -- be designed to achieve capacity reduction. However, given the difficulty of fully dampening the speculative increase in permit prices that typically accompanies government programs, a government buyout will be less successful at reducing groundfish capacity than a similarly funded industry buyout. A government buyout designed to retire vessels will have a smaller impact on groundfish capacity than a similarly funded government buyout that retires groundfish permits only, since the monetary incentive needed to induce a vessel to retire from all fisheries will be greater than the monetary incentive needed to induce retirement of the vessel's groundfish permit. The success of voluntary permit stacking in achieving capacity reduction is highly

uncertain, given the difficulty of predicting the number of vessels that will choose to stack under any given set of circumstances. IFQs are similar in some respects to the cumulative landings limits already used in the groundfish fishery, except that IFQ shares (unlike landings limits) vary across individual vessels. Non-transferable IFQs will produce modest capacity reduction, at best, and only to the extent that the number of vessels receiving initial IFQ allocations is smaller than the number of vessels participating in the fishery under the status quo. Transferable IFQs may produce significant capacity reduction as quota shares are transferred from less to more efficient producers. However, capacity reduction will likely take longer to accomplish with transferable IFQs than with limited entry, buyouts or permit stacking.

Long term groundfish capacity management: Effective long term capacity management requires that industry be provided with incentives to efficiently adjust capacity in response to changes in technology, markets and resources. A necessary condition for facilitating industry adjustments is that the fishing privilege be freely transferable. For this reason, non-transferable IFQs are no more likely to achieve capacity management than the status quo. Transferable IFQs, which allow quota holders to adjust capacity in response to changes in economic and harvest conditions, are well suited to long term capacity management. Programs that regulate inputs (e.g., limited entry, permit stacking, buyouts) rather than outputs are intended, by design, to restrict the ability of permit holders to change the existing level of capacity; they are therefore less conducive to achieving long term capacity management than transferable IFQs. However, an input control program that incorporates transferable permits can still facilitate movement of existing harvest capacity among fishery sectors in response to changing conditions. Input control programs can also contribute to capacity management by incorporating features (e.g., trip limits) that discourage the race for fish and the wasteful capital stuffing resulting thereof.

Economic efficiency and profitability, discards, management costs, monitoring and enforcement costs: The success of a capacity reduction approach in enhancing efficiency and profitability, reducing discards, and reducing management and monitoring/enforcement costs will be correlated with its success in achieving capacity reduction. With regard to the input control approaches described in Table ES-3, government sponsored vessel retirement and voluntary permit stacking will be somewhat likely to enhance groundfish profitability, reduce discards, and reduce management and monitoring/enforcement costs relative to the status quo. Limited entry, mandatory permit stacking and government or industry buyout of groundfish permits will perform even better in each of these respects. With regard to the output control approaches included in the table, non-transferable IFQs will likely produce little change from the status quo and transferable IFQs will produce mixed results. Profitability will be highest with transferable IFQs, since the incentive to race for fish will be replaced with the opportunity and incentive to enhance the value of quota shares. Management costs will be lowest, since transferable IFQs remove the competitive incentive for capital stuffing, allow capacity to adjust to changes in OYs and provide market solutions to allocation issues. However, transferable IFQs will have an uncertain effect on discards, depending on whether the reduction in discards that eventually occurs as quota shares are consolidated among fewer quota holders is offset by the incentive for highgrading. Transferable IFQs also have the potential to generate significant

monitoring/enforcement costs, given the need to monitor each IFQ holder's quota availability and quota use, and track quota transfers across individuals. This task becomes particularly burdensome if tracking must be done for individual species caught in multispecies complexes.

Spillover effects: The low cumulative landings limits and other regulatory restrictions that characterize the status quo provide an incentive for existing groundfish permit holders to seek alternative opportunities in non-groundfish fisheries. Limited entry, voluntary or mandatory permit stacking, and government or industry funded buyout of groundfish permits all have the potential to exclude some groundfish participants, who will subsequently become fully committed to non-groundfish fisheries. Conversely, however, those who remain in the fishery may be more likely to specialize in groundfish and less likely to diversify into other fisheries. Given the difficulty of predicting the spillover effects associated with these capacity reduction approaches relative to the status quo, they are considered to be indistinguishable for purposes of the table. Government funded vessel retirement will result in less spillover than any other approaches, since it removes vessels from other fisheries as well as groundfish. IFQs, because they allow quota holders to time their groundfish harvests to enhance their fishing opportunities in non-groundfish fisheries, will provide greater opportunity for spillover than the other approaches.

ES.E. Conclusions and Recommendations

The current problems associated with low landings limits, short seasons and complex and contentious management will not go away unless the Council takes deliberate action to permanently remove latent capacity from the groundfish fishery. Eliminating excess capacity will be complex, costly and time consuming, regardless of which capacity reduction approach or combination of approaches is used. However, the status quo is also complex, costly and time consuming, and provides no solution to excess capacity and its associated problems.

The need to address groundfish overcapacity is urgent. Potential solutions -- including limited entry, buyouts and permit stacking -- should be subject to immediate consideration. Given the current moratorium on IFQs and the potentially complex design requirements of IFQ systems, IFQs are best viewed as a long term management strategy for West Coast groundfish.

The Council should establish clear goals and objectives for capacity reduction in each fishery sector, and should incorporate design features into the program that provide a realistic basis for achieving those objectives. The Council should consider using different capacity reduction approaches for different sectors of the fishery, and also consider combinations of approaches that allow the strengths of one approach to offset the weaknesses of another, and vice versa.

While achieving an immediate reduction in capacity is critical, it is equally critical that the Council address the fundamental cause of overcapacity. This will require development of management approaches that end the race for fish and provide incentives for industry to adjust capacity in response to changes in technology, markets and the resource.

Resolution of the capacity problem will require that a number of related issues be addressed.

- ***Long term allocation decisions must be made to ensure that the benefits of capacity reduction accrue to those who bear the costs.***

- ***Spillover effects on other fisheries, while a legitimate and serious concern, are not an adequate justification for ignoring the overcapitalization problem in the groundfish fishery.*** Spillover effects should be mitigated to the extent possible. However, groundfish should not be held hostage to inadequate capacity regulation in other fisheries.

Table ES-1 . Commercial shoreside groundfish landings (metric tons), by state and year, 1983-1999.[1]

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sebastes Rockfish:																	
WA	11,834	7,060	6,343	8,128	8,960	9,273	8,421	6,800	5,351	4,852	5,608	4,169	3,935	3,581	2,457	2,091	1,697
OR	15,254	12,227	11,980	11,095	13,910	14,105	15,847	12,445	12,462	13,069	14,858	11,862	10,002	10,602	8,441	7,148	6,067
CA	18,399	17,551	14,911	14,164	21,638	17,573	17,062	16,536	15,612	14,845	12,407	7,494	8,048	7,453	7,284	6,727	2,369
Total	45,487	36,838	33,234	33,387	44,508	40,951	41,330	35,781	33,425	32,766	32,873	23,525	21,985	21,636	18,182	15,966	10,133
Thornyheads:																	
WA	118	253	56	25	63	69	131	156	134	214	604	685	580	430	365	162	84
OR	835	795	1,117	673	727	1,043	2,553	4,529	3,506	4,281	4,460	4,043	3,336	2,786	2,326	1,460	1,058
CA	1,711	2,126	2,940	2,950	3,697	4,939	6,549	7,044	4,398	7,092	6,119	3,316	3,634	3,313	1,597	1,908	1,308
Total	2,664	3,174	4,113	3,648	4,487	6,051	9,233	11,729	8,038	11,587	11,183	8,044	7,550	6,529	4,288	3,530	2,450
Flatfish:																	
WA	5,529	6,284	6,025	4,177	5,115	4,704	6,190	7,045	5,706	3,668	3,119	3,060	2,388	3,641	2,648	2,773	4,143
OR	12,456	8,830	8,628	7,368	9,074	10,564	12,381	11,326	14,042	10,418	10,485	7,562	7,074	8,553	7,192	7,092	8,457
CA	11,648	12,586	15,786	14,583	14,679	11,774	11,326	9,328	10,767	10,719	8,490	6,923	8,755	9,328	8,375	5,561	4,826
Total	29,633	27,700	30,439	26,128	28,868	27,042	29,897	27,699	30,515	24,805	22,094	17,545	18,217	21,522	18,215	15,426	17,426
Sablefish:																	
WA	3,363	4,413	3,869	2,415	3,144	2,938	2,416	1,724	2,237	1,790	1,713	1,388	1,951	1,947	2,036	1,159	1,688
OR	4,641	4,835	5,275	4,653	5,238	4,082	3,948	3,705	3,906	3,856	3,835	4,005	3,133	3,175	2,925	1,750	2,967
CA	6,694	4,826	5,171	6,220	4,404	3,856	4,075	3,750	3,353	3,714	2,597	2,186	2,818	3,195	2,967	1,436	1,653
Total	14,698	14,074	14,315	13,288	12,786	10,876	10,439	9,179	9,496	9,360	8,145	7,579	7,902	8,317	7,928	4,345	6,308
Lingcod:																	
WA	1,524	2,043	2,130	714	1,023	757	1,137	993	892	561	676	477	278	360	290	38	41
OR	1,734	1,057	1,052	656	717	1,004	1,174	874	1,486	708	833	859	649	717	767	161	174
CA	898	951	695	524	812	867	1,257	1,064	788	613	685	568	539	479	480	149	131
Total	4,156	4,051	3,877	1,894	2,552	2,628	3,568	2,931	3,166	1,882	2,194	1,904	1,466	1,556	1,537	348	346
Other Non-Whiting:																	
WA	543	791	672	436	1,718	2,522	1,722	1,311	2,123	2,415	2,111	2,019	741	1,348	957	961	633
OR	173	127	86	66	681	1,070	841	333	706	622	901	647	616	7,942	4,055	1,663	278
CA	10,082	9,367	7,111	4,984	8,290	5,283	10,906	3,397	1,867	1,561	2,216	3,423	2,345	2,930	2,717	2,037	489
Total	10,798	10,285	7,869	5,486	10,689	8,875	13,469	5,041	4,686	4,598	5,228	6,089	3,702	12,220	7,729	4,661	1,400

Table ES-1 (cont)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
All Non-Whiting																	
WA	22,911	20,844	19,095	15,895	20,023	20,263	20,017	18,029	16,443	13,500	13,831	11,798	9,873	11,307	8,753	7,184	8,286
OR	35,093	27,871	28,138	24,511	30,347	31,868	36,744	33,212	36,108	32,954	35,372	28,978	24,810	33,775	25,706	19,274	19,001
CA	49,432	47,407	46,614	43,425	53,520	44,292	51,175	41,119	36,785	38,544	32,514	23,910	26,139	26,698	23,420	17,818	10,775
Total	107,436	96,122	93,847	83,831	103,890	96,423	107,936	92,360	89,336	84,998	81,717	64,686	60,822	71,780	57,879	44,276	38,062
Shoreside Whiting:																	
WA	6	47	14	61	95	88	27	302	504	2,237	3,188	4,884	4,037	10,905	7,241	10,513	9,099
OR	65	338	885	420	183	246	89	2,294	13,643	48,961	35,820	65,110	66,840	62,991	70,875	71,626	73,012
CA	980	2,335	2,996	2,982	4,518	6,533	7,298	5,519	6,893	4,930	3,100	3,613	4,091	2,901	6,332	5,723	1,308
Total	1,051	2,720	3,895	3,463	4,796	6,867	7,414	8,115	21,040	56,128	42,108	73,607	74,968	76,797	84,448	87,862	83,419
All Groundfish Species:																	
WA	22,917	20,891	19,109	15,956	20,118	20,351	20,044	18,331	16,947	15,737	17,019	16,682	13,910	22,212	15,994	17,697	17,385
OR	35,158	28,209	29,023	24,931	30,530	32,114	36,833	35,506	49,751	81,915	71,192	94,088	91,650	96,766	96,581	90,900	92,013
CA	50,412	49,742	49,610	46,407	58,038	50,825	58,473	46,638	43,678	43,474	35,614	27,523	30,230	29,599	29,752	23,541	12,083
Total	108,487	98,842	97,742	87,294	108,686	103,290	115,350	100,475	110,376	141,126	123,825	138,293	135,790	148,577	142,327	132,138	121,481

[1] Sources: 1983-1998 data obtained from PFMC (1999a; pp. T-13, T-15 and T-17). 1999 data obtained from PacFIN state reports as of January 26, 2000 and are preliminary.

Table ES-2 . Ex-vessel value of commercial shoreside groundfish landings ($1000s, base year=1999), by state and year, 1983-1999.[1]

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sebastes Rockfish:																	
WA	8,225	5,025	5,187	7,171	8,939	7,758	6,340	5,040	4,173	3,833	4,167	3,445	3,403	2,809	1,951	1,755	1,498
OR	10,597	9,461	9,739	9,832	13,916	11,815	11,902	9,183	9,745	10,100	11,127	9,307	8,397	8,320	6,703	6,440	5,703
CA	16,365	16,419	15,658	16,384	25,029	19,144	18,216	17,445	16,538	16,274	13,782	9,487	10,231	9,155	8,742	7,933	3,714
Total	35,186	30,905	30,583	33,387	47,884	38,717	36,458	31,669	30,456	30,207	29,076	22,238	22,032	20,283	17,396	16,128	10,915
Thornyheads:																	
WA	89	175	45	23	61	67	123	140	149	217	624	1,078	1,289	813	600	229	138
OR	616	627	898	596	724	1,074	2,644	4,725	4,106	4,694	4,894	6,900	7,762	5,512	3,935	2,114	1,787
CA	1,372	1,739	2,375	2,576	3,650	5,119	6,852	7,317	5,233	8,733	7,636	6,062	8,847	6,830	2,952	3,344	2,716
Total	2,077	2,541	3,318	3,196	4,434	6,259	9,619	12,182	9,488	13,644	13,153	14,040	17,897	13,155	7,487	5,687	4,641
Flatfish:																	
WA	6,879	4,754	4,634	3,250	4,915	4,322	4,512	3,980	3,529	2,418	2,100	1,776	1,915	2,058	1,679	1,680	1,836
OR	18,914	8,575	8,098	7,593	10,182	11,058	11,040	9,012	11,812	7,733	7,554	5,554	6,001	6,316	5,609	5,509	5,881
CA	17,467	11,394	14,512	13,965	15,669	12,324	10,699	8,148	9,701	8,726	6,736	6,007	7,699	7,924	6,927	4,958	4,073
Total	43,260	24,724	27,244	24,808	30,766	27,704	26,251	21,140	25,041	18,877	16,390	13,337	15,615	16,298	14,215	12,148	11,790
Sablefish:																	
WA	3,035	3,668	6,177	3,848	6,258	6,150	4,253	3,213	6,542	4,376	3,412	3,321	7,508	7,425	8,754	3,336	5,012
OR	3,526	3,278	4,978	5,140	7,015	5,941	4,918	4,280	5,988	6,200	5,005	8,043	9,741	10,575	10,492	4,683	7,683
CA	5,492	3,336	4,214	6,620	5,265	4,561	4,630	4,345	4,358	5,063	2,768	3,661	7,759	9,097	9,319	3,407	3,578
Total	12,053	10,283	15,368	15,608	18,539	16,651	13,802	11,839	16,889	15,638	11,185	15,025	25,008	27,096	28,566	11,426	16,273
Lingcod:																	
WA	1,287	1,582	1,718	663	1,131	739	1,006	869	785	524	579	433	282	362	274	47	52
OR	1,489	882	882	631	827	1,063	1,114	800	1,276	660	748	824	652	722	808	255	290
CA	798	834	669	588	978	1,017	1,408	1,138	833	671	730	640	652	597	569	275	261
Total	3,575	3,298	3,269	1,882	2,936	2,819	3,527	2,807	2,895	1,855	2,056	1,897	1,585	1,681	1,651	577	603
Other Non-Whiting:																	
WA	425	468	377	303	1,620	1,847	1,148	793	1,311	1,492	1,088	1,006	493	468	622	510	360
OR	147	107	80	63	685	858	606	202	466	483	513	287	255	313	548	434	178
CA	3,134	2,485	2,285	1,553	2,033	1,351	2,273	744	488	494	700	986	1,143	2,672	1,951	1,905	1,399
Total	3,706	3,061	2,752	1,919	4,337	4,056	4,027	1,739	2,264	2,469	2,301	2,279	1,891	3,454	3,121	2,849	1,936

Table ES-2 (cont.)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
All Non-Whiting:																	
WA	19,941	15,673	18,138	15,258	22,923	20,883	17,381	14,035	16,488	12,860	11,970	11,060	14,889	13,934	13,881	7,557	8,896
OR	35,290	22,931	24,675	23,854	33,348	31,809	32,224	28,203	33,393	29,869	29,841	30,915	32,808	31,757	28,096	19,435	21,522
CA	44,627	36,208	39,722	41,687	52,624	43,515	44,079	39,138	37,151	39,961	32,352	26,842	36,330	36,275	30,459	21,824	15,741
Total	99,858	74,812	82,535	80,798	108,896	96,207	93,684	81,376	87,003	82,691	74,162	68,817	84,027	81,967	72,436	48,815	46,159
Shoreside whiting:																	
WA	0	9	3	11	25	25	6	56	94	240	235	276	388	755	733	609	748
OR	50	89	270	80	47	55	19	268	1,689	5,824	2,558	4,693	7,468	4,343	6,731	3,826	5,918
CA	254	515	578	547	844	1,434	1,345	961	1,040	685	383	386	486	250	599	401	116
Total	304	613	852	638	916	1,514	1,370	1,285	2,823	6,749	3,176	5,356	8,343	5,348	8,063	4,835	6,782
All Groundfish Species:																	
WA	19,941	15,682	18,141	15,269	22,948	20,908	17,388	14,091	16,583	13,100	12,204	11,336	15,278	14,689	14,614	8,165	9,644
OR	35,340	23,020	24,945	23,934	33,395	31,864	32,243	28,472	35,082	35,693	32,399	35,608	40,276	36,100	34,826	23,261	27,440
CA	44,881	36,723	40,301	42,233	53,468	44,949	45,424	40,098	38,191	40,646	32,735	27,228	36,817	36,525	31,059	22,225	15,857
Total	100,162	75,425	83,386	81,436	109,812	97,721	95,054	82,661	89,855	89,440	77,338	74,172	92,370	87,315	80,499	53,650	52,941

[1] Sources: 1983-1998 data obtained from PFMC (1999a; pp. T-14, T-16, T18). 1999 data obtained from PacFIN state reports as of January 26, 2000 and are preliminary. All values corrected to 1999 dollars using the Implicit Price Deflator for Gross Domestic Product.

Table ES-3. **Potential** effects of alternative capacity reduction approaches **relative to the status quo.**[1]

	Immediate Feasibility	Groundfish Cap Reduction	Long Term Groundfish Cap Mgmt[2]	Economic Efficiency and Profitability	Groundfish Discards	Groundfish Management Costs	Gr Monitoring &Enforcement Costs	Spillover Effects
Status Quo	YES	NONE	NONE	LOW	HIGH	HIGH	HIGH	SOME
Govt Buyout (Vessel Retirement)[3]	Maybe	Some	Some	Somewhat higher	Somewhat lower	Somewhat lower	Somewhat lower	Lower
Govt Buyout (Gr Permits Only)[3]	Maybe	More	Some	Higher	Lower	Lower	Lower	Same as status quo
Industry Buyout (Gr Permits Only)[3]	Maybe	Most	Some	Higher	Lower	Lower	Lower	Same as s.q.
Limited Entry	Yes	Most	Some	Higher	Lower	Lower	Lower	Same as s.q.
Permit Stacking (Mandatory)	Yes	Most	Some	Higher	Lower	Lower	Lower	Same as s.q.
Permit Stacking (Voluntary)	Yes	Some	Some	Somewhat higher	Somewhat lower	Somewhat lower	Somewhat lower	Same as s.q.
IFQs (Non-transferable)	No	None/some	Same as status quo	Same as s.q.	Same as s.q.	Same as s.q.	Same as s.q.	Higher
IFQs (Transferable)	No	Most (not immediate)	Most	Highest	Don't know	Lowest	Higher	Higher

Table ES-3 (cont.)

[1] Each capacity reduction option is described relative to the status quo. The status quo pertains not just to the current state of the fishery under the current management approach but also what will likely occur if the current approach is continued indefinitely into the future. All effects are described as "potential" to highlight the fact that they probably can but will not necessarily be realized, depending on the specific details of the program actually adopted.

[2] "Long term capacity management" refers to effectiveness of capacity reduction program in providing incentives for industry to efficiently adjust capacity in response to long term changes in technology, markets and resources.

[3] The evaluation of buyout programs reflects what would occur if a similar amount of money were available for each type of buyout.

Figure ES-1. Annual West Coast Commercial Shoreside Groundfish Landings, by Species Category, 1983-1999

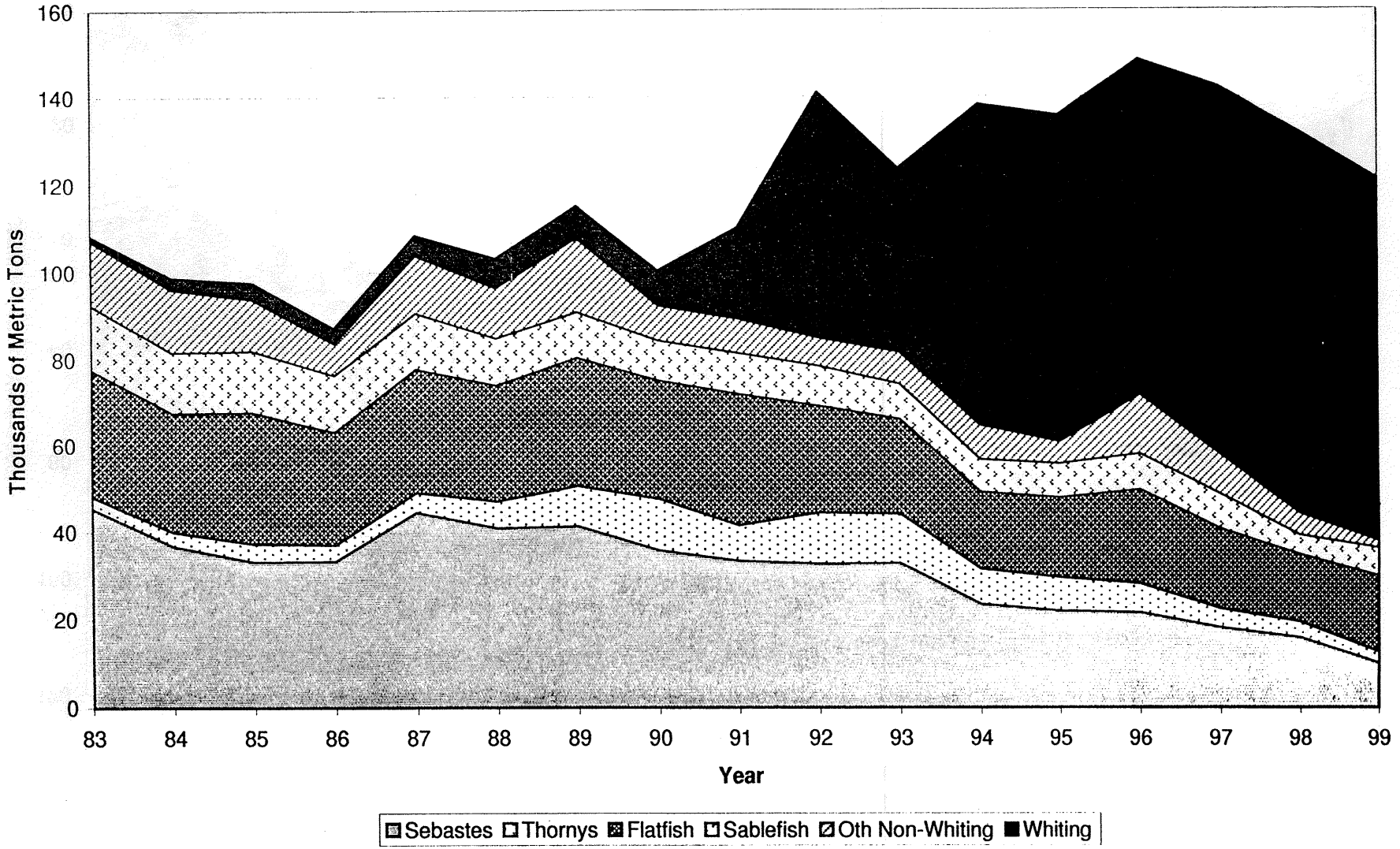


Figure ES-2. Annual West Coast Commercial Shoreside Groundfish Revenues, by Species Category, 1983-1999

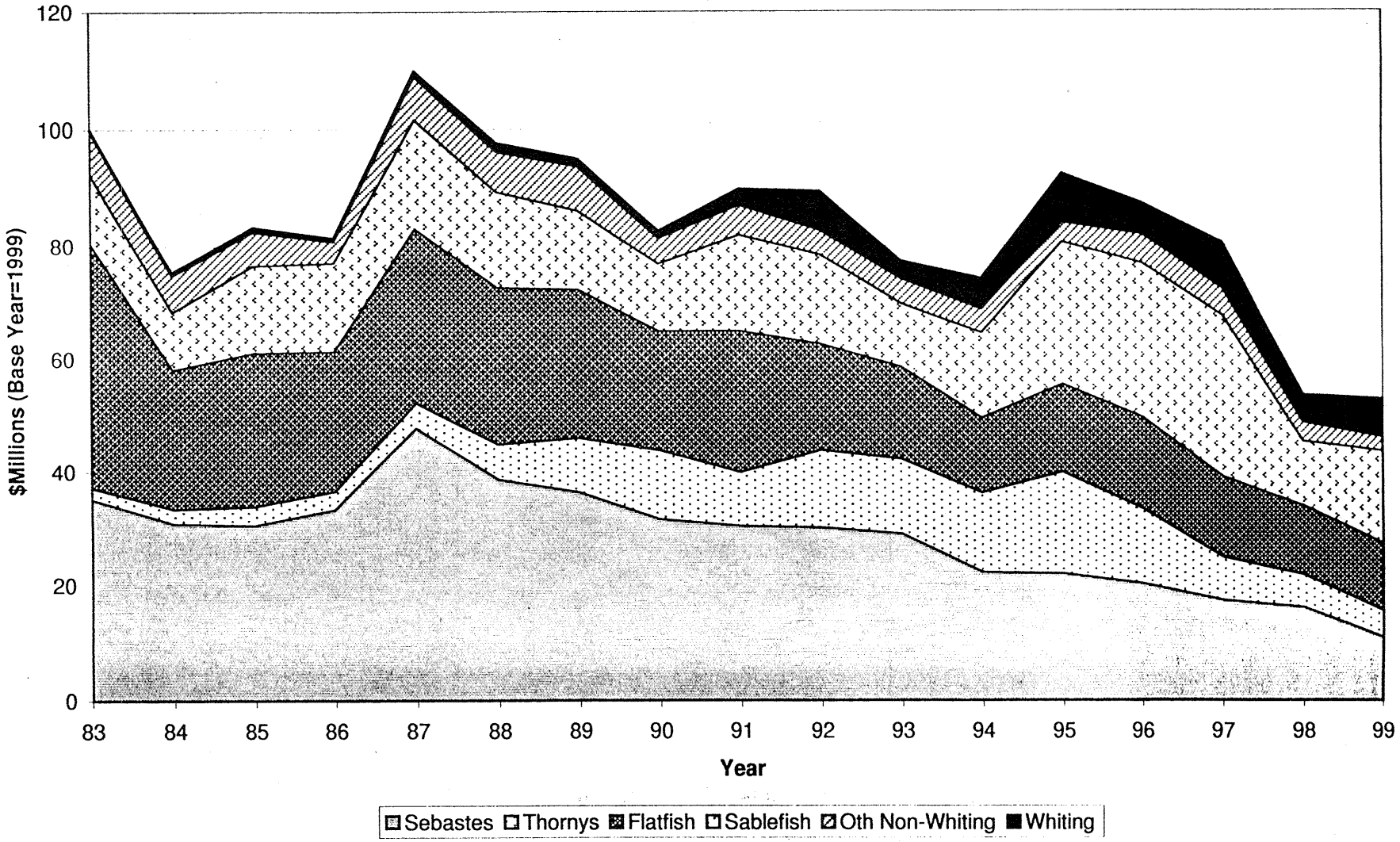


Figure ES-3. Monthly-Equivalent Cumulative Landings Limits for the Groundfish Limited Entry Fleet, by Major Species Complex, 1984-2000

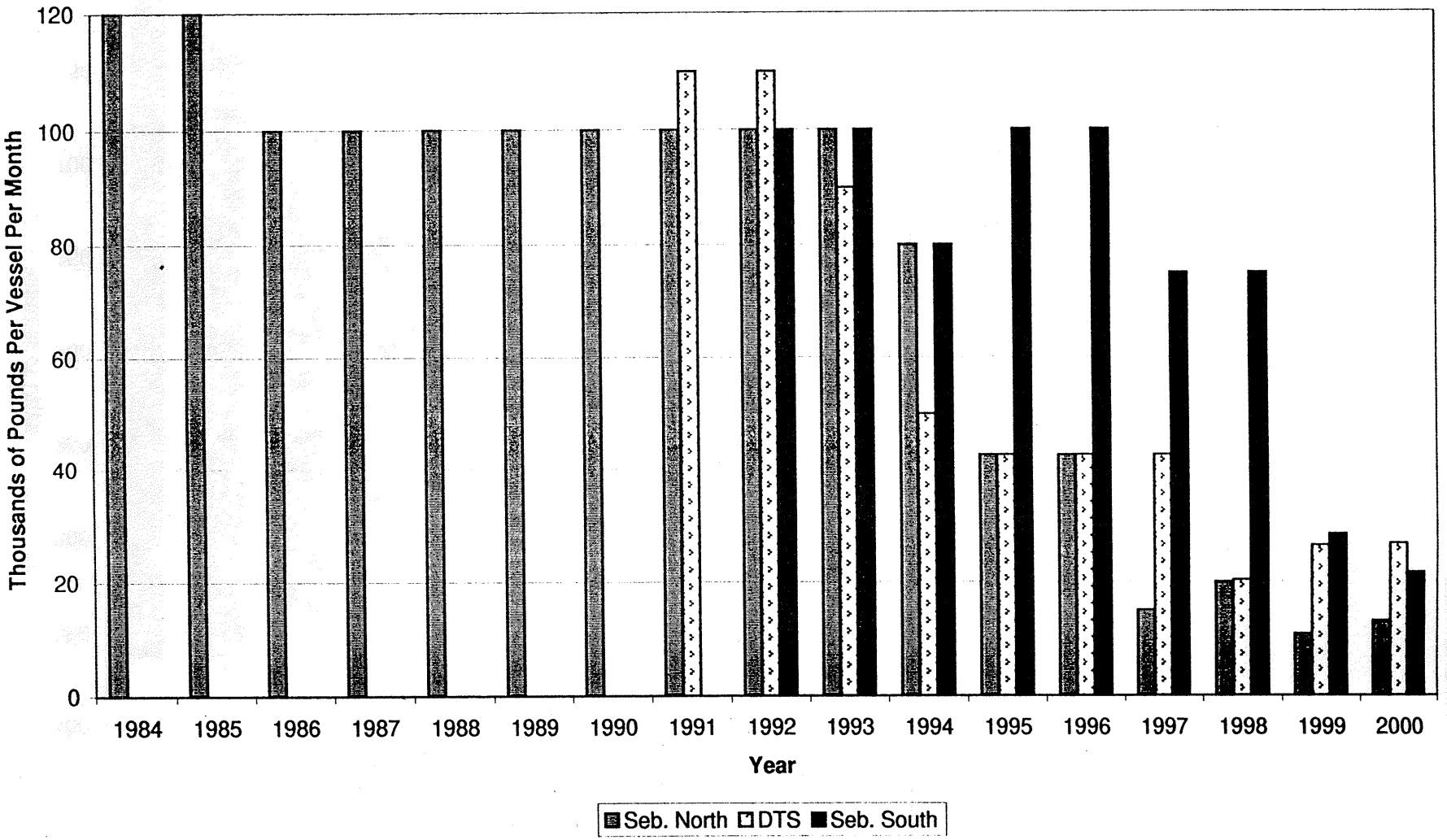
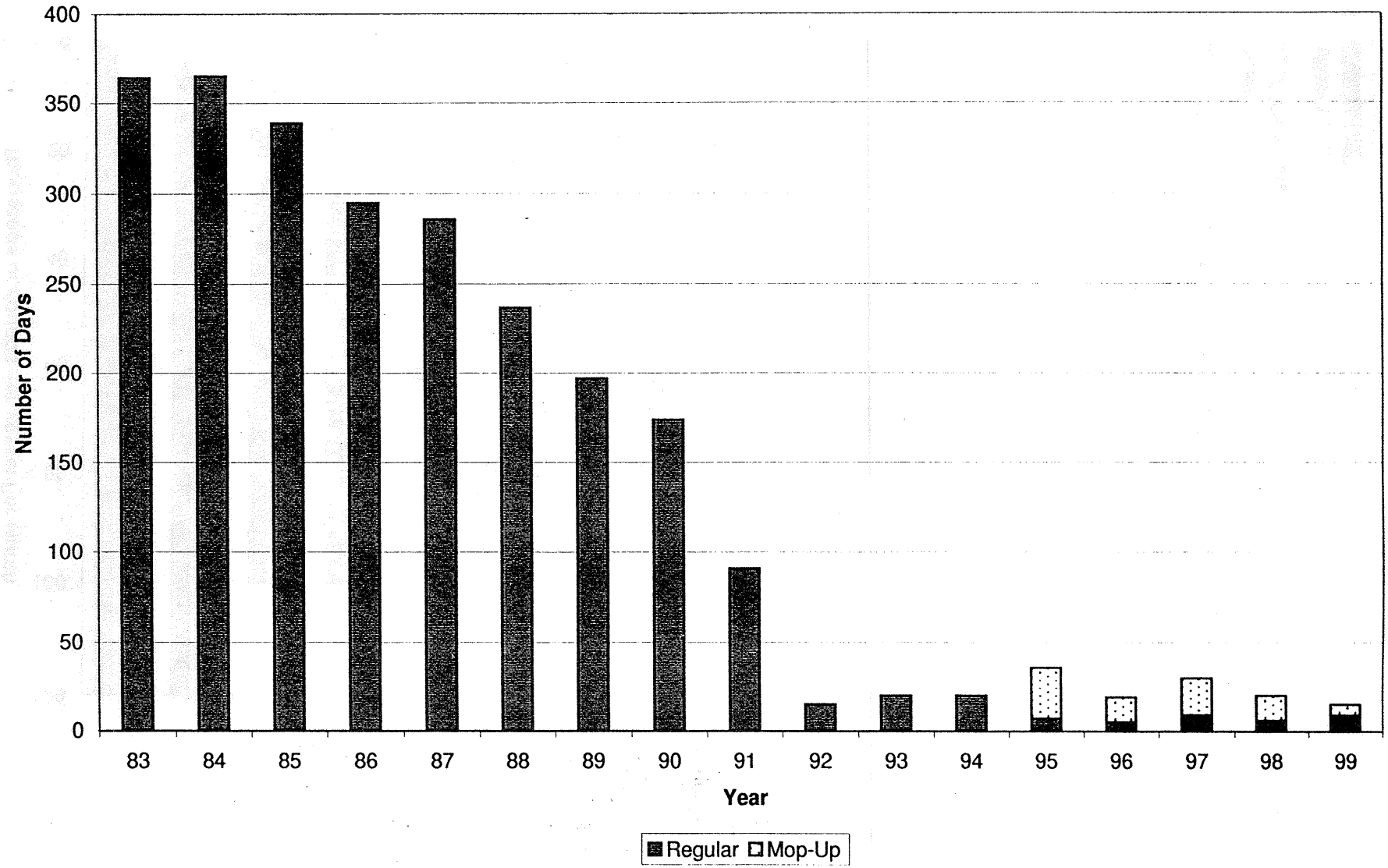


Figure ES-4. Length of Limited Entry Fixed Gear Sablefish Season, by Year



1I. INTRODUCTION

The problem of excess capacity[1] is widespread in U.S. and international marine fisheries, attracting particular attention in the past decade. In the U.S., all of the regional fishery management councils are engaged in discussions of this problem and approaches to its solution. Thus the problem of overcapacity in West Coast groundfish fisheries occurs within a policy and economic context that is common to many fisheries.

I.A. The Policy Context

The U.S. is a party to international agreements related to fishing capacity. The Code of Conduct for Responsible Fisheries, developed by the United Nations Food and Agriculture Organization (FAO), requires that all parties to the agreement develop implementation plans for reducing capacity in their fisheries (NMFS 1997a). An international plan of action directs all FAO member nations to assess capacity levels in their fisheries. To this end, the National Marine Fisheries Service (NMFS) is co-sponsoring with FAO a technical experts consultation on defining, measuring and managing fishing capacity (Dalton letter 2000).

The 1996 Sustainable Fisheries Act (SFA), which amended the Magnuson Fishery Conservation and Management Act, mandated several actions related to capacity in U.S. federally managed fisheries. It directed the Secretary of Commerce to form a task force to address the effect of government policies on capital investment and capacity in fisheries. The Federal Fisheries Investment Task Force submitted a report to Congress in July 1999 (Federal Fisheries Investment Task Force 1999), concluding that federal investment in fisheries has had a direct role in capital formation and capacity in some U.S. fisheries.

The SFA placed a moratorium until October 2001 on the issuance of new government loans for fishing vessel construction that increased fishing capacity, and proposed the creation of a standardized fishing vessel registration and information management system. The Act directed the Government Accounting Office (GAO) to conduct a study of the effectiveness of buyout programs in reducing fishing capacity, and ordered the creation of a Capacity Reduction and Financing Authority to guarantee debt obligations incurred in capacity reduction (NMFS 1996; NMFS 1997a). The GAO has initiated its evaluation of vessel buyout programs -- including programs implemented in the Northeast fisheries and in the salmon troll, gillnet and charterboat fisheries in the Northwest.

The SFA also placed a four-year moratorium (until October 1, 2000) on the development of new individual fishing quota (IFQ) programs, and mandated an assessment of IFQ performance by the National Research Council (NRC). Market transfer of IFQs generates

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[1] Although, strictly speaking, the term "capacity" pertains to all inputs (labor, capital, etc.) used to harvest groundfish, the terms "capacity" and "capitalization" are used loosely and interchangeably in this paper to refer to the harvest capacity of fishing vessels.

capacity reduction as quota share is consolidated among fewer vessels, which then operate at a higher level of capacity utilization. Thus, while some provisions of the SFA attempt to address concerns regarding overcapacity, the IFQ moratorium eliminates from consideration one major management approach to achieving capacity reduction. In 1999 the NRC, in recognition of the role IFQs can play in reducing capacity, recommended that the moratorium on the development of IFQ programs be lifted (NRC 1999).

A number of other completed or ongoing activities at the national level are also indicative of the growing concern regarding overcapacity in U.S. fisheries. The Congressional Research Service produced an assessment of economic and capacity reduction in commercial fisheries (Read and Buck 1997). One of the objectives contained in the NOAA Fisheries Strategic Plan is to reduce by 15% the number of federally managed fisheries with excess capacity by FY 2004 (NMFS 1997b). As intermediate steps toward achieving this goal, NMFS has convened a National Excess Capacity Task Force to explore alternative definitions of capacity and alternative approaches to measuring it (National Excess Capacity Task Force 1999) and is coordinating an effort to develop estimates of capacity for all federally managed fisheries (Dalton 1999). The Marine Fisheries Advisory Committee, which advises the Undersecretary of Commerce for Oceans and Atmosphere, has recently formed a Capacity Subcommittee to provide advice on various aspects of the overcapacity problem.

I.B. The Economic Context

The economic context of overcapacity pertains to the conditions and incentives that lead to overinvestment in unregulated fisheries. When individual fishermen can claim ownership to fish only on capture, they have little incentive to restrain their harvest rates, since what is not taken by one individual will be taken by others. Thus a race for fish is created, in which fishermen have an incentive to invest in more and bigger boats, to enhance inputs used on board their boats (e.g., electronics, fishing gear) and to modify fishing practices in ways that enable them to catch as much fish as quickly as possible. Competition of this type is ultimately detrimental to all fishery participants, since any short term advantage gained by such behavior eventually dissipates as other vessels take similar actions. The race leads to repetitive and wasteful rounds of investment in order to catch the same amount of fish.[2] It is this kind of incentive that has lead to overcapitalized fisheries around the world.

Uncertainties associated with biological, environmental and regulatory conditions motivate fishermen to diversify their fishing operations and invest in multipurpose fishing capital in order to better adapt to changing fishery conditions. Opportunities for diversification are greatest when fisheries are open access. However, as indicated earlier, unregulated open access fisheries are highly susceptible to the wasteful investment and dissipation of economic benefits

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[2] It is important to distinguish investments associated with the race for the fish, which are wasteful in the long run, from other types of investment that enhance efficiency and cost-effectiveness.

associated with the race for fish. Thus fishery management measures that effectively prevent or reduce overcapitalization also reduce opportunities for those excluded from the fishery to alleviate the financial risks associated with operating in an uncertain fisheries environment.

Regulations that control aggregate output (e.g., a total quota), while useful for protecting the resource from overexploitation, tend to intensify the race for fish, as fishermen compete against the clock to augment their harvest before the quota is exhausted. Regulations on inputs such as numbers of vessels, time spent fishing or fishing gear -- if sufficiently restrictive -- may hamper the ability of fishermen to race for fish; however, they do not remove the incentive to continue the race. Harvest rates will creep up over time as fishermen develop innovations that enhance the effectiveness of unrestricted inputs. Regulations that allocate the allowable harvest among individual fishery participants eliminate the incentive to race for fish. However, these types of regulations have drawbacks as well as benefits (to be discussed later in this report) that need to be considered in evaluating their suitability for a particular fishery.

I.C. The Structure of the Report

This report on capacity reduction approaches for the West Coast groundfish fishery reflects the policy and economic contexts of overcapacity.

Section II presents the capacity situation in West Coast groundfish. It describes the past 17 years of fishery trends in landings, revenues, biological productivity and regulations. This is followed by a discussion of Amendment 6 (limited entry) to the Groundfish Fishery Management Plan, including original limited entry provisions and changes in the limited entry fleet since program implementation in 1994. The section next compares existing commercial harvest capacity to allowable harvest levels for the limited entry fixed gear, limited entry trawl and open access fleets. Finally, the effects of overcapacity on landings, limits, season length and the costs of management are assessed.

Section III reviews capacity reduction programs worldwide. The review focuses on key elements of these programs, including their design characteristics, short term and long term effects, and relevance to capacity reduction in West Coast groundfish management.

Section IV is a strategic analysis of alternative capacity reduction approaches for the West Coast groundfish fishery. The analysis identifies capacity reduction alternatives and their likely outcomes. Alternative approaches include the status quo, limited entry (over and above existing groundfish limited entry requirements), buyouts, permit stacking and IFQs. Each approach is assessed relative to the status quo for a number of different effects: immediate feasibility, capacity reduction, long term capacity management, economic efficiency, discards, management costs, monitoring and enforcement costs, and spillover to other fisheries. Conclusions are drawn regarding the importance of capacity reduction, the likely outcomes of failing to reduce capacity in West Coast groundfish, the alternatives available to the Pacific Fishery Management Council, and practical considerations in designing capacity reduction options.

II. NEED FOR CAPACITY REDUCTION IN THE WEST COAST GROUNDFISH FISHERY

II.A. General Trends in the Fishery 1983-1999

In 1982, the Pacific Fishery Management Council adopted a Fishery Management Plan (FMP) for the groundfish fishery (PFMC 1982). The FMP covers 55 rockfishes (52 *sebastes* stocks, shortspine and longspine thornyheads, California scorpionfish), 12 flatfishes (Dover, English, petrale and other soles, arrowtooth and starry flounder, Pacific sanddab), seven roundfishes (e.g., Pacific whiting, lingcod, sablefish, Pacific cod),[3] and nine other fish stocks (e.g., sharks, skates, ratfish, morids, grenadiers).

Pacific coast groundfish stocks are harvested in multispecies complexes and by a diversity of user groups. Commercial groundfish fishing vessels utilize a variety of gear types and fishing strategies. For instance, pot gear is used to target sablefish, and longline gear to target sablefish, rockfish and lingcod. Trawl gear of various types is used to target particular species mixes: bottom trawl for deepwater slope species such as Dover sole, thornyheads, sablefish and arrowtooth flounder; roller trawl for bottom rockfishes; mud gear for nearshore mixed flatfishes; and midwater trawl for widow rockfish and Pacific whiting. Non-whiting groundfish harvests are made almost exclusively by catcher boats delivering to shoreside processors. Whiting harvests, however, are made by a broader range of participants, including catcher boats that deliver to offshore motherships as well as shore-based processors, and offshore catcher-processors. Landings by groundfish vessels are not limited to targeted species, since other types of fish are also taken in the course of targeting particular groundfish stocks. Groundfish are also harvested incidentally in non-groundfish fisheries, most notably the trawl fisheries for pink shrimp, spot/ridgeback prawns, California halibut and sea cucumber.

Groundfish are also taken by marine sport anglers coastwide and by Indian treaty tribes on the Washington coast. The recreational harvest, consisting mainly of rockfish and lingcod, is taken largely by commercial passenger fishing vessels and private boats. Most of the tribal harvest consists of sablefish and Pacific whiting. The tribal set-aside of sablefish, which was 300 metric tons (mt) during 1990-1994, was changed in 1995 to 10% of the allowable sablefish harvest in the Monterey to Vancouver management areas. The tribal set-aside of whiting, which was first established in 1996, was 15,000 mt in 1996, 25,000 mt in 1997-1998 and 32,500 mt in 1999. The next section discusses non-tribal commercial landings, which are the major component of the groundfish fishery.

II.A.1. Landings, Revenues and Prices

The first major development in the commercial groundfish fishery on the West Coast occurred in 1966, when foreign factory trawlers began targeting groundfish in the U.S. Exclusive

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[3] Jack mackerel, which was one of the seven roundfishes included in the original Groundfish FMP, was moved to the Council's Coastal Pelagics FMP in 1999.

Economic Zone (EEZ). In 1978 two U.S. catcher boats entered into joint venture fishing with Soviet factory trawlers operating as motherships, and by 1982 the joint venture catch exceeded the foreign catch. In 1989, Japanese motherships developed a process for producing surimi from whiting, and the whiting OY has been fully utilized ever since. In 1990 several U.S. catcher-processors did some exploratory whiting fishing in the EEZ. By the following year the fishery had become completely Americanized, with participation by catcher-processors, catcher boats delivering to shoreside processors, and catcher boats delivering to motherships (Table II-1).

Since Americanization of the whiting fishery, harvests made by the different sectors of the fishery have varied, depending on the overall level of allowable harvest, the harvesting/processing capability of each sector and the amount of whiting allocated to each sector. Catcher-processors, whose large-scale harvesting and processing capabilities had already been developed in the course of their participation in the Alaska pollock fishery, dominated the whiting harvest during 1991-1993. However, the expansion of shoreside surimi processing capacity during the early1990s allowed shoreside processors to take full advantage of their harvest allocation by the mid-1990s, and the shoreside sector has dominated whiting harvests since 1995 (Table II-1).

Aggregate shoreside groundfish landings increased by 12% from 108,500 metric tons (mt) in 1983 to 121,500 mt in 1999 (Table II-2), while ex-vessel revenues (in 1999 dollars) decreased by 47% from $100.2 million to $52.9 million over the same period (Table II-3). These patterns are the result of two distinct trends: an increase in low-valued whiting landings and a decrease in landings of other higher-priced groundfish species.

Landings: The Americanization of the whiting fishery in 1991 was followed by fairly rapid development of shoreside surimi processing capacity. Annual whiting landings were 21,000 mt in 1991, 42,000-56,000 mt during 1992-1993, 74,000-77,000 mt during 1994-1996 and 83,000-88,000 mt during 1997-1999. By contrast, non-whiting landings declined by 65% from 107,400 mt in 1983 to 38,100 mt in 1999. Thornyhead landings, which were 2,700 mt in 1983, exceeded 11,000 mt in 1990, 1992 and 1993, then declined to 2,500 mt in 1999. Landings of other major non-whiting groundfish stocks declined significantly during 1983-1999. Sablefish landings fell by 57% from 14,700 mt to 6,300 mt, flatfish landings by 41% from 29,600 mt to 17,400 mt, and *sebastes* rockfish landings by 78% from 45,500 mt to 10,100 mt (Table II-2, Figure II-1). Although *sebastes* and (to a lesser extent) flatfish were the major components of groundfish landings during the 1980s, whiting has dwarfed landings of all other groundfish species since the whiting fishery was Americanized in 1991 (Figure II-2).

Ex-Vessel Prices (in1999 dollars): Ex-vessel prices are much lower for whiting than for other groundfish stocks. Since the whiting fishery was Americanized in 1991, whiting prices have ranged from $55 to $134 per mt. Flatfish and *sebastes* prices, which were quite stable and similar during the 1980s,

diverged during the 1990s; *sebastes* prices now consistently exceed flatfish prices. Prices of thornyheads and sablefish have followed an upward trend throughout the 1980s and 1990s. Over the past decade, these latter species have consistently been the highest-priced components of groundfish harvest. The exceptionally large increases in thornyhead and sablefish prices experienced in the mid-to late-1990s were driven by a strong Japanese market, although these prices have more recently softened as a result of deteriorating conditions in the Japanese economy. In 1999, ex-vessel prices per mt were $2580 for sablefish, $1894 for thornyheads, $1077 for *sebastes*, $677 for flatfishes and $81 for whiting (Figure II-3).

Ex-Vessel Revenues (in 1999 dollars): Despite the high volume of whiting landings, low prices have made whiting a modest source of groundfish revenue. Whiting revenues, which peaked at $8.3 million in 1995, fell to $6.8 million by 1999. Non-whiting revenues declined by 54% from $99.9 million in 1983 to $46.2 million in 1999. During 1983-1999, *sebastes* revenues declined by 69% from $35.2 million to $10.9 million, and flatfish revenues fell by 73% from $43.3 million to $11.8 million. Thornyhead revenues increased from $2.1 million in 1983 to a high of $17.9 million in 1995, then declined to $4.6 million by 1999. Sablefish revenues varied from $10.3 million to $18.5 million during 1983-1994, increased significantly to $25.0 million-$28.6 million during 1995-1997 and subsequently declined to $11.4 million-$16.3 million during 1998-1999 (Table II-3, Figure II-4) . Although *sebastes* was the largest single source of groundfish revenue during the 1980s and early 1990s, declining *sebastes* landings and record high sablefish prices have made sablefish the major revenue source in recent years (Figure II-5).

The species composition of groundfish landings and revenues varies among the West Coast states and also over time within each state. California consistently dominated non-whiting landings and revenues during the 1980s and early 1990s. However Oregon has been dominant in a number of recent years, including 1999. Non-whiting landings and revenues have been consistently lower in Washington than in either of the other two states (Tables II-2 and II-3, Figures II-6 and II-7).

Since 1992, Oregon has annually accounted for 80%-90% of total shoreside whiting landings. During 1991-1999, whiting landings and revenues increased in Washington as well as Oregon (though on a much more modest scale in Washington). California's whiting landings and revenues were higher than Washington's during 1983-1995 but have been lower than Washington's since 1996 (Tables II-2 and II-3, Figures II-8 and II-9).

Additional trends within each state can be described as follows:

Washington: During 1983-1999, total groundfish landings in Washington decreased by 24% from 22,900 mt to 17,400 mt, and groundfish revenues decreased by 52% from $19.9 million to $9.6 million. The non-whiting component of groundfish landings fell by 64% from 22,900 mt to 8,300 mt, and non-whiting revenues fell by 55% from $19.9 million to $8.9 million. At the species level, some of the more significant features of the fishery are: (1) the 86% decline in *sebastes* landings from 11,800 mt to 1,700 mt and the 82% decline in *sebastes* revenues from $8.2 million to $1.5 million during 1983-1999; (2) the 50% decline in sablefish landings from 3,400 mt to 1,700 mt during 1983-1999; (3) the exceptionally high sablefish prices during 1995-1999; and (4) the increase in whiting landings from 2,200 mt in 1992 (following Americanization of the whiting fishery) to 9,100 mt in 1999 (Tables II-2 and II-3, Figures II-10 and II-11).

Sebastes was the largest component of groundfish harvest and revenues during the 1980s. However, during the 1990s, whiting has been the dominant source of landings and sablefish the dominant source of revenues. In 1999, the major contributors to landings were whiting (52%), flatfishes (24%), *sebastes* (10%) and sablefish (10%), while the largest contributors to revenue were sablefish (52%), flatfishes (19%), *sebastes* (16%) and whiting (8%)(Tables II-2 and II-3, Figures II-12 and II-13).

Oregon: Although Oregon's total groundfish landings increased during 1983-1999 from 35,200 mt to 92,000 mt, total groundfish revenues declined by 22% from $35.3 million to $27.4 million. The non-whiting component of groundfish landings declined by 46% from 35,100 mt to 19,000 mt, and non-whiting revenues fell by 39% from $35.3 million to $21.5 million. At the species level, some of the more significant features of the fishery are: (1) the 60% decline in *sebastes* landings from 15,300 mt to 6,100 mt and the 46% decline in *sebastes* revenues from $10.6 million to $5.7 million during 1983-1999; (2) the exceptionally high sablefish prices during 1995-1999; and (3) the increase in whiting landings from 36,000-49,000 mt during 1992-1993 to 63,000-67,000 mt during 1994-1996 and 71,000-73,000 mt during 1997-1999. Despite the sizeable contribution of whiting to total groundfish landings, whiting revenues have not been sufficient to offset the decline in non-whiting revenues (Tables II-2 and II-3, Figures II-14 and II-15).

Relative to other species, *sebastes* and, to a lesser extent, flatfishes were the largest components of groundfish harvest and revenue during the 1980s. However, whiting has dominated landings since 1991. The decline in *sebastes* and flatfish landings, increase in sablefish landings, and increase in thornyhead and sablefish prices during the 1990s have resulted in a more even distribution of

revenues across species in recent years. During 1999, the largest contributors to landings were whiting (74%), flatfishes (9%) and *sebastes* (7%), while the major contributors to revenue were sablefish (28%), whiting (22%), *sebastes* (21%), flatfishes (21%), and thornyheads (7%) (Tables II-2 and II-3, Figures II-16 and II-17).

California: In California, total groundfish landings declined during 1983-1999 by 76% from 50,400 mt to 12,100 mt, and groundfish revenues declined by 65% from $44.9 million to $15.9 million. The non-whiting component of groundfish landings declined by 78% from 49,400 mt to 10,800 mt, and non-whiting revenues fell by 65% from $44.6 million to $15.7 million. At the species level, some of the more significant features of the fishery are: (1) the 87% decline in *sebastes* landings from 18,400 mt to 2,400 mt and the 77% decline in *sebastes* revenues from $16.4 million to $3.7 million during 1983-1999; (2) the 59% decline in flatfish landings from 11,600 mt to 4,800 mt and the 77% decline in flatfish revenues from $17.5 million to $4.1 million during 1983-1999; (3) the exceptionally high sablefish prices during 1995-1999; and (4) the role of thornyheads as a significant (though not major) source of landings and revenues during the late-1980s through mid-1990s (Tables II-2 and II-3, Figures II-18 and II-19).

Sebastes and, to a lesser extent, flatfishes were generally the largest components of groundfish harvest and revenues from the 1980s through the mid-1990s. The decline in *sebastes* and flatfish landings and the increase in thornyhead and sablefish prices experienced in recent years have resulted in a more even distribution of revenues across species. During 1999, the largest contributors to landings were flatfishes (40%), *sebastes* (20%), sablefish (14%), thornyheads (11%) and whiting (7%), while the largest contributors to revenues were flatfishes (26%), *sebastes* (24%), sablefish (23%) and thornyheads (17%) (Tables II-2 and II-3, Figures II-20 and II-21).

II.A.2. Biological and Regulatory Factors Affecting Non-Whiting Landings

Whiting stock biomass, which declined from a peak of 5.7 million mt in 1987 to 2.3 million mt in 1994, appears to have stabilized at 1.7-1.8 million mt since the mid-1990s (Dorn *et al.* 1999). Given the relative stability of whiting harvests in recent years (Table II-1), this report focuses largely on non-whiting groundfish stocks and the effect of their decline on capital utilization in the fishery.

In 1981 the Council proposed a rebuilding program for Pacific ocean perch (POP), which had been depleted by foreign fishing during the 1960s and 1970s. The states of Washington and Oregon established vessel landings limits for POP, and a POP rebuilding program was subsequently incorporated into the Groundfish FMP when it was implemented in 1982 (PFMC

1982). Most other non-whiting groundfish stocks, however, were not subjected to significant exploitation until expansion of the domestic groundfish fishery in the 1980s. Non-whiting groundfish landings, which peaked during the late 1980s and early1990s, declined to unprecedented low levels in the 1990s. These declines are best understood in the context of recent scientific and statutory developments affecting groundfish management.

Each year the Pacific Council establishes an Acceptable Biological Catch (ABC) -- a biologically based estimate of the amount of fish that can be harvested without jeopardizing the resource -- for each species/species group. Based on these ABCs, the Council then recommends a numerical harvest objective for each species/species group for which individual management is warranted. The harvest objective -- also known as the optimum yield (OY) -- takes the form of a quota or harvest guideline (HG). A quota is a point estimate the attainment of which precipitates automatic closure of the fishery; an HG can be expressed as an interval or point estimate, the attainment of which does not necessarily require automatic closure.

OY may be less than ABC as a precautionary response to uncertainty in stock abundance estimates or to account for unavoidable catch of incidental species that would otherwise be discarded. Until recently, OYs were allowed to exceed ABCs, for instance, in order to phase in harvest restrictions that were expected to have a significant economic impact on the fishery. However, since implementation of Amendment 11 to the Groundfish FMP in 1999 (which will be discussed more extensively later in this section), OY is now allowed to exceed ABC only under very exceptional circumstances and after an extensive review and approval process.

The Council uses different approaches to setting ABCs and OYs, depending on whether or not a groundfish stock has been assessed on the basis of a formal statistical model. For most assessed stocks, the Council sets ABCs by using spawning potential per recruit (SPR) as a proxy for maximum sustainable yield (MSY).[4] This approach involves applying a fixed fishing mortality rate (F_{spr}) to the exploitable stock -- F_{spr} being the exploitation rate that would reduce average egg production per female to some target proportion of its unfished level. For unassessed stocks, the Council bases ABCs on the level of landings experienced during some designated baseline period. In recent years, management of both assessed and unassessed stocks has changed significantly to yield more conservative OYs than previously used.

Denoting F_{msy} as the exploitation rate that provides MSY to the fishery, the Council's harvest rate policy for assessed stocks prior to 1998 was to use $F_{35\%}$ as a proxy for F_{msy} -- $F_{35\%}$ being the exploitation rate that would reduce average egg production per female to 35% of its unfished level. The choice of $F_{35\%}$ was based on theoretical work done by Clark (1991). In 1998, the Council changed the F_{msy} proxy for *sebastes* rockfish from $F_{35\%}$ to $F_{40\%}$ on the basis of additional analyses by Clark (Clark 1993) and others (Mace 1994; Ianelli and Heifetz 1995)

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[4] An exception to this is Pacific whiting, which is managed under a so-called "hybrid F" strategy. Conversion from the hybrid F to an F_{spr} strategy is currently being considered (Dorn 1999).

indicating that $F_{40\%}$ (a more conservative harvest regime than $F_{35\%}$) was warranted for stocks which exhibit stochastic and/or serially correlated recruitment or for which the stock-recruitment relationship is unknown.

In 1999, the Pacific Council implemented Amendment 11 to the Groundfish FMP (PFMC 1998). The purpose of Amendment 11 was to address new provisions of the 1996 Sustainable Fisheries Act (SFA) requiring that harvests in federally managed fisheries not exceed MSY, that specific thresholds be defined for designating a stock as "overfished" and that rebuilding plans be prepared for overfished stocks with the goal of achieving MSY within a specified time period. Amendment 11 defines 40% of unfished spawning biomass (i.e., $B_{40\%}$) as the MSY biomass and 25% of unfished spawning biomass (i.e., $B_{25\%}$) as the threshold for identifying overfished groundfish stocks. Stocks whose biomass falls within the $B_{25\%}$-$B_{40\%}$ range are said to be in the "precautionary zone", while stocks whose biomass is less than $B_{25\%}$ are said to be in the "overfished/rebuilding zone". Amendment 11 also established a new default harvest rate policy (known as the "40-10 policy") whereby OY takes a maximum value of ABC if $B>B_{40\%}$, declines disproportionately relative to ABC at progressively lower biomass levels between $B_{40\%}$ and $B_{10\%}$, and reaches zero at biomass levels equal to or less than $B_{10\%}$. Amendment 11 also specified a default value for F_{spr} ($F_{40\%}$ for *sebastes* rockfish, $F_{35\%}$ for other groundfish species) that could be superseded as new and better scientific information became available.

In 1999, the Council began applying the 40-10 harvest policy to all assessed groundfish stocks. Under this new policy, lingcod, bocaccio in California, POP, canary rockfish and cowcod were designated to be in the "overfished/rebuilding zone". Formal rebuilding plans were initiated in 2000 for lingcod, bocaccio and POP[5], with time to rebuilding for these species projected to be 10, 38 and 47 years respectively. Rebuilding plans will be required in 2001 for canary and cowcod. Another outcome of the 40-10 policy was the assignment of shortspine thornyhead and widow rockfish to the "precautionary zone". In 2000, the Council changed the F_{spr} from $F_{35\%}$ to $F_{40\%}$ for shortspine and from $F_{40\%}$ to $F_{45\%}$ for widow.

Amendment 11 has also lead to more conservative management of groundfish stocks that have not been assessed using formal modeling techniques. These include (1) stocks that have not been assessed by any method, and (2) stocks (all within the *sebastes* complex) that have been "lightly" assessed by a much less rigorous method that the formal modeling techniques customarily used. Beginning in 1999, the Council reduced the OYs for "lightly" assessed stocks to 75% of their ABCs, and reduced OYs for stocks which remained unassessed by any method at 50% of their ABCs. These precautionary adjustments were made to reflect the limited information regarding abundance of these stocks.

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[5] POP rebuilding measures have been implemented annually since the inception of the Groundfish FMP in 1982. However, while these rebuilding measures have discouraged targeting and prevented further decline in POP abundance, they appear to have done little to achieve recovery.

In 1999, the Council was presented with new scientific information suggesting that the productivity of West Coast groundfish is unusually low relative to other groundfish stocks worldwide. This information may have far-reaching management implications, for it suggests that the Council's harvest rate policy -- which has already become more conservative as a result of Amendment 11 -- is still not conservative enough to prevent excess harvest of some species. To more fully investigate and evaluate this evidence, the Council's Scientific and Statistical Committee will convene a Harvest Rate Policy Review Workshop in March 2000 to evaluate the appropriateness of the current default F_{spr} values being used by the Council as proxies for F_{msy}.

In 2000, the Council also took action to discourage targeting of overfished or depleted species by prohibiting trawl vessels that use large footropes from landing nearshore and shelf rockfish, lingcod and most flatfish. (Large footropes are used as a means of attaching large rollers to bottom trawl gear to facilitate their use in rocky areas, where shelf rockfish are commonly taken.) The Council also allocated the major share of the nearshore rockfish OYs to the recreational sector. These two actions significantly reduced fishing opportunities for commercial open access and limited entry vessels. For the first time, the Council separated the "minor" rockfish species into nearshore, shelf and offshore components -- based on the depths where the fish are predominantly caught -- and set separate landings limits for each component. This action was intended to better align harvest levels with the ABCs for the individual species.

The declines in abundance observed for many West Coast groundfish stocks have been inadvertently fostered by harvest policies that -- while based on the best scientific information available at the time -- are now thought to contribute to overfishing. New scientific information and the new requirements of the SFA are leading to more conservative harvest restrictions. Given the depressed status of many groundfish stocks, the long periods required to rebuild overfished stocks, the multispecies nature of the fishery, and the possibility of additional rounds of OY reductions once the results of the March 2000 Havest Rate Policy Review Workshop become available, allowable non-whiting harvests are likely to remain restricted for many years to come.

II.B. Groundfish FMP Amendment 6 - Limited Entry

As indicated in Section II.A.1, the whiting fishery in the EEZ was quickly transformed from a largely joint venture fishery in 1990 to a completely Americanized fishery in1991. The Council was quickly faced with the need to allocate the whiting resource between expanding shoreside and offshore sectors of the fishery, and to take additional measures (e.g., season closures, trip limits) to ensure that the whiting OY was not exceeded. By the early 1990s, many of the non-whiting OYs were also being fully utilized and harvest capacity was expanding in that segment of the fishery as well. However, concerns regarding whiting appear to have been the major impetus for the Council's 1992 approval of a limited entry program for the commercial groundfish fishery. This section describes the provisions of the program and changes in the limited entry fleet that have occurred since the program was implemented in 1994.

II.B.1. Limited Entry Provisions

Under Amendment 6 to the Groundfish FMP (PFMC 1992a), the Council established a limited entry program whereby vessels meeting minimum landings requirements (MLRs) for trawl, longline or fishpot gear during the window period July 1, 1984 - August 1, 1988 could qualify for a transferable limited entry permit.[6] Permit holders were allowed to use only those gears endorsed on their permits (i.e., those gears for which they met the MLRs) while participating in the limited entry fishery. While permits must be renewed annually, permit holders are not required to land any groundfish in order for the permit to remain valid. To discourage increases in harvest capacity associated with the transfer of permits from smaller to larger boats, non-permitted vessels desiring to enter the fishery are required to either purchase a permit from a similar-sized or larger vessel or to purchase a combination of permits from smaller vessels according to a conversion formula based on vessel length. Trip limits and trip frequency limits, which were already being used to restrict harvest rates on the major groundfish complexes, were also expected to reduce the incentive for vessels to engage in "capital stuffing".[7]

Amendment 6 also established an open access groundfish fishery in which non-permitted vessels using longline and fishpot gear and vessels using exempted gear (i.e., gear other than groundfish trawl, longline and fishpot) could participate. The open access fishery is allocated a specified percentage of the available harvest each year based on the combined catch history of non-permitted longline, fishpot and exempted vessels during the window period July 11, 1984-August 1, 1988. The open access fishery is regulated by season closures and vessel landings limits to ensure that its annual allocation is not exceeded.

Because U.S. catcher-processors did not enter the whiting fishery until 1990 and therefore had not made any West Coast groundfish landings during the 1984-1988 window period, none of them qualified as initial permit holders.[8] Thus all of the 629 permits initially issued went to

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[6] MLRs during the window period varied by gear type as follows: trawl - 9 landings of at least 500 pounds of non-whiting groundfish or 450 mt of non-whiting groundfish or 17 landings of at least 500 pounds of whiting or 3,750 mt of whiting; longline - 6 landings of at least 500 pounds of groundfish or 37.5 mt of groundfish; fishpot - 5 landings of at least 500 pounds of groundfish or 150 mt of groundfish (PFMC 1992a, pp. 2-3).

[7] "Capital stuffing" pertains to the technological innovations and fishing practices that allow fishermen to increase their share of the allowable harvest in the race for fish. As these innovations and practices become more widespread, the competitive advantage they initially provided tends to dissipate, leading to additional rounds of innovation and higher costs for the fleet as a whole without a commensurate increase in harvest.

[8] Because limited entry permits are licenses to harvest, motherships can participate in the groundfish fishery without a permit.

catcher boats, of which 384 were endorsed for trawl gear and 245 were endorsed for fixed gear. The number of permits initially issued closely paralleled the number of boats that participated annually in the groundfish fishery during the late 1980s. For instance, in 1987, 344 trawlers made at least one groundfish landing and 30 fishpot boats and 218 longliners made at least three groundfish landings (PFMC 1992b, p. 4-5). Thus limited entry, as implemented in 1994, excluded catcher-processors while including catcher boats with virtually any history in groundfish fishery.

II.B.2. Changes in Limited Entry Fleet 1994-1999

While catcher-processors did not qualify as initial permit recipients, they could still enter the whiting fishery by purchasing combinations of permits from willing sellers. Nine catcher-processors entered the limited entry fishery in 1994 and a tenth entered in 1995. The decline in the number of trawl endorsements from 384 to 289 during 1994 is largely due to the transfer of permits from trawlers to catcher-processors. While permit transfers of other types have also occurred and some permits have lapsed over the years, the transfers from trawlers to catcher-processors comprise the most significant change in groundfish fleet configuration since the inception of limited entry (Table II-4).

Potential harvest capacity includes both unutilized (i.e., latent) and utilized capacity. Although limited entry has likely had the effect of "freezing" potential harvest capacity in the fishery at its 1994 level, the low MLRs used to qualify for a permit virtually assured that a significant proportion of the potential harvest capacity initially admitted into the fishery consisted of latent capacity. Furthermore, the amount of time elapsed between the window period (i.e., the 1984-1988 period during which vessels would had to fish to qualify for a limited entry permit) and the year when limited entry was actually implemented (1994) increased the likelihood of permits being issued to vessels whose involvement in the groundfish fishery had waned by the time permits were actually issued.

Permit transferability per se has the advantage of flexibility, in that it allows the composition of the fishing fleet to adapt to changes in environmental, biological and economic conditions, and allows individual vessels to enter and exit in response to changes in their personal circumstances. However, since vessels are typically not interested in buying a permit unless they intend to use it and since marginally involved fishery participants (i.e., vessels comprising the latent capacity in the fishery) are typically the most willing to sell their permits, the presence of significant latent capacity almost inevitably assures an increase in realized fishing effort when permits are transferred. The establishment of an active whiting catcher-processor sector resulting from the transfer of permits from trawlers to catcher-processors reduced the amount of latent capacity in the trawl sector and did little to curtail the actual amount of fishing effort expended by trawlers. Transfers involving fixed gear vessels have likely resulted in increased fishing effort in that sector of the fishery as well.

Beginning in 1997, fixed gear vessels were required to have their permits endorsed for sablefish in order to participate in the regular or mop-up sablefish seasons. Sablefish endorsements were received by 129 of the 204 longline permit holders and all 28 of the trap/pot permit holders that year. By 1999, the number of sablefish endorsements had increased to 32 for pot/trap and 133 for longline gear (Table II-4).

II.B.3. Distribution of Limited Entry and Open Access Fleets Across States

Table II-5 characterizes the current distribution of groundfish limited entry permits across states according to (1) the state in which the plurality of the permit holder's groundfish revenues occurred in the most recent year (1995-1998) of groundfish participation, and (2) the mailing address of the permit holder. The column labeled "Other States" pertains to permit holders residing outside of the three Pacific coast states. The column labeled "No Landings" pertains to permit holders who did not make shoreside groundfish landings in any of the Pacific coast states during 1995-1998. These "no landings" permit holders include catcher-processors in Washington, as well as catcher boats that delivered exclusively to motherships and vessels that held permits but did not participate at all in the groundfish fishery during 1995-1998. The 274 trawl, 204 longline and 32 pot permits described in the table do not correspond exactly to the number of limited entry vessels, since a small number of vessels hold more than one permit and a small number of permits are endorsed with more than one gear type.

Using plurality of revenue as the basis for assigning permits to states, the number of catcher boats with trawl endorsements is much larger in California (115) and Oregon (113) than in Washington (26). Ten of the 20 trawl endorsements in the "No Landings" category are held by whiting catcher-processors. The number of fixed gear endorsements is higher in California (94) than Oregon (71) or Washington (65). Similar trends are observed when mailing address is used as the basis for assigning permits to states (Table II-5).

Table II-5 also describes the distribution of permits with sablefish endorsements across states, according to the plurality of groundfish revenue and the mailing address of the permit holder. On the plurality of revenue basis, the number of fixed gear permits with sablefish endorsements is much lower in California (40) than Oregon (65) or Washington (62). The percentage of fixed gear permits with sablefish endorsements is also much lower in California (43%) than Oregon (91%) or Washington (94%). Similar trends are observed when mailing address is used for assigning permits to states.

Table II-6 describes the distribution of groundfish open access vessels across states. For purposes of the table, a groundfish landing was designated as "open access" if the ID of the vessel making the landing did not appear in the groundfish limited entry permit file on the date of that landing. For purposes of the table, each vessel was assigned to the same state across all years, based on the state accounting for the plurality of the vessel's total open access revenue in the most recent year fished (1995-1998). A vessel that made at least one open access bycatch landing during a year was considered to have participated in the open access bycatch fishery in

that year -- a "bycatch" landing being one in which trawl or shrimp trawl gear was utilized or (regardless of gear type) the value of the non-groundfish portion exceeded the value of the groundfish portion of the landing. A vessel that made at least one open access directed landing during a year was considered to have participated in the open access directed fishery in that year -- a "directed" landing being one in which fixed gear was utilized and the value of the groundfish portion exceeded the value of the non-groundfish portion lf the landing. Of the 2,723 vessels that participated in the directed fishery and the 2,024 vessels that participated in the bycatch fishery during 1995-1998, 1,231 vessels participated in both.

Both the directed and bycatch components of the open access fishery are much larger in California than Oregon and Washington combined. For instance, in 1998, 779 California boats, 232 Oregon boats and 50 Washington boats participated in the directed fishery. In that same year, 520 California boats, 305 Oregon boats and 40 Washington boats participated in the bycatch fishery (Table II-6).

II.C. Capacity Utilization Rates in the Commercial Fishery

Measuring overcapacity involves comparing potential harvest capacity with the amount of fish actually available for harvest. While potential capacity may not have changed significantly since the inception of the 1994 limited entry program, capital utilization rates have declined in recent years as a result of precipitous declines in available harvest. To estimate the extent of current capital utilization, potential harvest capacity by limited entry fixed gear vessels (sablefish and non-sablefish components), limited entry trawlers (excluding catcher-processors[9]) and open access vessels that target groundfish were compared with the harvests available to each of those sectors in 2000.

For each sector, capital utilization was measured according to the following general procedure: The vessels belonging to each sector were sorted within each year 1984-1992 in descending order of their groundfish landings, and their cumulative landings were summed in the same order. Counting down from more to less productive vessels, a determination was made of the number of vessels it would have taken in each of those years to fully utilize the groundfish harvest available to each sector in 2000. Within each sector, comparisons were then made across years in order to determine the minimum number of vessels needed to harvest the 2000 OYs. The capital utilization rate (i.e., the proportion of current sector participants needed to harvest the 2000 OYs for that sector) was then estimated by dividing the minimum number of vessels derived from this interannual comparison by the total number of vessels that currently belong to

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[9] Since 1998, catcher-processor companies belonging to the newly formed Pacific Whiting Conservation Cooperative have operated under a voluntary agreement whereby each company receives a specific share of the catcher-processor allocation. Benefits of the agreement include improvements in processing efficiency and reductions in waste and bycatch relative to the former derby fishery. The very existence of this agreement suggests that catcher-processors recognize and are attempting to deal with overcapitalization in their own sector.

that sector. The reason for using 1984-1992 as the baseline period for this comparison is that groundfish harvests were much less restricted in those earlier years than they are now.

II.C.1. Limited Entry Fixed Gear

In 1997 the Council began requiring fixed gear permit holders who participate in the regular or mop-up sablefish season to obtain a sablefish endorsement. Because the number of limited entry fixed gear vessels eligible to participate in the sablefish and non-sablefish fisheries now differs, capital utilization rates were estimated separately for sablefish and non-sablefish groundfish, as follows.

Sablefish: Based on the 1984-1991[10] sablefish landings history of vessels who obtained a limited entry fixed gear permit when the program was initiated in 1994, the number of fixed gear highliners needed to harvest the 2000 fixed gear sablefish OY of 2,430 mt ranged from 9 to 25 during 1984-1990 and increased to 51 in 1991. Taking the 1984-1990 average of 15 vessels and dividing by the number of fixed gear sablefish endorsements in 1999 (161, according to Table II-4) yields a capital utilization rate for fixed gear sablefish of 9% (Table II-7).

Non-Sablefish Groundfish: While the limited entry fixed gear fleet receives a sablefish allocation each year, it does not receive an allocation for other species. Thus the "target" fixed gear harvest of non-sablefish groundfish was estimated by taking the annual average percentage of groundfish landings (other than whiting, flatfish and sablefish) made by fixed gear permit holders during 1996-1998, and applying that percentage to the 2000 OYs for the same species. Based on the 1986-1992[11] non-sablefish groundfish landings history of vessels who obtained a limited entry fixed gear permit when the program was initiated in 1994, the number of fixed gear highliners needed to harvest the estimated 2000 non-sablefish "target" of 985 mt ranged from 41 to 61 during 1986-1988 and from 21 to 25 during 1989-1992. Taking 25 vessels as a reasonable estimate of the minimum number of fixed gear vessels needed to harvest the non-sablefish groundfish OYs and dividing by the 205 vessels with longline endorsements[12] in 1999 (calculated as the difference between the 227 fixed gear endorsements and 32 pot endorsements described in Table II-4) yields a capital utilization rate of 12% (Table II-7).

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[10] The 1992 landings history could not be used, since fixed gear permit holders landed less than the 2000 sablefish OY in 1992.

[11] The 1984-1985 landings history could not be used, since fixed gear permit holders landed less than the 2000 non-sablefish groundfish "target" OY in 1984 and 1985.

[12] Pot boats were excluded from this calculation, since they target sablefish only.

II.C.2. Limited Entry Trawl

Determining the capital utilization rate for the limited entry trawl sector (excluding catcher-processors) requires consideration of the minimum number of trawlers needed to fully utilize the non-whiting groundfish OYs, the whiting shoreside allocation and the whiting mothership allocation in 2000, and also (to prevent double counting) the extent to which these boats participate in more than one of these groundfish activities. This section focuses only on the non-whiting groundfish and shoreside whiting fisheries, since the data needed to evaluate catcher boat participation in the whiting mothership fishery could not be obtained and evaluated in time for this paper.

Shoreside Whiting: Given that the whiting fishery was not Americanized until 1991, it did not make sense to use the years 1984-1992 as the basis for determining the number of limited entry trawlers needed to fully utilize the 2000 shoreside whiting OY. A different rationale was therefore used, as follows. Since 1992, the Council has delayed the opening of the whiting season for all fishery sectors – shoreside, motherships and catcher-processors -- in order to preclude fishing during periods when salmon bycatch is most likely to occur (Table II-8). Given the constraints on the length of the shoreside whiting season required for bycatch avoidance and the size of the shoreside allocation, the 37 trawlers who currently deliver to shoreside processors tend to be fully occupied during the whiting season. Thus 37 vessels was considered to be a reasonable estimate of the number of trawl endorsements needed to harvest the whiting shoreside allocation in 2000.

Non-Whiting Groundfish: Although limited entry trawlers are allocated a specific portion of the sablefish OY each year, no similar allocation occurs for other non-whiting groundfish stocks. Therefore the "target" trawl non-whiting groundfish harvest in 2000 was estimated as the sum of the 2000 trawl sablefish allocation, the 2000 Dover sole OY, the 1998 landings of flatfish other than Dover, and the portion of the 2000 groundfish OYs for species other than sablefish, flatfish and whiting that were not assigned to the limited entry fixed gear in Section II.C.1 above. Based on the 1984-1992 non-whiting landings history of trawlers who obtained a limited entry permit when the program was initiated in 1994, the number of trawlers needed to harvest the 2000 non-whiting "target" of 37,612 mt was estimated to range from 60 to 86. Taking an intermediate point of this range, 70 vessels was considered to be a reasonable estimate of the minimum number of trawl endorsements needed to harvest the non-whiting groundfish available to this sector in 2000 (Table II-7).

Assuming that the 70 trawlers needed to fully utilize the non-whiting groundfish OYs include (as a subset) all of the 37 trawlers needed to fully utilize the shoreside whiting allocation, the capital utilization rate for the limited entry trawl sector would be 70 boats divided by the

number of trawl permits currently held by catcher boats (264, according to Table II-5), or 27%. Assuming that the 37 shoreside whiting trawlers are a completely different group of boats than the 70 non-whiting groundfish trawlers, the capital utilization rate would be 37+70=107 boats divided by the number of current trawl permit holders, or 41%.[13]

II.C.3. Open Access

One approach to identifying the number of open access producers needed to harvest the 2000 open access OYs would be to evaluate the 1984-1992 performance of all vessels who landed groundfish during 1984-1992 but did not receive limited entry permits when the program was initiated in 1994. This definition of open access vessels, however, had to be modified for the following reasons:

a. Some vessels that made significant groundfish landings and met the MLRs during the 1984-1988 window period had lost interest in groundfish by the time the limited entry program was implemented and did not apply for a permit. The landings of these vessels during the earlier years of 1984-1992 more closely resemble that of subsequent limited entry than open access vessels. Other vessels that did not meet the MLRs during the 1984-1988 window period became more active in the groundfish fishery after the window period and obtained a LE permit after the program was implemented. The landings of these vessels during the later years of 1984-1992 more closely resemble that of limited entry than open access vessels. Treating either of these groups of vessels as "open access" during 1984-1992 could result in under-estimation of the number of highliners needed to harvest the 2000 open access OYs.

b. Groundfish participation by set net vessels was much higher during 1984-1992 than is possible in the current open access fleet.

In order to mitigate some of the downward bias in the capital utilization rate that would likely occur if vessels in categories (a) and (b) were defined as open access, groundfish trawlers and set net boats were excluded from consideration in determining the number of open access highliners needed to harvest the 2000 open access OYs. These exclusions do not address problems of bias associated with fixed gear vessels in category (a), several of whom made particularly large landings during 1984-1985. These latter vessels were instead dealt with by excluding 1984-1985 from consideration. For the remaining years 1986-1992, the number of

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[13] To the extent that the minimum number of catcher boats needed to fully utilize the 2000 whiting mothership allocation would be subsumed in the 70-107 boats needed to take the current shoreside whiting and non-whiting groundfish OYs, the capital utilization rate would remain at 27%-41%. To the extent that the minimum number of catcher boats needed to utilize the mothership allocation represents an addition to the 70-107 boats, the capital utilization rate would be somewhat higher.

open access vessels needed to harvest the open access groundfish allocation of 2,207 mt ranged from 47 to 105 boats (Table II-7). Based on these results, 50 and 100 were used as lower and upper estimates of the number of open access boats needed to harvest the 2000 open access groundfish allocation.

Participants in the open access fishery include vessels that land groundfish incidentally in the course of their participation in other fisheries, as well as vessels that target groundfish. In order to ensure that the capital utilization rate estimated for the open access fishery pertained only to vessels that target, the targeting sector was defined to include the 794 boats whose average annual open access groundfish landings during 1996-1998 was at least 0.25 mt.[14] Dividing the lower and upper limits of the number of vessels needed to harvest the 2000 open access allocation by 794 yields an open access capital utilization rate of 6%-13% (Table II-7).

II.C.4. Interpretation of Capital Utilization Rates

Current capital utilization rates are estimated at 9% and 12% respectively for the sablefish and non-sablefish components of the limited entry fixed gear fishery, 27%-41% for limited entry trawl and 6%-13% for open access. One reason why capital utilization rates are higher for limited entry trawlers than for limited entry fixed gear vessels is that a significant number of trawl permits were transferred to catcher-processors shortly after the limited entry program was implemented in 1994. If the number of trawl endorsements had remained at the number initially issued (384), the capital utilization rate for that sector would instead be 18%-28%.

In interpreting the capitalization utilization rates, the following assumptions should be noted:

a. One major assumption is that the vessels in each sector of the groundfish fishery could, if given the opportunity, replicate the harvests produced during 1984-1992 by highliners in their own sector. Two opposing factors may have some bearing on this assumption: (1) Because stock abundances are so much lower now than they were during 1984-1992, the minimum number of vessels now needed to harvest the 2000 OYs may be greater than indicated by the 1984-1992 data. (2) Because catch-per-unit-effort may have increased over time as a result of improvements in technology and the expertise of fishery participants, the minimum number of vessels now needed to harvest the 2000 OYs may be fewer than indicated by the 1984-1992 data. To the extent that the first factor outweighs the second, the capital utilization rates provided here will understate the number of boats needed to harvest the 2000 OYs; to the extent that the second factor outweighs the first, the reverse will be true.

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[14] Source: Jim Hastie (NMFS, Northwest Fisheries Science Center, Seattle, WA)

b. The estimated minimum number of vessels needed to harvest the 2000 OYs is affected by the extent to which 1984-1992 groundfish fishery participants also participated in non-groundfish fisheries in those same years. The estimated capital utilization rates will therefore understate/overstate the true rates to the extent that opportunities in other fisheries would divert groundfish participants to a greater/lesser extent than they did during 1984-1992.

c. The capital utilization rates are based on the assumption that the 2000 harvest levels will be available to each sector indefinitely into the future. To the extent that future harvests are less/more than the 2000 levels, the utilization measures provided here will understate/overstate the true extent of overcapitalization in the fishery. The outcome of the March 2000 Harvest Rate Policy Review Workshop will likely have a significant bearing on this issue.

d. A number of assumptions made with regard to specific fishery sectors should also be noted: (1) The "target" trawl non-whiting groundfish harvest for 2000 may be less than the amount specified in Table II-7 if, for instance, thornyhead harvest restrictions prevent the fleet from fully utilizing the 2000 Dover OY. To the extent that this is true, the capital utilization rates for trawlers may be lower than those estimated in Table II-7. (2) The number of open access vessels targeting groundfish can be estimated in any number of different ways, only one of which was used in Table II-7.

The capital utilization rates provide very approximate estimates of the number of boats needed to achieve economic efficiency. The Council's target fleet size may be based on a less stringent standard than efficiency (e.g., economic viability). However, despite the uncertainty in the estimates provided here, it is apparent that even if the groundfish fishery could provide a viable livelihood to twice as many vessels at indicated in Table II-7, capital utilization would still be extremely low and still provide a compelling argument for capital reduction.

II.D. Effects of Overcapacity

II.D.1. Regulatory Effects

Vessel landings limits are an integral element of groundfish management and are used to achieve a variety of objectives. For instance, landings limits may be used to extend the season by delaying achievement of an OY, discourage targeting while allowing for a limited amount of incidental take, or restrict the overall catch of a multispecies complex in order to protect an individual component of the catch. The size of vessel landings limits and the duration of directed fishing seasons are useful indicators of the extent to which access to an OY must be "rationed" because of overcapacity in the fishery.

II.D.1.a. Changes in Vessel Landings Limits

When the Groundfish FMP was originally implemented in 1982, the Council imposed individual trip limits on two components of the *sebastes* complex that were in need of rebuilding (POP and widow rockfish), as well as a separate *sebastes* complex limit covering all other *sebastes* stocks. In 1984 the Council separated the *sebastes* complex into north and south components for purposes of trip limit management. Over the years, as more information became available regarding the abundance of individual groundfish stocks, additional stocks were placed under their own individual limits. In the north, individual limits were initiated for yellowtail in 1985 and canary in 1995 (Table II-9). In the south, individual limits were initiated for bocaccio in 1991, canary in 1995, chilipepper and splitnose in 1999 and cowcod in 2000 (Table II-10).

Trip limits were imposed on sublegal sablefish beginning in 1983 and on legal-sized sablefish beginning in 1988. In 1991, concerns regarding the status of shortspine thornyheads as well as sablefish prompted the Council to impose landings limits on the Dover sole, thornyhead and sablefish (DTS) complex as a whole and also restrict the amount of thornyheads that could be caught within that complex. In 1995 the Council restricted the amount of shortspines that could be caught within the thornyhead landings limit and in 1998 replaced the thornyhead limit with individual limits on shortspines and longspines. Dover sole was also placed under landings limits beginning in 1997 (Table II-11).

After years of refining landings limits to the individual species level, the Council completely did away with landings limits at the species complex level for DTS in 1998 and for *sebastes* in 2000. The DTS fishery is now managed with individual landings limits for sablefish, shortspine thornyheads, longspine thornyheads and Dover sole (Table II-11). The *sebastes* fishery is managed by individual limits for POP, widow, yellowtail and canary rockfish in the north, and for POP, widow, bocaccio, canary, chilipepper, splitnose and cowcod rockfish in the south. In both the north and south, all rockfishes not subject to individual species limits are categorized as minor slope, minor shelf or minor nearshore rockfishes, with each of these three categories subject to its own separate landings limit (Tables II-9 and II-10).

As OYs of many groundfish stocks have declined, the reductions in trip limits needed to ensure that the OYs are not exceeded has increased the potential for management-induced discards. To help decrease discards and reduce the frequency of inadvertent violations of the limits, the Council replaced trip limits with cumulative vessel landings limits. By 1991 weekly cumulative vessel limits rather than trip limits were the preferred form of landings limits for a number of groundfish stocks. The length of the cumulative limit period increased to two weeks in 1992-1993, one month in 1994-1995 and two months in 1996-1998. In 1999 the Council divided the season into three periods with varying cumulative limits as follows: one 3-month limit during January-March, three separate 2-month limits during April-September and three separate 1-month limits during October-December. In 2000, the Council modified the season as follows: two separate 2-month limits during January-April, three separate 2-month limits during May-October, and two separate 1-month limits during November-December.

In addition to the proliferation of individual species subject to vessel landings limits and increases in the duration of the cumulative limit period, there have also been significant reductions in the limits themselves. Tables II-9 through II-11 illustrate the variety of landings limits used by the Council since 1983, including trip limits without trip frequency limits (denoted *), trip limits combined with a frequency limit of one trip per week (denoted **) and cumulative vessel landings limits of varying duration. To facilitate comparison of landings limits over time, all of the limits imposed by the Council (except for the trip limits without trip frequency limits) appear in the tables as monthly-equivalent limits. (E.g., trip limits with frequency of one trip per week and 1-week limits were multiplied by 4, 2-week limits were multiplied by 2, 2-month limits were divided by 2, etc.) Thus, while the trip limits without frequency limits and the monthly-equivalent limits -- as depicted in the tables -- are not comparable with each other, each can be compared with their "own kind" over time.

All of the data in the tables pertain to preseason limits. While some of these limits may have been subject to in-season adjustment, in-season changes are not documented in the tables, since the purpose of the tables is to describe broad trends over time. In cases where the Council established different limits for a species/species complex by season or subarea within a given year, the limit reported in the tables for that species and year represents a weighted average. Additionally, the 1999-2000 limits reported in the tables for *sebastes* north and south and the DTS complex reflect adjustments that were made to ensure that the species composition of each complex was consistent with earlier years of the time series.[15]

Some of the major results from Tables II-9 through II-11 can be summarized as follows.

<u>*Sebastes* north:</u> The monthly-equivalent landings limit for the *sebastes* north complex, which was fairly stable (100,000-120,000 pounds) during 1984-1993, has been 10,000-20,000 pounds since 1997 (Figure II-22). Landings limits have also declined for individual *sebastes* species (i.e., POP, widow, yellowtail and canary rockfish) (Table II-9).

<u>*Sebastes* south:</u> For the *sebastes* complex south, trip limits were not replaced by cumulative vessel landings limits until 1992. Monthly-equivalent landings limits declined from 75,000-100,000 pounds during 1992-1998 to about 25,000 pounds during 1999-2000 (Figure II-22). Landings limits for individual *sebastes* species (e.g., POP, widow, bocaccio, canary) have declined as well (Table II-10).

<u>Lingcod:</u> Cumulative vessel landings limits and a 22" minimum size limit were first established for lingcod in 1995. The limits declined dramatically from a monthly-equivalent value of 20,000 pounds during 1995-1997 to 400-500 pounds during 1998-2000 (Table II-11). In addition to these landings limits, lingcod

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[15] For additional details, see footnotes to Tables II-9 through II-11.

retention is being prohibited altogether during January-April and November-December of 2000.

DTS: The monthly-equivalent DTS limit fell from 110,000 pounds during 1991-1992 to about 25,000 pounds during 1999-2000 (Figure II-22). The shortspine limit, which was 4,000 pounds when it was first implemented in 1995, declined to 1,000 pounds by 1999 (Table II-11).

When the Council implemented the groundfish limited entry program, landings limits were imposed on open access as well as limited entry vessels. Open access limits have also declined in recent years, as follows.[16]

Groundfish taken with open access gear: For vessels participating in the open access fishery with longline or fishpot gear, monthly-equivalent limits for *sebastes* north and south were stable (35,000-40,000 pounds) during 1994-1998. The limit fell precipitously in 1999 to 5,700 pounds in the north and 10,200 pounds in the south. The limit declined even further in 2000 to 4,100 pounds in the north and 6,275 pounds in the south (Table II-12).

Groundfish take with exempted trawl gear: During 1994-1996, separate groundfish trip limits were imposed on trawlers targeting shrimp (1,500 pounds/trip), spot/ridgeback prawns (1,000 pounds/trip) and California halibut or sea cucumber (500 pounds/trip). Beginning in 1997, all non-groundfish trawlers have been subject to the same reduced groundfish trip limits -- 500 pounds in 1997-1998, and 300 pounds in 1999 (Table II-12).

II.D.1.b. Shortening of Sablefish Season

The widening divergence between potential harvest capacity and allowable harvests is evidenced not only by declining vessel landings limits for a wide range of groundfish stocks but also the shortened duration of the fixed gear sablefish season. The length of the sablefish derby declined from 365 days in 1983 to 175 days in 1990. Beginning in 1991, the Pacific Council set the West Coast sablefish season north of 36°N latitude to coincide with the Alaska sablefish season in order to discourage diversion of fishing effort by Alaska longliners to the West Coast. Despite this action, the duration of the sablefish season declined to less than three weeks during 1992-1994 (Table II-13, Figure II-23).

In 1995, the North Pacific Fishery Management Council implemented an IFQ system for Alaska sablefish and halibut, thereby providing IFQ holders the opportunity to participate in the

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[16] The 1999-2000 open access limits for *sebastes* north and south reported here reflect adjustments that were made to ensure that the species composition was consistent with earlier years of the time series. See footnotes to Table II-12 for details.

West Coast sablefish fishery as well as the Alaska IFQ fisheries. Faced with the possibility of additional entry into an already overcapitalized fishery, the Pacific Council established a new season structure for sablefish in 1995 in order to better monitor and regulate the sablefish harvest rate. Under this structure, the "regular" season for limited entry vessels would be a derby fishery during which 70% of the allowable limited entry fixed gear sablefish harvest would be taken. Due to the expected shortness of the regular season, closing as well as opening dates would be announced in advance. The "mop-up" season would open several weeks later, during which time fixed gear permit holders would operate under equal cumulative limits until the remainder of the OY was taken. A daily trip limit fishery would be in effect outside the regular and mop-up seasons to discourage targeting but allow some incidental harvest of sablefish.

In 1997, in an attempt to further decelerate the sablefish harvest rate, the Council began requiring limited entry fixed gear vessels who wished to participate in the regular or mop-up season to obtain a sablefish endorsement. Separate cumulative limits were established for the regular and mop-up seasons. In 1999, vessels with sablefish endorsements were divided into three tiers based on their cumulative catch history, with vessels in different tiers subject to different cumulative limits during the regular season. While these management changes have stabilized the regular sablefish season for limited entry vessels at 6-9 days (Table II-13) rather than the 2-3 days the season would have become under a derby fishery, the season remains very short and has become very complex to administer.

In recent years, the Council has also taken additional action to decelerate the harvest rate in the daily trip limit sablefish fishery north of 36°N latitude. A monthly cumulative limit was added to the trip limit in 1997. The monthly limit was subsequently replaced by a two-month cumulative limit in 1998.

II.D.2. Effects on Ability to Manage the Resource

The combination of low OYs and overcapitalization is jeopardizing the Council's ability to meet many of the management objectives specified in Amendment 4 of the Groundfish FMP (PFMC 1990), including the following:

> Objective 1 - Maintain an information flow on the status of the fishery and the fishery resource which allows for informed management decisions as the fishery occurs.
>
> Objective 2 - Adopt harvest specifications and management measures consistent with resource stewardship responsibilities, for each groundfish species or species group.
>
> Objective 4 - Attempt to achieve the greatest possible net economic benefit to the nation for the managed fisheries.

Objective 5 - Identify those sectors of the groundfish fishery for which it is beneficial to promote year round marketing opportunities and establish management policies that extend those sectors fishing and marketing opportunities as long as practicable during the fishing year.

Objective 9 - Strive to reduce the economic incentives and regulatory measures that lead to wastage of fish.

Objective 11 - When conservation actions are necessary to protect a stock or stock assemblage, attempt to develop management measures that will affect users equitably.

Overcapitalization in the groundfish fishery is significantly affecting the manner in which the fishery is managed and the effectiveness of management. In order to discourage management-induced discards, trip limits have been replaced by cumulative vessel landings limits which have increased in duration over time. As OYs have declined, so have the vessel landings limits. As a result, discards remain a significant concern (undermining Objectives 2 and 9). The fixed gear sablefish season has been reduced from months to days, and increasingly elaborate measures have been adopted to prevent the sablefish OY from being exceeded. Small landings limits and short seasons are exacerbating the economic inefficiencies resulting from too many boats chasing too few fish (undermining Objectives 4 and 5).

In order to better protect depressed stocks while continuing to allow harvest of healthy stocks, the number of species subject to individual monitoring and enforcement has increased. This trend has been accompanied by an increase in the amount of sorting that fishermen must do at sea in order to comply with regulations, and in the amount and specificity of the port sampling needed to ensure that individual species OYs are not exceeded (undermining Objective 1). The economic hardship and uncertainty being experienced by the industry is intensifying competition among fishery sectors for access to the resource. Protecting groundfish stocks while ensuring that the burden of conservation measures is distributed equitably among sectors of the fishery is becoming increasingly difficult (undermining Objective 11).

II.E. Conclusions Regarding Need for Capacity Reduction

The 1994 limited entry program was not sufficiently restrictive to address the overcapitalization that existed at the time of the program's inception. Moreover, the gap between harvest capacity and groundfish OYs that existed in 1994 has widened as stocks continue their downward decline, new scientific information has become available clarifying the extent and gravity of this decline, and OYs have been reduced to unprecedented low levels.

Low OYs are likely to continue well into the future. A number of groundfish stocks are already designated as belonging in the "overfished/rebuilding" and "precautionary" zones, and the length of time needed to rebuild overfished stocks is expected to extend several decades into

the future. Regulatory restrictions on depressed stocks also impact the allowable harvest of more abundant stocks taken in mixed catches with depressed stocks. Even more conservative management measures may be forthcoming, depending on the outcome of the March 2000 Harvest Rate Policy Review Workshop.

The current capital utilization rate -- the percentage of current fishery participants needed to harvest the 2000 OYs -- is very low for all segments of the fishery (9% for limited entry fixed gear sablefish, 12% for limited entry fixed gear non-sablefish groundfish, 27%-41% for limited entry trawl catcher boats and 6%-13% for open access). In order to ensure that current fishery participants -- who are capable of expending much more fishing effort than needed to harvest the OYs -- do not exceed the OYs, the Council has reduced landings limits and shortened seasons to levels that are economically untenable and that increase the likelihood of discards. In an effort to simultaneously protect depressed stocks without unduly restricting opportunities to harvest healthier stocks, the Council is requiring much more sorting, monitoring and enforcement at the individual species level. The Council also spends considerable time dealing with the contentious issue of allocating the low OYs among fishery sectors. The consuming task of addressing groundfish issues imposes indirect costs as well, in terms of diverting the Council's attention away from important non-groundfish management issues.

Given that OYs are not likely to increase any time soon, existing management pressures will continue indefinitely unless capacity is significantly reduced. Capacity reduction should not be viewed as just another type of management measure. It is an essential element of a broader strategy to enhance the effectiveness of landings limits, seasons and other management measures in achieving conservation and economic objectives of the FMP. Capacity reduction should be considered for both limited entry and open access sectors of the fishery. (The extent of overcapitalization in the sport fishery should also be investigated and, if warranted, capacity reduction should be considered for that sector as well.) Without significant groundfish capacity reduction, the Council will continue to find it difficult, if not impossible, to achieve many of the conservation and economic objectives of the Groundfish FMP.

Some capacity reduction may occur even in the absence of deliberate action by the Council to the extent that vessels exit the fishery of their own accord. However, it is important to distinguish between actions leading to a permanent reduction in harvest capacity (vessels allowing their permits to lapse) versus actions leading to temporary or no reduction (vessels transferring their permits, or temporarily exiting from the groundfish fishery while retaining their permits). Permanent reduction is unlikely under the status quo. Limited entry vessels that stop fishing for groundfish will probably hold onto their permits in order to retain the groundfish option; the cost of permit renewal is minimal and the price that they would receive for selling their permit under current fishery conditions is likely to be low. Even those who are interested in permanently leaving the fishery may postpone their departure until it is known whether disaster relief will be forthcoming. Such departure (once it occurs) will more likely take the form of a permit sale than a lapsed permit, a low selling price being better than no remuneration at all. Of

course, non-permitted vessels who participate in the open access fishery can enter and leave at will, so long as entry into the open access fishery remains unregulated.

In other words, latent capacity is always available in the open access fishery and likely to remain high in the limited entry fishery, since permit holders are much more likely to retain or transfer their permits rather than allow them to lapse. Unless the Council takes deliberate action, a significant amount of capacity will remain in the groundfish fishery that can be mobilized at any sign of improved fishing opportunities. Given that fishing effort can easily outpace OYs even if the OYs were to increase to much higher levels, the current problems associated with low landings limits and short seasons will not go away unless latent capacity is permanently removed from the groundfish fishery.

Table II-1. Pacific whiting harvest (metric tons), by fishery sector and year, and percent of whiting OY utilized each year, 1978-1998.[1]

Year	Foreign	Joint Venture	Shoreside	Mothership	Catcher-Processor	Tribal	Total	% OY
1978	96,827	856	689	0	0	0	98,372	76%
1979	114,910	8,834	937	0	0	0	124,681	63%
1980	44,023	27,537	793	0	0	0	72,353	41%
1981	70,366	43,557	838	0	0	0	114,761	66%
1982	7,089	67,465	1,024	0	0	0	75,578	43%
1983	0	72,100	1,051	0	0	0	73,151	42%
1984	14,772	78,889	2,721	0	0	0	96,382	55%
1985	49,853	31,692	3,894	0	0	0	85,439	49%
1986	69,861	81,639	3,463	0	0	0	154,963	52%
1987	49,656	105,997	4,795	0	0	0	160,448	82%
1988	18,041	135,781	6,876	0	0	0	160,698	69%
1989	0	203,578	7,418	0	0	0	210,996	94%
1990	0	170,972	8,115	0	4,713	0	183,800	94%
1991	0	0	20,600	79,803	117,102	0	217,505	95%
1992	0	0	56,127	36,172	116,277	0	208,575	100%
1993	0	0	42,108	14,515	84,588	0	141,211	99%
1994	0	0	73,656	91,926	87,147	0	252,729	97%
1995	0	0	73,949	40,588	61,571	0	176,107	99%
1996	0	0	85,731	44,146	68,359	14,999	213,235	100%
1997	0	0	87,499	50,401	70,771	24,840	233,511	100%
1998	0	0	87,862	50,087	70,365	24,509	232,588	100%

[1] Sources: 1978-1989 data - PFMC (1992b, p. 58); 1990-1993 data - PFMC (1995, pp. 30-35); 1994-1998 data - PFMC (1999a, pp. 15-21).
Estimates provided here include whiting discards by catcher-processors and motherships but do not include discards by catcher vessels delivering to motherships and shoreside processors.
Numbers are preliminary and may differ from those provided in Table II-2 for shoreside landings.

Table II-2. Commercial shoreside groundfish landings (metric tons), by state and year, 1983-1999.[1]

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sebastes Rockfish:																	
WA	11,834	7,060	6,343	8,128	8,960	9,273	8,421	6,800	5,351	4,852	5,608	4,169	3,935	3,581	2,457	2,091	1,697
OR	15,254	12,227	11,980	11,095	13,910	14,105	15,847	12,445	12,462	13,069	14,858	11,862	10,002	10,602	8,441	7,148	6,067
CA	18,399	17,551	14,911	14,164	21,638	17,573	17,062	16,536	15,612	14,845	12,407	7,494	8,048	7,453	7,284	6,727	2,369
Total	45,487	36,838	33,234	33,387	44,508	40,951	41,330	35,781	33,425	32,766	32,873	23,525	21,985	21,636	18,182	15,966	10,133
Thornyheads:																	
WA	118	253	56	25	63	69	131	156	134	214	604	685	580	430	365	162	84
OR	835	795	1,117	673	727	1,043	2,553	4,529	3,506	4,281	4,460	4,043	3,336	2,786	2,326	1,460	1,058
CA	1,711	2,126	2,940	2,950	3,697	4,939	6,549	7,044	4,398	7,092	6,119	3,316	3,634	3,313	1,597	1,908	1,308
Total	2,664	3,174	4,113	3,648	4,487	6,051	9,233	11,729	8,038	11,587	11,183	8,044	7,550	6,529	4,288	3,530	2,450
Flatfish:																	
WA	5,529	6,284	6,025	4,177	5,115	4,704	6,190	7,045	5,706	3,668	3,119	3,060	2,388	3,641	2,648	2,773	4,143
OR	12,456	8,830	8,628	7,368	9,074	10,564	12,381	11,326	14,042	10,418	10,485	7,562	7,074	8,553	7,192	7,092	8,457
CA	11,648	12,586	15,786	14,583	14,679	11,774	11,326	9,328	10,767	10,719	8,490	6,923	8,755	9,328	8,375	5,561	4,826
Total	29,633	27,700	30,439	26,128	28,868	27,042	29,897	27,699	30,515	24,805	22,094	17,545	18,217	21,522	18,215	15,426	17,426
Sablefish:																	
WA	3,363	4,413	3,869	2,415	3,144	2,938	2,416	1,724	2,237	1,790	1,713	1,388	1,951	1,947	2,036	1,159	1,688
OR	4,641	4,835	5,275	4,653	5,238	4,082	3,948	3,705	3,906	3,856	3,835	4,005	3,133	3,175	2,925	1,750	2,967
CA	6,694	4,826	5,171	6,220	4,404	3,856	4,075	3,750	3,353	3,714	2,597	2,186	2,818	3,195	2,967	1,436	1,653
Total	14,698	14,074	14,315	13,288	12,786	10,876	10,439	9,179	9,496	9,360	8,145	7,579	7,902	8,317	7,928	4,345	6,308
Lingcod:																	
WA	1,524	2,043	2,130	714	1,023	757	1,137	993	892	561	676	477	278	360	290	38	41
OR	1,734	1,057	1,052	656	717	1,004	1,174	874	1,486	708	833	859	649	717	767	161	174
CA	898	951	695	524	812	867	1,257	1,064	788	613	685	568	539	479	480	149	131
Total	4,156	4,051	3,877	1,894	2,552	2,628	3,568	2,931	3,166	1,882	2,194	1,904	1,466	1,556	1,537	348	346
Other Non-Whiting:																	
WA	543	791	672	436	1,718	2,522	1,722	1,311	2,123	2,415	2,111	2,019	741	1,348	957	961	633
OR	173	127	86	66	681	1,070	841	333	706	622	901	647	616	7,942	4,055	1,663	278
CA	10,082	9,367	7,111	4,984	8,290	5,283	10,906	3,397	1,867	1,561	2,216	3,423	2,345	2,930	2,717	2,037	489
Total	10,798	10,285	7,869	5,486	10,689	8,875	13,469	5,041	4,686	4,598	5,228	6,089	3,702	12,220	7,729	4,661	1,400

Table II-2 (cont)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
All Non-Whiting																	
WA	22,911	20,844	19,095	15,895	20,023	20,263	20,017	18,029	16,443	13,500	13,831	11,798	9,873	11,307	8,753	7,184	8,286
OR	35,093	27,871	28,138	24,511	30,347	31,868	36,744	33,212	36,108	32,954	35,372	28,978	24,810	33,775	25,706	19,274	19,001
CA	49,432	47,407	46,614	43,425	53,520	44,292	51,175	41,119	36,785	38,544	32,514	23,910	26,139	26,698	23,420	17,818	10,775
Total	107,436	96,122	93,847	83,831	103,890	96,423	107,936	92,360	89,336	84,998	81,717	64,686	60,822	71,780	57,879	44,276	38,062
Shoreside Whiting:																	
WA	6	47	14	61	95	88	27	302	504	2,237	3,188	4,884	4,037	10,905	7,241	10,513	9,099
OR	65	338	885	420	183	246	89	2,294	13,643	48,961	35,820	65,110	66,840	62,991	70,875	71,626	73,012
CA	980	2,335	2,996	2,982	4,518	6,533	7,298	5,519	6,893	4,930	3,100	3,613	4,091	2,901	6,332	5,723	1,308
Total	1,051	2,720	3,895	3,463	4,796	6,867	7,414	8,115	21,040	56,128	42,108	73,607	74,968	76,797	84,448	87,862	83,419
All Groundfish Species:																	
WA	22,917	20,891	19,109	15,956	20,118	20,351	20,044	18,331	16,947	15,737	17,019	16,682	13,910	22,212	15,994	17,697	17,385
OR	35,158	28,209	29,023	24,931	30,530	32,114	36,833	35,506	49,751	81,915	71,192	94,088	91,650	96,766	96,581	90,900	92,013
CA	50,412	49,742	49,610	46,407	58,038	50,825	58,473	46,638	43,678	43,474	35,614	27,523	30,230	29,599	29,752	23,541	12,083
Total	108,487	98,842	97,742	87,294	108,686	103,290	115,350	100,475	110,376	141,126	123,825	138,293	135,790	148,577	142,327	132,138	121,481

[1] Sources: 1983-1998 data obtained from PFMC (1999a; pp. T-13, T-15 and T-17). 1999 data obtained from PacFIN state reports as of January 26, 2000 and are preliminary.

Table II-3. Ex-vessel value of commercial shoreside groundfish landings ($1000s, base year=1999), by state and year, 1983-1999.[1]

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sebastes Rockfish:																	
WA	8,225	5,025	5,187	7,171	8,939	7,758	6,340	5,040	4,173	3,833	4,167	3,445	3,403	2,809	1,951	1,755	1,498
OR	10,597	9,461	9,739	9,832	13,916	11,815	11,902	9,183	9,745	10,100	11,127	9,307	8,397	8,320	6,703	6,440	5,703
CA	16,365	16,419	15,658	16,384	25,029	19,144	18,216	17,445	16,538	16,274	13,782	9,487	10,231	9,155	8,742	7,933	3,714
Total	35,186	30,905	30,583	33,387	47,884	38,717	36,458	31,669	30,456	30,207	29,076	22,238	22,032	20,283	17,396	16,128	10,915
Thornyheads:																	
WA	89	175	45	23	61	67	123	140	149	217	624	1,078	1,289	813	600	229	138
OR	616	627	898	596	724	1,074	2,644	4,725	4,106	4,694	4,894	6,900	7,762	5,512	3,935	2,114	1,787
CA	1,372	1,739	2,375	2,576	3,650	5,119	6,852	7,317	5,233	8,733	7,636	6,062	8,847	6,830	2,952	3,344	2,716
Total	2,077	2,541	3,318	3,196	4,434	6,259	9,619	12,182	9,488	13,644	13,153	14,040	17,897	13,155	7,487	5,687	4,641
Flatfish:																	
WA	6,879	4,754	4,634	3,250	4,915	4,322	4,512	3,980	3,529	2,418	2,100	1,776	1,915	2,058	1,679	1,680	1,836
OR	18,914	8,575	8,098	7,593	10,182	11,058	11,040	9,012	11,812	7,733	7,554	5,554	6,001	6,316	5,609	5,509	5,881
CA	17,467	11,394	14,512	13,965	15,669	12,324	10,699	8,148	9,701	8,726	6,736	6,007	7,699	7,924	6,927	4,958	4,073
Total	43,260	24,724	27,244	24,808	30,766	27,704	26,251	21,140	25,041	18,877	16,390	13,337	15,615	16,298	14,215	12,148	11,790
Sablefish:																	
WA	3,035	3,668	6,177	3,848	6,258	6,150	4,253	3,213	6,542	4,376	3,412	3,321	7,508	7,425	8,754	3,336	5,012
OR	3,526	3,278	4,978	5,140	7,015	5,941	4,918	4,280	5,988	6,200	5,005	8,043	9,741	10,575	10,492	4,683	7,683
CA	5,492	3,336	4,214	6,620	5,265	4,561	4,630	4,345	4,358	5,063	2,768	3,661	7,759	9,097	9,319	3,407	3,578
Total	12,053	10,283	15,368	15,608	18,539	16,651	13,802	11,839	16,889	15,638	11,185	15,025	25,008	27,096	28,566	11,426	16,273
Lingcod:																	
WA	1,287	1,582	1,718	663	1,131	739	1,006	869	785	524	579	433	282	362	274	47	52
OR	1,489	882	882	631	827	1,063	1,114	800	1,276	660	748	824	652	722	808	255	290
CA	798	834	669	588	978	1,017	1,408	1,138	833	671	730	640	652	597	569	275	261
Total	3,575	3,298	3,269	1,882	2,936	2,819	3,527	2,807	2,895	1,855	2,056	1,897	1,585	1,681	1,651	577	603
Other Non-Whiting:																	
WA	425	468	377	303	1,620	1,847	1,148	793	1,311	1,492	1,088	1,006	493	468	622	510	360
OR	147	107	80	63	685	858	606	202	466	483	513	287	255	313	548	434	178
CA	3,134	2,485	2,285	1,553	2,033	1,351	2,273	744	488	494	700	986	1,143	2,672	1,951	1,905	1,399
Total	3,706	3,061	2,752	1,919	4,337	4,056	4,027	1,739	2,264	2,469	2,301	2,279	1,891	3,454	3,121	2,849	1,936

Table II-3 (cont.)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
All Non-Whiting:																	
WA	19,941	15,673	18,138	15,258	22,923	20,883	17,381	14,035	16,488	12,860	11,970	11,060	14,889	13,934	13,881	7,557	8,896
OR	35,290	22,931	24,675	23,854	33,348	31,809	32,224	28,203	33,393	29,869	29,841	30,915	32,808	31,757	28,096	19,435	21,522
CA	44,627	36,208	39,722	41,687	52,624	43,515	44,079	39,138	37,151	39,961	32,352	26,842	36,330	36,275	30,459	21,824	15,741
Total	99,858	74,812	82,535	80,798	108,896	96,207	93,684	81,376	87,003	82,691	74,162	68,817	84,027	81,967	72,436	48,815	46,159
Shoreside whiting:																	
WA	0	9	3	11	25	25	6	56	94	240	235	276	388	755	733	609	748
OR	50	89	270	80	47	55	19	268	1,689	5,824	2,558	4,693	7,468	4,343	6,731	3,826	5,918
CA	254	515	578	547	844	1,434	1,345	961	1,040	685	383	386	486	250	599	401	116
Total	304	613	852	638	916	1,514	1,370	1,285	2,823	6,749	3,176	5,356	8,343	5,348	8,063	4,835	6,782
All Groundfish Species:																	
WA	19,941	15,682	18,141	15,269	22,948	20,908	17,388	14,091	16,583	13,100	12,204	11,336	15,278	14,689	14,614	8,165	9,644
OR	35,340	23,020	24,945	23,934	33,395	31,864	32,243	28,472	35,082	35,693	32,399	35,608	40,276	36,100	34,826	23,261	27,440
CA	44,881	36,723	40,301	42,233	53,468	44,949	45,424	40,098	38,191	40,646	32,735	27,228	36,817	36,525	31,059	22,225	15,857
Total	100,162	75,425	83,386	81,436	109,812	97,721	95,054	82,661	89,855	89,440	77,338	74,172	92,370	87,315	80,499	53,650	52,941

[1] Sources: 1983-1998 data obtained from PFMC (1999a; pp. T-14, T-16, T18). 1999 data obtained from PacFIN state reports as of January 26, 2000 and are preliminary. All values were corrected to 1999 dollars using the Implicit Price Deflator for Gross Domestic Product.

Table II-4. Number of limited entry endorsements on January 1 of each year, by gear type and year, 1994-1999.[1]

	Sablefish[3]			Non-Sablefish			Trawl	
							Catcher	Catcher
Year	Pot/Trap	Longline	#Permits	Pot/Trap	Longline	Fixed Gear	Boat	Processor
Initial[2]	n.a.	n.a.	n.a.	n.a.	n.a.	245	384	0
1994	n.a.	n.a.	n.a.	n.a.	n.a.	245	280	9
1995	n.a.	n.a.	n.a.	n.a.	n.a.	252	277	10
1996	n.a.	n.a.	n.a.	n.a.	n.a.	247	276	10
1997	28	129	154	0	75	227	270	10
1998	33	138	167	0	67	227	265	10
1999	32	133	161	0	66	227	264	10

[1] Source: Kevin Ford (NMFS, Northwest Region, Seattle, WA).

[2] "Initial" refers to the number of permits issued at the inception of the program to vessels meeting the minimum landings requirements.

[3] Beginning in 1997, limited entry fixed gear permit holders were required to have a sablefish endorsement in order to participate in the regular or mop-up sablefish season. The number of fixed gear permits with sablefish endorsements during 1997-1999 is less than the sum of pot/trap and longline sablefish endorsements, since a small number of permits have multiple gear endorsements.

Table II-5. Current number of limited entry permits, by gear endorsement, state accounting for the plurality of groundfish revenue in the most recent year (1995-1998) of groundfish participation, and state of residence of permit holder. Numbers in parentheses denote permits with sablefish endorsement.[1]

	State Accounting for Plurality of Groundfish Revenue				
Gear Type	California	Oregon	Washington	No Landings[2]	Total
Trawl	115 (0)	113 (2)	26 (0)	20 (0)	274 (2[4])
Longline	88 (34)	48 (43)	63 (60)	5 (0)	204 (137)
Pot	6 (6)	23 (22)	2 (2)	1 (1)	32 (31)
Total[3]	207 (40)	178 (62)	90 (61)	26 (1)	501 (164)

	State of Residence of Permit Holder				
Gear Type	California	Oregon	Washington	Other States	Total
Trawl	103 (0)	120 (1)	48 (1)	3 (0)	274 (2[4])
Longline	90 (33)	48 (43)	62 (58)	4 (3)	204 (137)
Pot	6 (6)	20 (19)	6 (6)	0 (0)	32 (31)
Total[3]	197 (39)	183 (59)	114 (63)	7 (3)	501 (164)

[1] Source: Jim Hastie (NMFS, Northwest Fisheries Science Center, Seattle, WA).

[2] Permit holders who made no shoreside landings during 1995-1998 include catcher-processors, as well as whiting catcher boats who delivered to motherships and permit holders who did not participate at all in the groundfish fishery during 1995-1998.

[3] State totals may be less than the sum across gear types, since a small number of permits have multiple gear endorsements.

[4] Fixed gear permit holders wishing to participate in the regular or mop-up sablefish season are required to have a sablefish endorsement. The small number of trawl permits appearing in the table with a sablefish endorsement pertains to permits endorsed for fixed gear as well as trawl.

Table II-6. Estimated number of vessels making directed and bycatch groundfish landings in the open access fishery, by state, 1995-1998.[1]

	# OA Vessels Making **Directed** Groundfish Landings			
Year	California	Oregon	Washington	Coastwide
1995	980	224	73	1,277
1996	1,002	202	61	1,265
1997	1,002	258	76	1,336
1998	779	232	50	1,061
# Unique Vessels (1995-1998)	2,064	507	152	2,723

	# OA Vessels Making **Bycatch** Groundfish Landings			
Year	California	Oregon	Washington	Coastwide
1995	659	319	41	1,019
1996	642	323	49	1,014
1997	634	349	64	1,047
1998	520	305	40	865
# Unique Vessels (1995-1998)	1,359	553	112	2,024

[1] Source: Jim Hastie (NMFS, Northwest Fisheries Science Center, Seattle, WA).
Each groundfish open access vessel was assigned to the same state across all years, based on the state accounting for the plurality of the vessel's total open access revenue in the most recent year fished (1995-1998). Of the 2,723 vessels that participated in the directed fishery and the 2,024 that participated in the bycatch fishery during 1995-1998, 1,231 vessels participated in both.

Table II-7. Estimates of number of highliners needed to harvest the 2000 non-whiting groundfish OYs, by fishery sector (limited entry fixed gear, limited entry trawl, open access targeting groundfish).[1]

Limited Entry Fixed Gear[2]

Non-Sablefish

Year	# Vessels	Cumulative Mt
1984	- - - - - Not applicable- - - - -	
1985	- - - - - Not applicable- - - - -	
1986	61	989
1987	41	990
1988	63	986
1989	24	988
1990	23	1,002
1991	25	994
1992	21	1,003

Fixed gear non-sablefish "target"=985 mt
Estimated # fixed gear vessels needed=25
Total # fixed gear permits=205
% current fixed gear permits needed=12%

Sablefish

Year	# Vessels	Cumulative Mt
1984	9	2,485
1985	10	2,430
1986	13	2,523
1987	14	2,459
1988	20	2,488
1989	17	2,452
1990	25	2,448
1991	51	2,436
1992	- - - - - Not applicable- - - - -	

Fixed gear sablefish target=2,430 mt
Estimated # fixed gear vessels needed=15
Total # fixed gear sablefish permits=161
% current fixed gear sablefish permits needed=9%

Limited Entry Trawl

Year	# Vessels	Cumulative Mt
1984	82	37,866
1985	76	37,918
1986	80	37,846
1987	72	37,741
1988	68	37,986
1989	60	37,832
1990	67	37,905
1991	73	37,747
1992	86	37,735

Trawl non-whiting target = 37,612 mt
Est. # trawlers needed for non-whiting=70
whiting vessels=37
Total # shoreside trawl permits=264

% current trawl permits needed (high)=41%
% current trawl permits needed (low)=27%

Open Access Targeting Groundfish

Year	# Vessels	Cumulative Mt
1984	13	2,222
1985	25	2,218
1986	52	2,222
1987	53	2,208
1988	83	2,214
1989	83	2,212
1990	105	2,215
1991	69	2,224
1992	47	2,218

Open access target=2,207 mt
Est. # vessels needed (high)=100
Est. # vessels needed (low)=50
Total # OA vessels targeting groundfish=794
% current OA vessels needed (high)=13%
% current OA vessels needed (low) =6%

[1] Source: Jim Hastie (NMFS, Northwest Fisheries Science Center, Seattle, WA).
[2] Fixed gear permit holders landed less than the 2000 target for non-sablefish groundfish in 1984-1985 and less than the 2000 target for sablefish in 1992.

Table II-8. Dates of Pacific whiting season, by fishery sector and year, 1991-1999.[1]

	Shoreside - CA		Shoreside-OR,WA		
Year	So of 40°30'N lat	40°30' to 42°N lat	No of 42°N lat	Catcher-processors	Motherships
1991	Late Mar-Dec 31			Late Mar-Aug 29	Late Mar-Sep 6 (Nov 16-Dec 31)?
1992	Apr 15-Oct 31			Apr 15-May 5 (Sep 4-12, Oct 1-7)	
1993	Apr 15-Sep 4			Apr 15-May 5	
1994	Mar 1-Dec 31		Apr 15-Dec 31	Apr 15-May 13 (Oct 1-5)	
1995	Mar 1-Jul 24		Apr 15-Jul 24	Apr 15-May 4	
1996	Mar 1-Sep 10		May 15-Sep 10	May 15-Jun 1	
1997	Late Apr-May 27 (Jun 15-Aug 22)		Jun15-Aug 22	May 15-Jun 11	May 15-Jun 1
1998	Apr 15-Oct 13	Apr 1-Oct 13	June 15-Oct 13	May 15-Aug 7	May 15-May 31
1999	Apr 15-Sep 13	Apr 1-Sep 13	June 15-Sep 13	May 15-Jul 21	May 15-Jun 2

[1] Sources: PFMC (1995, pp.30-35); PFMC (1999a, pp. 15-21).
Dates in parentheses pertain to periods when the season was reopened to allow full utilization of the harvest guideline..

Table II-9. January 1 trip limits (pounds/trip) and monthly-equivalent vessel landings limits (pounds/vessel/month) for the *sebastes* complex north, by species and year, 1983-2000.[1]

Year	*Sebastes* Complex North	Pacific Ocean Perch	Widow	Yellowtail	Canary	Minor Slope	Minor Shelf	Minor Nearshore
1983	40K*	Max(10%,5K)*	30K*					
1984	120K**	Max(10%,5K)*	200K**					
1985	120K	20%*	120K**	40K				
1986	100K	Min(20%,10K)*	120K	40K				
1987	100K	Min(20%,5K)*	120K	40K				
1988	100K	Min(10%,5K)*	120K	40K				
1989	100K	Min(10%,5K)*	120K	30K				
1990	100K	Min(20%,3K)*	60K	30K				
1991	100K	Min(20%,3K)*	40K	20K				
1992	100K	Min(20%,3K)*	30K	16K				
1993	100K	Min(20%,3K)*	30K	16K				
1994	80K	Min(20%,3K)*	30K	22K[2]				
1995	42.5K[2]	6K	30K	22K[2]	6K			
1996	42.5K[2]	5K	35K	25.5K[2]	9K			
1997	15K	4K	35K	3K	7K			
1998	20K	4K	12.5K	5.5K	7.5K			
1999	10.8K[3]	4K	17.3K[3]	5.8K[3]	3.8K[3]			
2000	13.1K[4]	1.5K[3]	15K	10K[3]	0.2K[3]	2K[3]	0.7K[3]	0.2K

[1] Sources: PFMC (1999a, pp. T-29 to T-60); PFMC (1999b).

* denotes trip limit without trip frequency limit and ** denotes trip limit combined with frequency limit of one trip per week. All ** and non-asterisked elements in this table are reported as monthly-equivalent limits.

The geographic boundary used to distinguish *sebastes* north and south has changed over time. The dividing line was the boundary between the Vancouver and Eureka management areas in 1984, Cape Blanco OR in 1985, Coos Bay OR in 1986-1991 and 1993, Cape Lookout OR in 1992 and 1994, and Cape Mendocino CA during 1995-2000 (PFMC 1999b, Table 29).

Table II-9 (cont.)

[2] During 1995-1996, the monthly-equivalent limit for *sebastes* north was 35K pounds north of Cape Lookout OR and 50K pounds between Cape Lookout and Cape Mendocino CA. During 1994-1995, the monthly-equivalent limit for yellowtail rockfish was 14K pounds in the north and 30K pounds in the south; in 1996, the limit was changed to 16K pounds in the north and 35K pounds in the south. Each of these pairs of numbers are reported in the table as the average for the two subareas.

[3] During 1999-2000, the monthly-equivalent limits for most components of the *sebastes* north complex varied within as well as across years. For each of these components, the numbers reported in the table represented average values obtained by weighting each of the monthly-equivalent limits for the component by the proportion of the year in which each of these limits was effective, as follows:

1999	Jan-Mar	Apr-Sep	Oct-Dec	Weighted Avg
Seb No	8.0K	12.5K	10K	10.8K
Widow	23.3K	8.0K	30K	17.3K
Yellowtail	5.0K	6.5K	5K	5.8K
Canary	3.0K	4.5K	3K	3.8K

2000	Jan-Apr	May-Oct	Nov-Dec	Weighted Avg
POP	0.5K	2.5K	0.5K	1.5K
Yellowtail	5.0K	15.0K	5.0K	10.0K
Canary	0.1K	0.3K	0.1K	0.2K
Minor Slope	1.5K	2.5K	1.5K	2.0K
Minor Shelf	0.3K	1.0K	0.3K	0.7K

[4] Prior to 2000, the *sebastes* north limit included all *sebastes* stocks other than POP and widow, which had been subject to their own separate limits since the FMP was first implemented. Yellowtail and canary limits were implemented in later years as sublimits of the *sebastes* north limit until 2000, when the *sebastes* north limit was abandoned in favor of separate limits on individual *sebastes* species/species groups. Thus the *sebastes* north limit reported in the table for 2000 does not represent a limit imposed by the Council, but was derived by summing the monthly-equivalent limits for all individual species groups except (to maintain consistency with earlier years of the time series) POP and widow. The purpose of including this summation in the table is to provide a comparable basis for relating the 2000 *sebastes* landings limits to limits in prior years.

Table II-10. January 1 trip limits (pounds/trip) and monthly-equivalent vessel landings limits (pounds/vessel/month) for the *sebastes* complex south, by species and year, 1983-2000.[1]

Year	*Sebastes* Complex South	Pacific Ocean Perch	Widow	Bocaccio	Canary	Chilipepper	Splitnose	Cowcod	Minor Slope	Minor Shelf	Minor Nearshore
1983	40K*	Max(10%,5K)*	30K*								
1984	40K*	Max(10%,5K)*	200K**								
1985	40K*	20%*	120K**								
1986	40K*	Min(20%,10K)*	120K								
1987	40K*	Min(20%,5K)*	120K								
1988	40K*	Min(20%,5K)*	120K								
1989	40K*	Min(20%,5K)*	120K								
1990	40K*	Min(20%,3K)*	60K								
1991	25K*	Min(20%,3K)*	40K	5K*							
1992	100K	Min(20%,3K)*	30K	20K							
1993	100K	Min(20%,3K)*	30K	20K							
1994	80K	Min(20%,3K)*	30K	30K							
1995	100K	6K	30K	30K	6K						
1996	100K	5K	35K	30K	9K						
1997	75K	4K	35K	6K	7K						
1998	75K	4K	12.5K	1K	7.5K						
1999	28.4K[3]	4K	17.3K[2]	.75K	3.8K[2]	14.5K[2]	9.9K[2]				
2000	21.7K[3]	1.5K[2]	15K	0.4K[2]	0.2K[2]	12.5K	5.6K[2]	1 fish*	2.0K[2]	0.8K[2]	.2K

[1] Sources: PFMC (1999a, pp. T-29 to T-60); PFMC (1999b).

* denotes trip limit without trip frequency limit and ** denotes trip limit combined with frequency limit of one trip per week. All ** and non-asterisked elements in this table are reported as monthly-equivalent limits.

The geographic boundary used to distinguish *sebastes* north and south has changed over time. The dividing line was the boundary between the Vancouver and Eureka management areas in 1984, Cape Blanco OR in 1985, Coos Bay OR in 1986-1991 and 1993, Cape Lookout OR in 1992 and 1994, and Cape Mendocino CA during 1995-2000 (PFMC 1999b, Table 29).

Table II-10 (cont.)

[2] During 1999-2000, the monthly equivalent limits for most components of the *sebastes* south complex varied within as well as across years. For each of these components, the numbers reported in the table represented average values obtained by weighting each of the monthly-equivalent limits for the component by the proportion of the year in which each of these limits was effective, as follows:

1999	Jan-Mar	Apr-Sep	Oct-Dec	Weighted Avg	
Seb So	4.3K	3.3K	5K	4.0K	(Council-mandated, excludes chilipepper and splitnose)
Widow	23.3K	8.0K	30K	17.3K	
Canary	3.0K	4.5K	3K	3.8K	
Chilipepper	15.0K	12.5K	18K	14.5K	
Splitnose	10.7K	9.5K	10K	9.9K	

2000	Jan-Apr	May-Oct	Nov-Dec	Weighted Avg
POP	0.5K	2.5K	0.5K	1.5K
Bocaccio	0.3K	0.5K	0.3K	0.4K
Canary	0.1K	0.3K	0.1K	0.2K
Splitnose	4.3K	7.0K	4.0K	5.6K
Minor Slope	1.5K	2.5K	1.5K	2.0K
Minor Shelf	0.5K	1.0K	0.5K	0.8K

[3] Prior to 1999, the *sebastes* south limit included all *sebastes* stocks other than POP and widow, which had been subject to their own separate limits since the FMP was first implemented. Bocaccio and canary limits were implemented in later years as sublimits of the overall *sebastes* south limit. In 1999, chilipepper and splitnose were removed from the *sebastes* south limit and (like POP and widow) received their own separate landings limits. In 2000, the *sebastes* south limit was abandoned in favor of separate limits on individual *sebastes* species/species groups. Thus, for 1999, the *sebastes* south limit reported in the table was derived by adding the Council's monthly-equivalent *sebastes* south limit (which was 4,000 pounds, excluding POP, widow, bocaccio and canary) to the individual bocaccio and canary limits reported in the table. For 2000 the *sebastes* south limit reported in the table does not represent a limit imposed by the Council, but was derived by summing the monthly-equivalent limits for all individual species groups except (to maintain consistency with earlier years of the time series) POP and widow. The purpose of these adjustments was to provide a comparable basis for relating the 1999-2000 *sebastes* south limits limits in prior years.

Table II-11. January 1 trip limits (pounds/trip) and monthly-equivalent vessel landings limits (pounds/vessel/month) for lingcod and the deepwater complex, by species and year, 1988-2000.[1]

Year	Lingcod	DTS	Trawl Sablefish		Thornyheads	Shortspine Thornyhead	Longspine Thornyhead	Dover Sole
			Trip Limits	Monthly Equiv Lim				
1988			Max(20%,6K)*					
1989			Max(25%,1K)*					
1990			Max(25%,1K)*					
1991		110K	Max(25%,1K)*		30K			
1992		110K	Max(25%,1K)*		50K			
1993		90K	Max(25%,1K)*		40K			
1994		50K	Max(25%,1K)*	12K	30K			
1995	20K	42.5K[2]	Max(25%,1K)*	6K	20K	4K		
1996	20K	42.5K[2]		6K	10K	2K		
1997	20K	42.5K[2]		6K	10K	2K		19K
1998	.5K	20.3K[4]		2.5K		2K	5K	10.8K[3]
1999	.5K	26.4K[4]		5.1K[3]		1K	4K	16.3K[3]
2000	.4K	26.7K[4]		4.3K[3]		1K[3]	4K[3]	17.5K[3]

[1] Sources: PFMC (1999a, pp. T-29 to T-60); PFMC (1999b).
* denotes trip limit. All other elements of this table are reported as monthly-equivalent limits..
DTS pertains to the deepwater complex, which includes Dover sole, thornyheads and sablefish.
In addition to the landings limits on legal-size sablefish reported here, trip limits on sublegal sablefish (<22") have also been imposed since 1983.

[2] During 1995-1997, the monthly-equivalent DTS limit was 35K pounds north of and 50K pounds south of Cape Mendocino CA. These limits are reported in the table as the average for the two areas (42.5K pounds).

Table II-11 (cont.)

[3] During 1998-2000, the monthly equivalent limits for many DTS components varied within as well as across years. For each of these components, the numbers reported in the table represented average values obtained by weighting each of the monthly-equivalent limits for the component by the proportion of the year in which each of these limits was effective, as follows:

1998	Jan-Feb	Mar-Dec	Weighted Avg
Dover sole	20.0K	9.0K	10.8K

1999	Jan-Mar	Apr-Sep	Oct-Dec	Weighted Avg
Sablefish	4.3K	5.0K	6.0K	5.1K
Dover sole	23.3K	10.0K	22.0K	16.3K

2000	Jan-Apr	May-Oct	Nov-Dec	Weighted Avg
Sablefish	3.5K	5.0K	3.5K	4.3K
Shortspine	1.5K	0.5K	1.5K	1.0K
Longspine	6.0K	2.0K	6.0K	4.0K
Dover sole	27.5K	10.0K	20.0K	17.5K

[4] During 1998-2000, the overall DTS limit was abandoned in favor of separate limits on individual DTS species. Thus the DTS limits reported in the table for 1998-2000 do not represent limits imposed by the Council but were derived by summing the monthly-equivalent limits for each component of the complex. The purpose of including these summations in the table is to provide a comparable basis for relating the 1998-2000 DTS landings limits to limits in prior years.

Table II-12. Daily limits (pounds/day), trip limits (pounds/trip) and monthly-equivalent limits (pounds/month) for groundfish open access participants using open access gear and exempted trawl gear, by species category and year, 1994-2000.[1]

Species Category	1994	1995	1996	1997	1998	1999	2000
Monthly Equivalent Limits for *Sebastes* North and South Taken with Open Access Gear:[2]							
Sebastes north	40,000	35,000	35,000	40,000	40,000	5,700[3]	4,100[3]
Canary						1,000	50
Yellowtail						2,600	100
Widow						2,000	3,000
Pac ocean perch						100	100
Minor slope rockfish							250
Minor shelf rockfish							100
Minor nearshore rockfish							500
Sebastes south	40,000	40,000	40,000	40,000	40,000	10,200[3]	6,275[3]
Canary						1,000	50
Bocaccio-not set/trammel net				2,000	1,000	500	200
Bocaccio-set/trammel net				4,000	2,000	1,000	
Widow						2,000	3,000
Chilipepper						6,000	2,000
Splitnose						100	200
Pacific ocean perch						100	100
Cowcod							1 fish
Minor slope rockfish							250
Minor shelf rockfish							200
Minor nearshore rockfish							275
Daily Limits for Thornyheads Taken with Open Access Gear:[4]							
North			50	0	0	0	0
South		50	50	50	50	50	50
Daily Limits for Sablefish Taken with Open Access Gear:[5]							
North	250	300	500	300	300	300	300
South	350	350	350	350	350	350	350
Monthly Equivalent Limits for Other Groundfish Taken with Open Access Gear:							
Lingcod[6]					500	250	400
Dover sole[7]						100	
Arrowtooth flounder							200
Other flatfish							300
Pacific whiting						100	100

Table II-12 (cont.)

Species Category	1994	1995	1996	1997	1998	1999	2000
Trip Limits for Groundfish Taken with Exempted Trawl Gear:[8]							
Pink shrimp	1,500	1,500	1,500	500	500	500	500
Spot/ridgeback prawn	1,000	1,000	1,000	500	500	300	300
CA halibut/sea cucumber	500	500	500	500	500	300	300

[1] Sources: PFMC (1999a, pp. T-29 to T-60); PFMC (1999b).

[2] Separate *sebastes* limits were set north and south of Point Lookout OR in 1994, and north and south of Cape Mendocino, CA since 1995. In addition to being subject to cumulative landings limits, *sebastes* north and south were also subject to a 10,000 pound trip limit during 1994-1998; bocaccio was subject to a trip limit of 300 pounds in 1997 and 250 pounds in 1998. In 2000, canary, bocaccio, widow, chilipepper, cowcod, minor shelf rockfish and minor nearshore rockfish in the south were subject to season closures as well as landings limits. In 2000, no more than 50% of the landings limit for minor nearshore rockfish in the south can be species other than blue and black rockfish. For cowcod, the 2000 limit of one fish is a limit per landing, not a monthly-equivalent limit.

[3] The 1999 canary and yellowtail limits in the north were implemented as sublimits of the *sebastes* north limit; the 1997-1999 bocaccio limits in the south were implemented as sublimits of the *sebastes* south limit. In 1999, widow and POP (which had been included in the Council's *sebastes* north limit in prior years) became subject to their own separate limits; similarly, widow, chilipepper, splitnose and POP (which had been included in the Council's *sebastes* south limit in prior years) also became subject to their own separate limits. The *sebastes* limits reported in the table for 1999 reflect adjustments made to ensure comparability with earlier years. For *sebastes* north, this was done by adding the Council's *sebastes* north limit (which was 3,600 pounds, excluding widow and POP) to the individual widow and POP limits reported in the table. For *sebastes* south, this was done by adding the Council's *sebastes* south limit (which was 2,000 pounds, excluding widow, chilipepper, splitnose and POP) to the individual widow, chilipepper, splitnose and POP limits reported in the table.
In 2000, the *sebastes* north and south limits were abandoned altogether in favor of separate limits on individual *sebastes* species/species groups. Thus the overall *sebastes* limits reported in the table for 2000 do not represent limits imposed by the Council, but were derived by summing the individual species limits. The purpose of including this summation in the table is to provide a comparable basis for relating the 2000 *sebastes* landings limits to limits for prior years.

[4] Separate limits are set for thornyheads north and south of Point Conception.

[5] Separate limits are set for sablefish north and south of 36°N latitude. In addition to being subject to a daily limit, sablefish in the north was also subject to cumulative limits during 1997-2000.

Table II-12 (cont.)

[6] Lingcod was subject to a four-month closure in 1999 and a six-month closure in 2000 in addition to landings limits.

[7] Dover sole is included in "Other flatfish" in 2000.

[8] Vessels using exempted trawl gear are also bound by the limits and closures adopted for open access gear.

Table II-13. Dates and duration of the fixed gear sablefish season, by year, 1983-1999.[1]

Year	Season	# Days
1983	Jan 1-Dec 31	364
1984	Jan 1-Dec 31	365
1985	Jan 1-Dec 6	339
1986	Jan 1-Oct 23	295
1987	Jan 1-Oct 14	286
1988	Jan 1-Aug 25	237
1989	Jan 1-Jul 17	197
1990	Jan 1-Jun 24	174
1991	Apr 1-Jul 1	91
1992	May 12-May 27	15
1993	May 12-Jun 1	20
1994	May 15-Jun 4	20
1995	Aug 6-Aug 13 (Sep 1-30)	7 (29)
1996	Sep 1-6 (Oct 1-15)	5 (14)
1997	Aug 25-Sep 3 (Oct 1-22)	9 (21)
1998	Aug 1-7 (Aug 28-Sep 11)	6 (14)
1999	Aug 16-Aug 25 (Sep 20-26)	9 (6)

[1] Source: PFMC (1999a, pp. T-29 to T-60).
Beginning in 1995, dates and duration of the regular season are followed (in parentheses) by dates and duration of the mop-up season.

FIGURE II-1. Annual West Coast Commercial Shoreside Groundfish Landings, by Species Category, 1983-1999

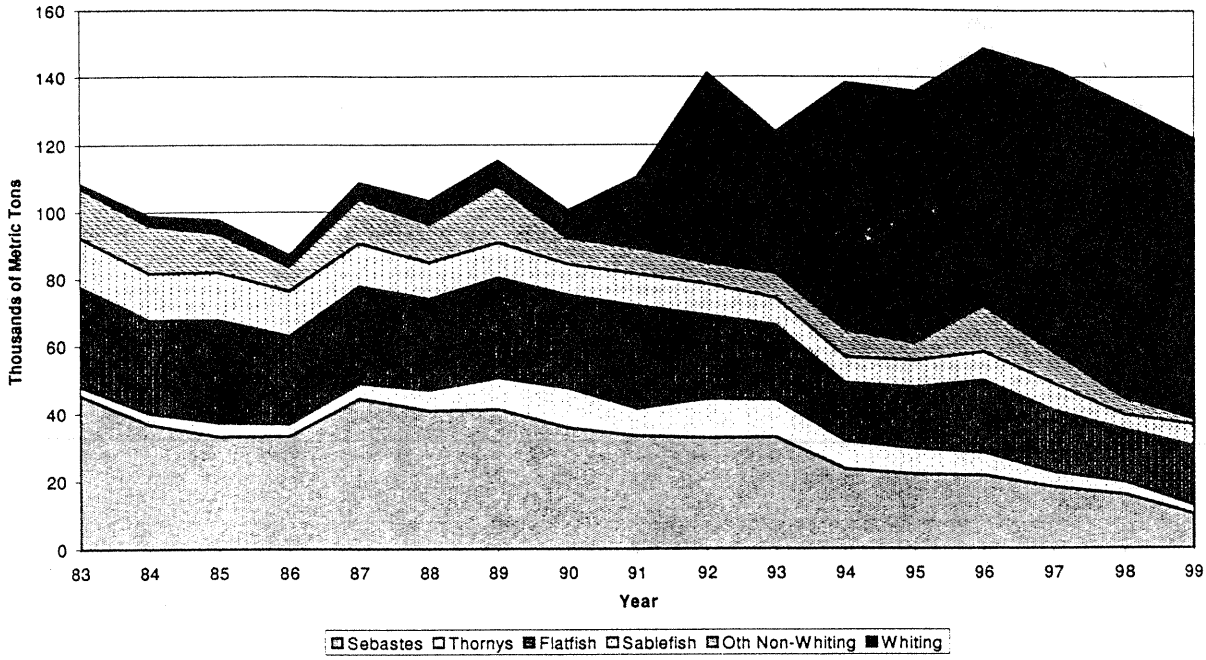


FIGURE II-2. Average Annual Commercial Shoreside Landings of Major West Coast Groundfish Species, by Species Category and Time Period

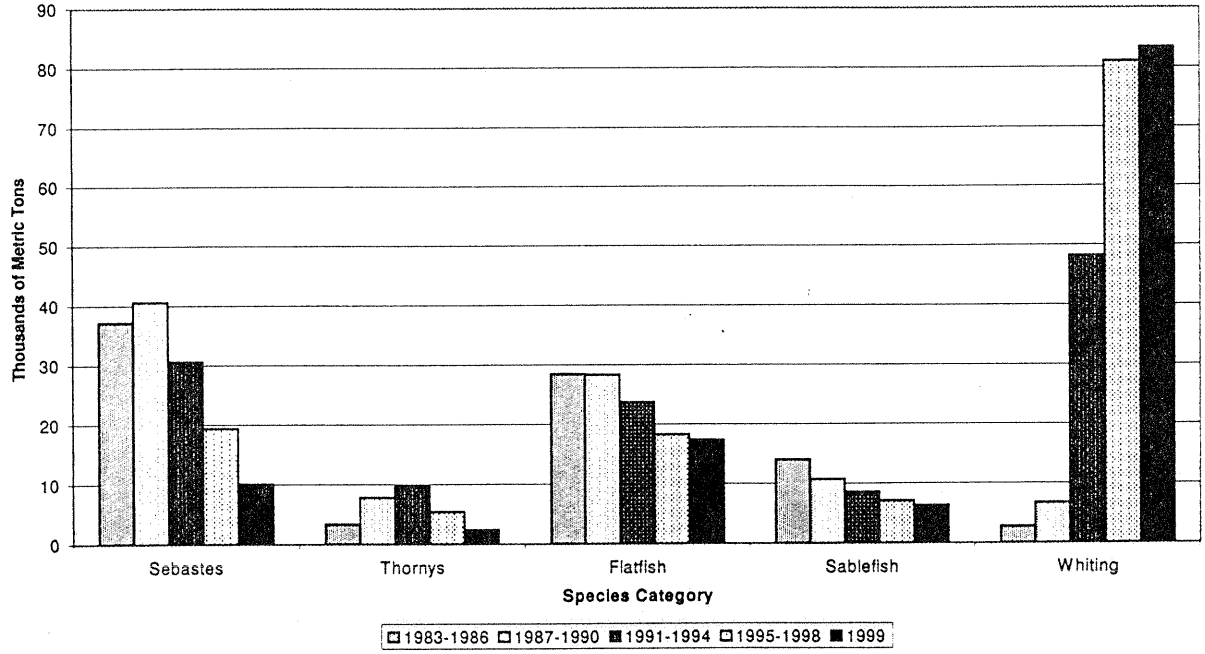


FIGURE II-3. Average Annual Ex-Vessel Prices of Major West Coast Groundfish Species, by Species Category and Time Period

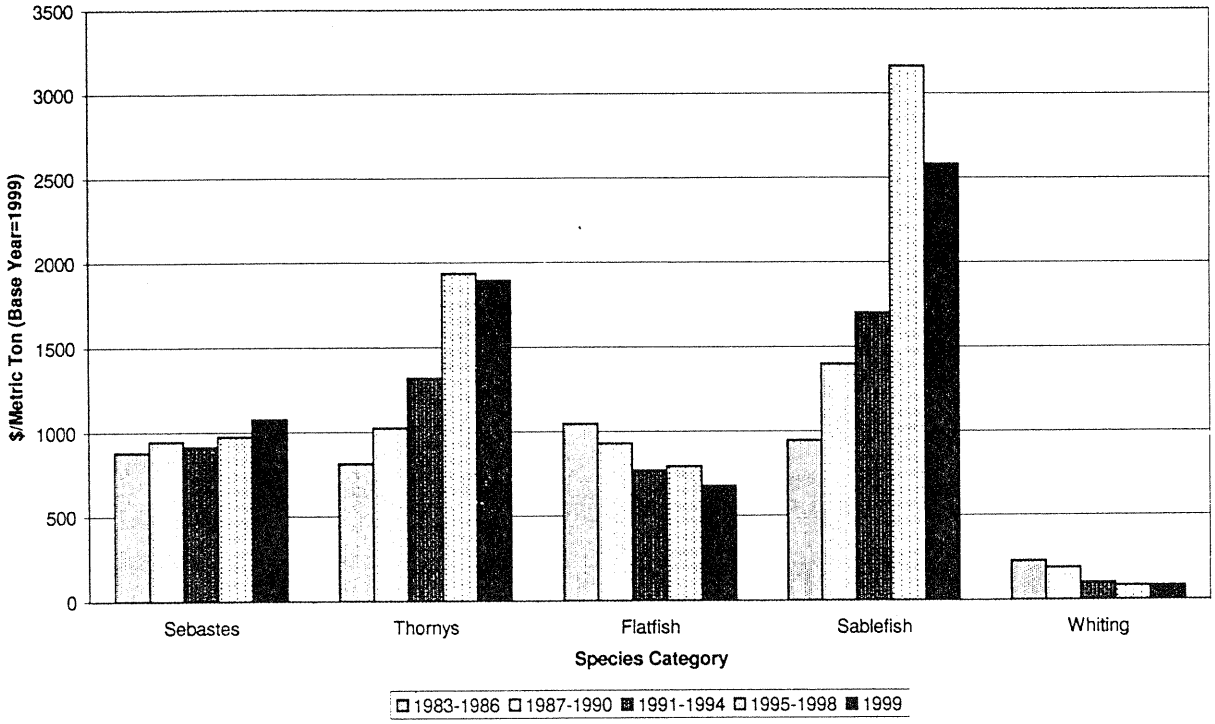


FIGURE II-4. Annual West Coast Commercial Shoreside Groundfish Revenues, by Species Category, 1983-1999

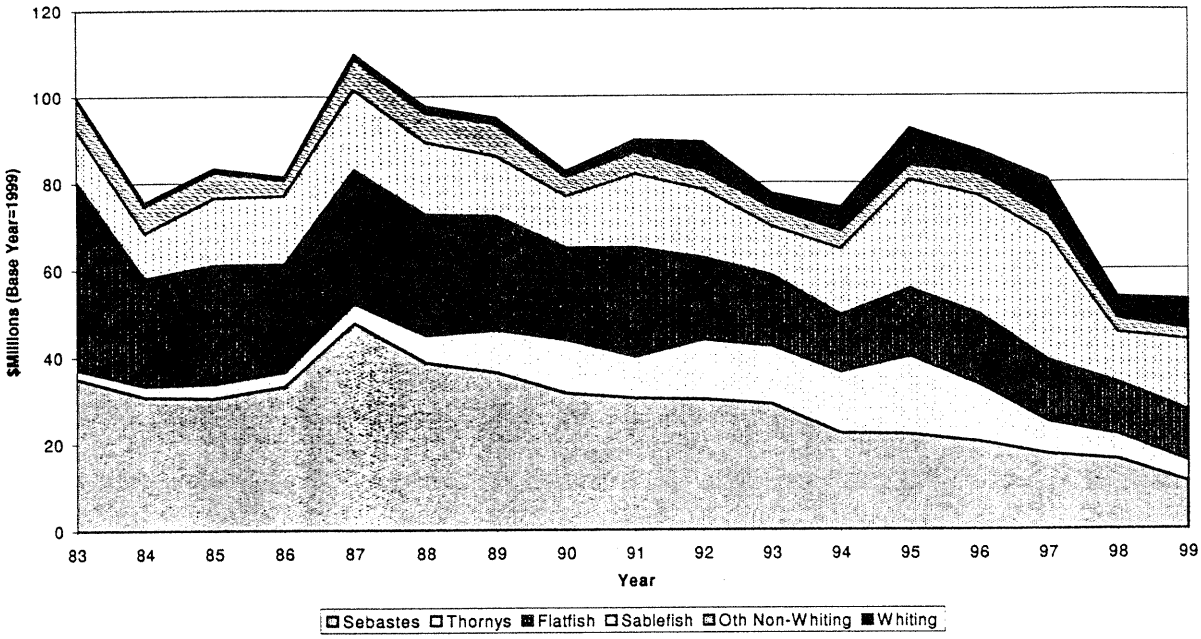


FIGURE II-5. Average Annual Commercial Shoreside Revenues from Major West Coast Groundfish Species, by Species Category and Time Period

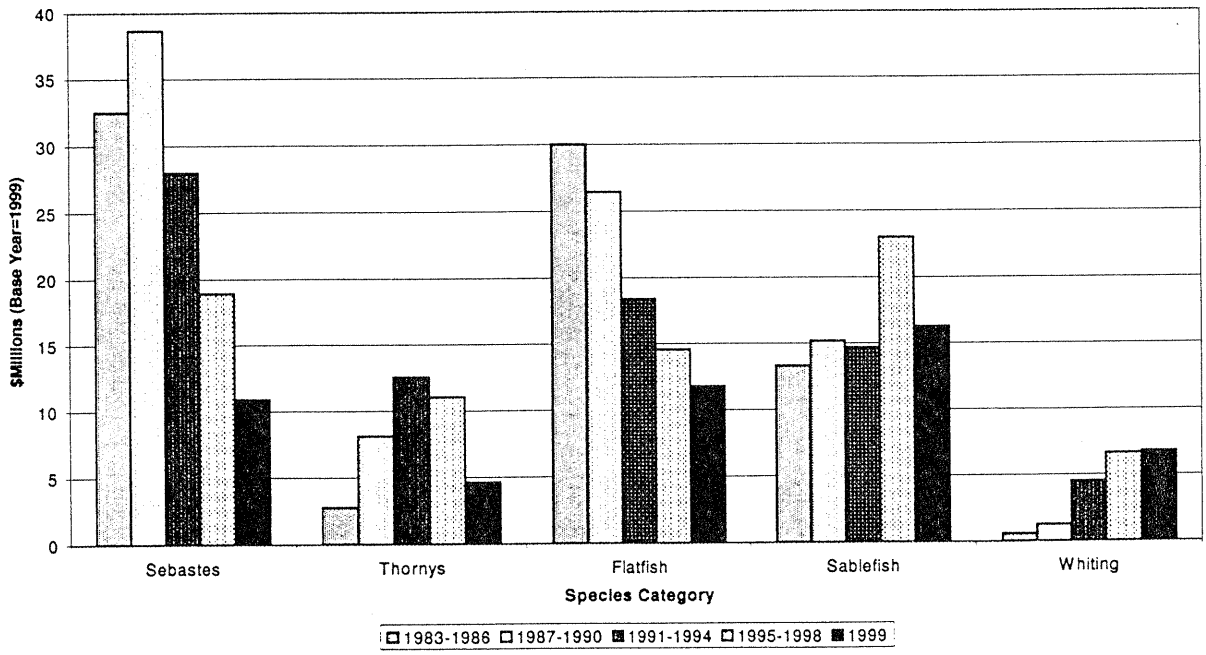


FIGURE II-6. Annual Commercial Non-Whiting Groundfish Landings, by State, 1983-1999

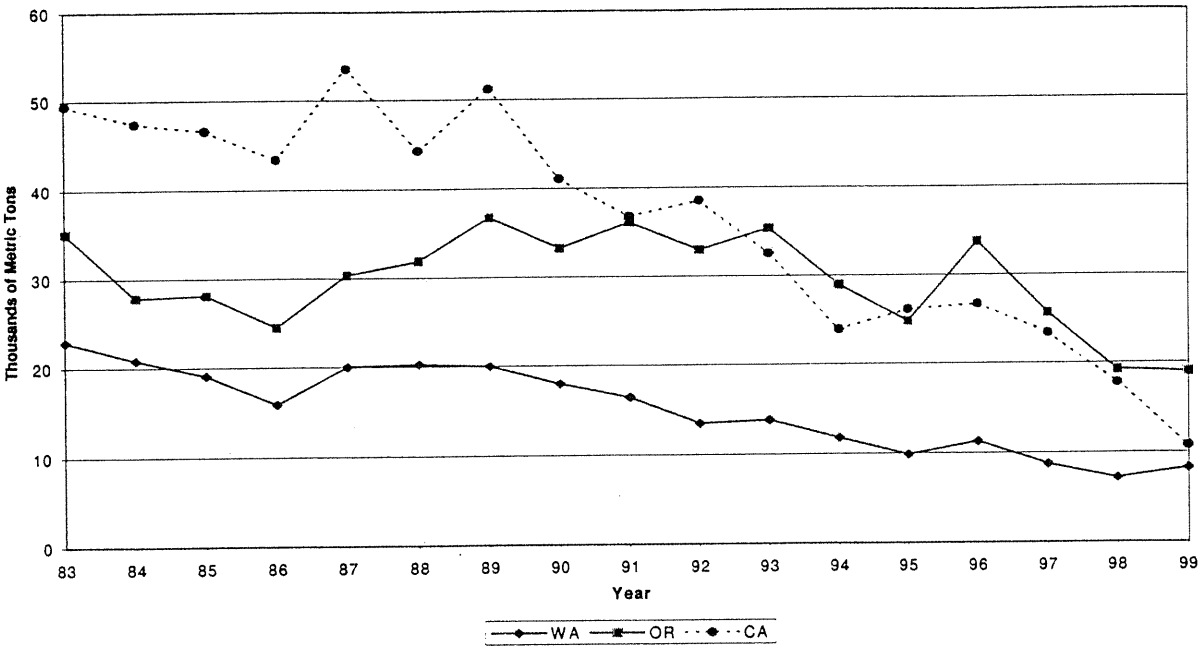


FIGURE II-7. Annual Commercial Non-Whiting Groundfish Revenues, by State, 1983-1999

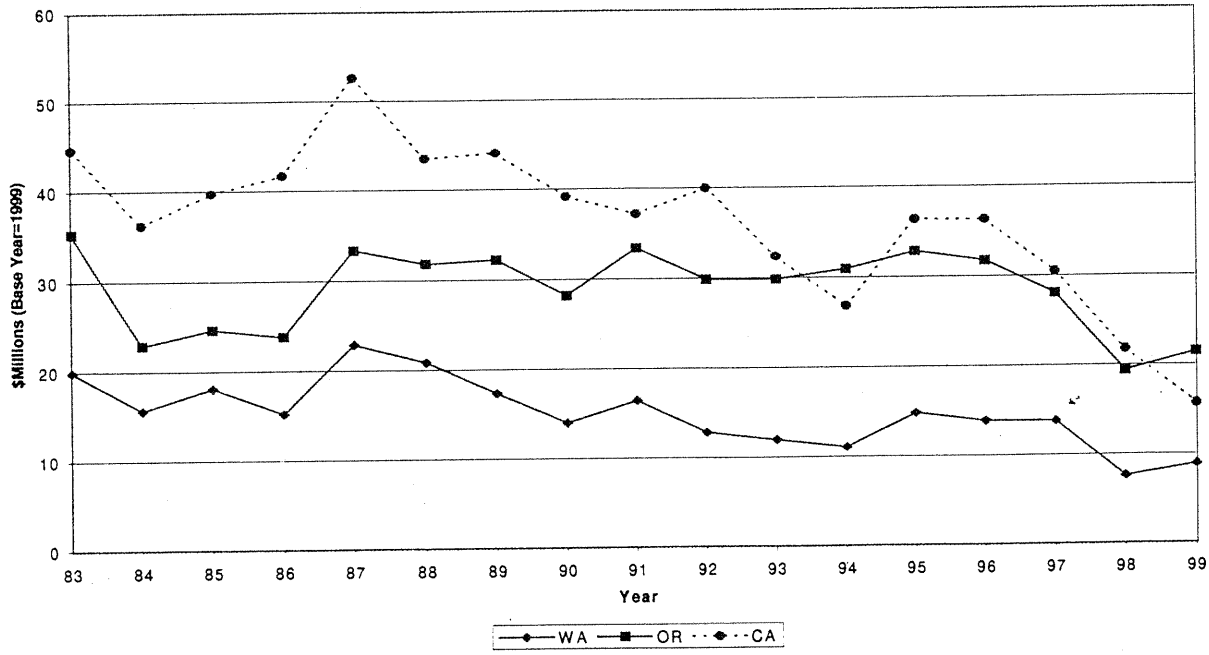


FIGURE II-8. Annual Commercial Whiting Landings, by State, 1983-1999

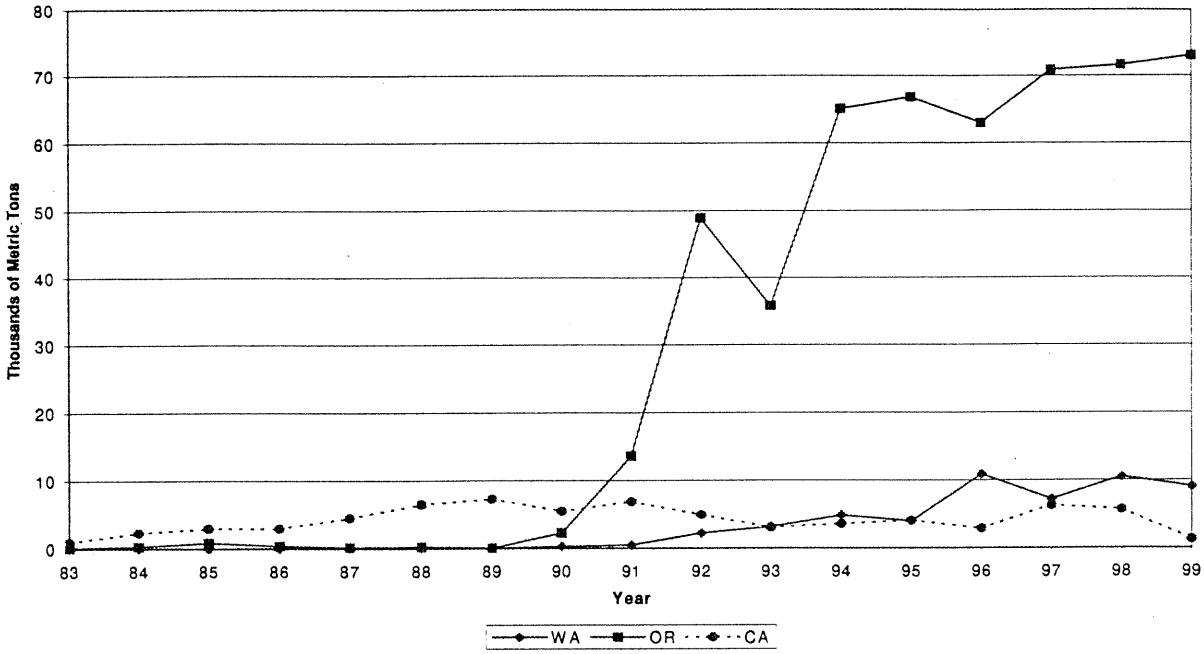


FIGURE II-9. Annual Commercial Whiting Revenues, by State, 1983-1999

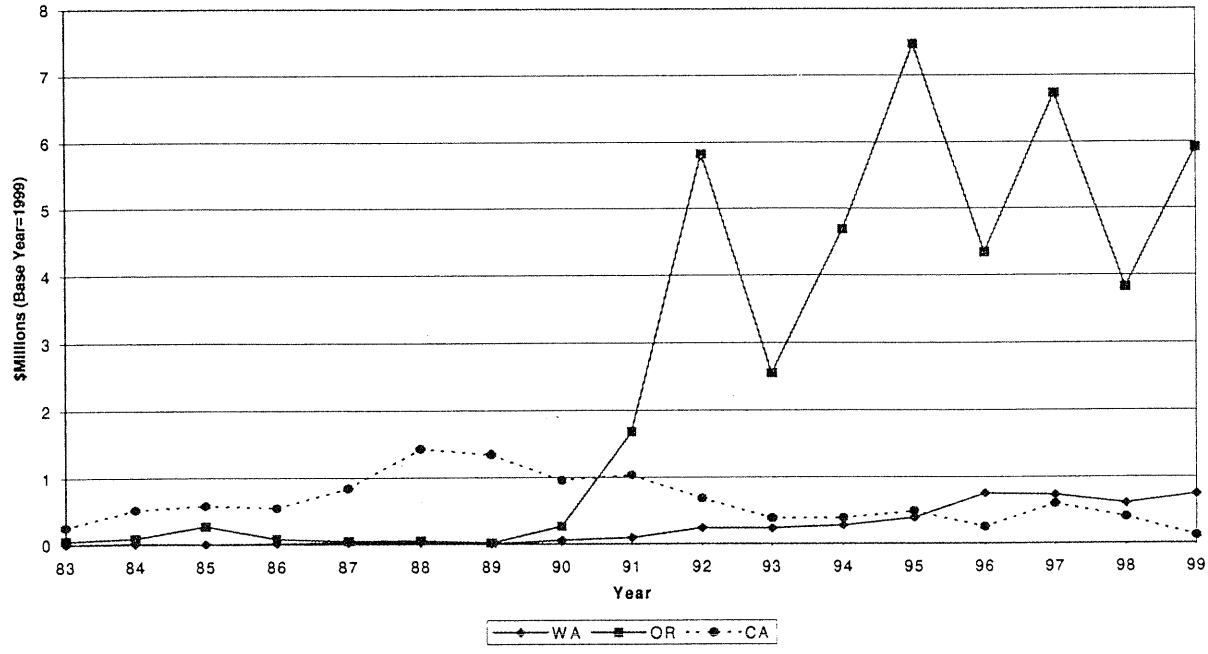


FIGURE II-10. Annual Commercial Groundfish Landings in Washington, by Species Category, 1983-1999

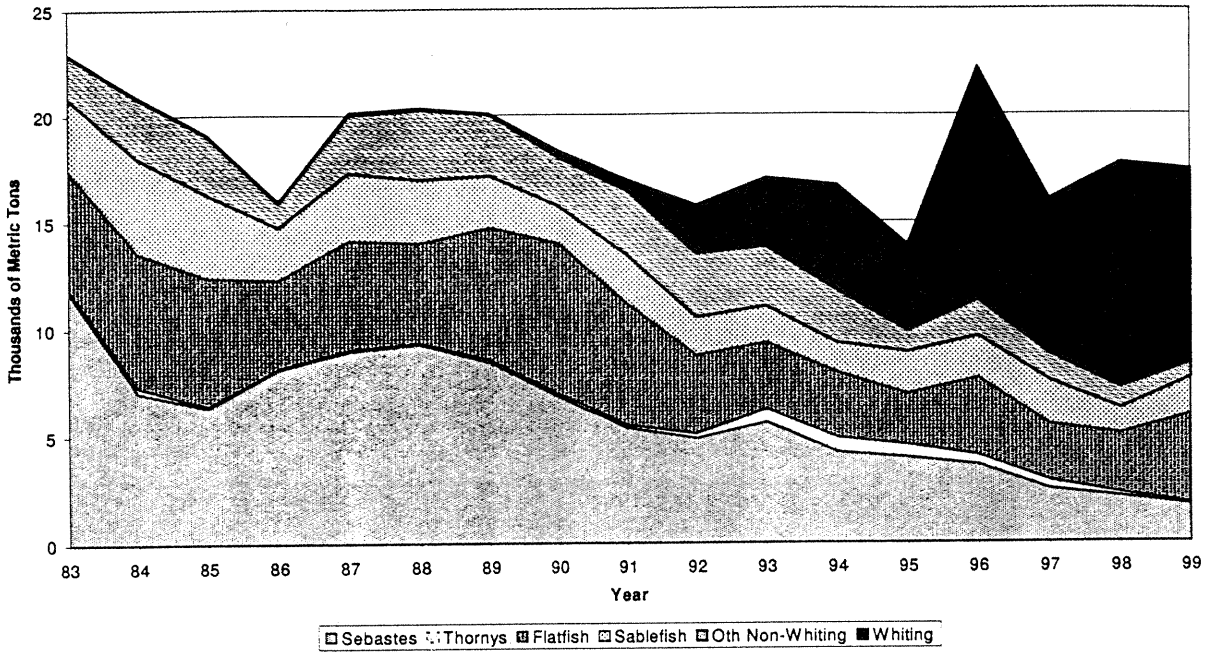


FIGURE II-11. Annual Commercial Groundfish Revenues in Washington, by Species Category, 1983-1999

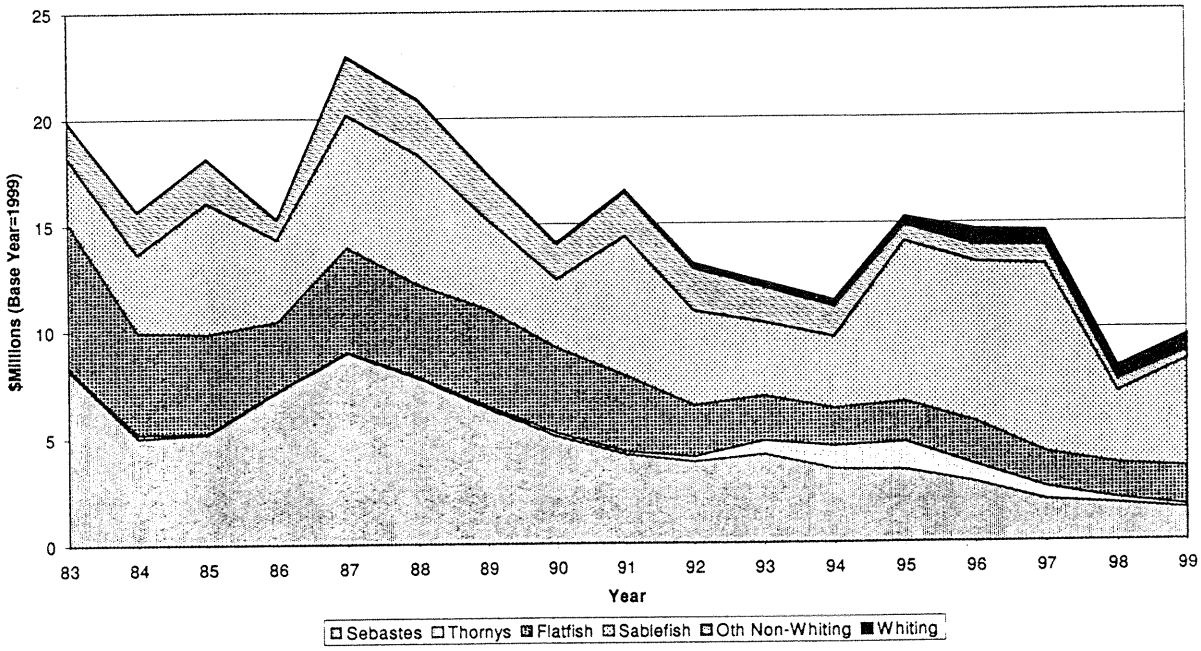


FIGURE II-12. Average Annual Commercial Groundfish Landings in Washington, by Major Species Category and Time Period

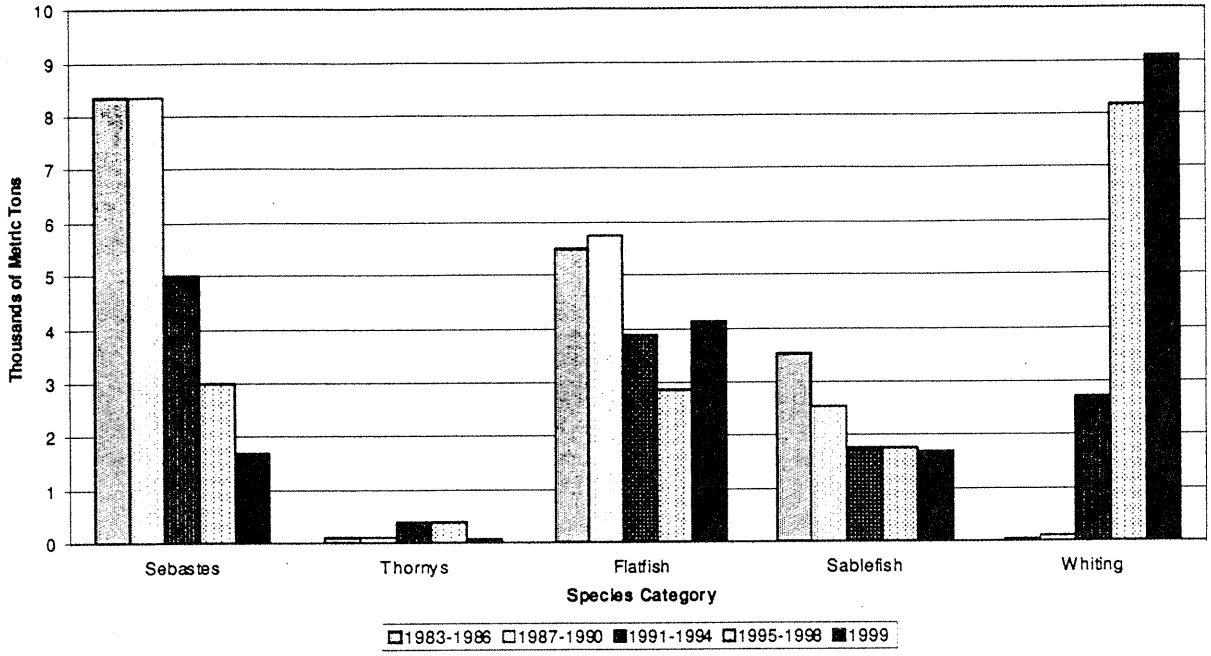


FIGURE II-13. Average Annual Commercial Groundfish Revenues in Washington, by Major Species Category and Time Period

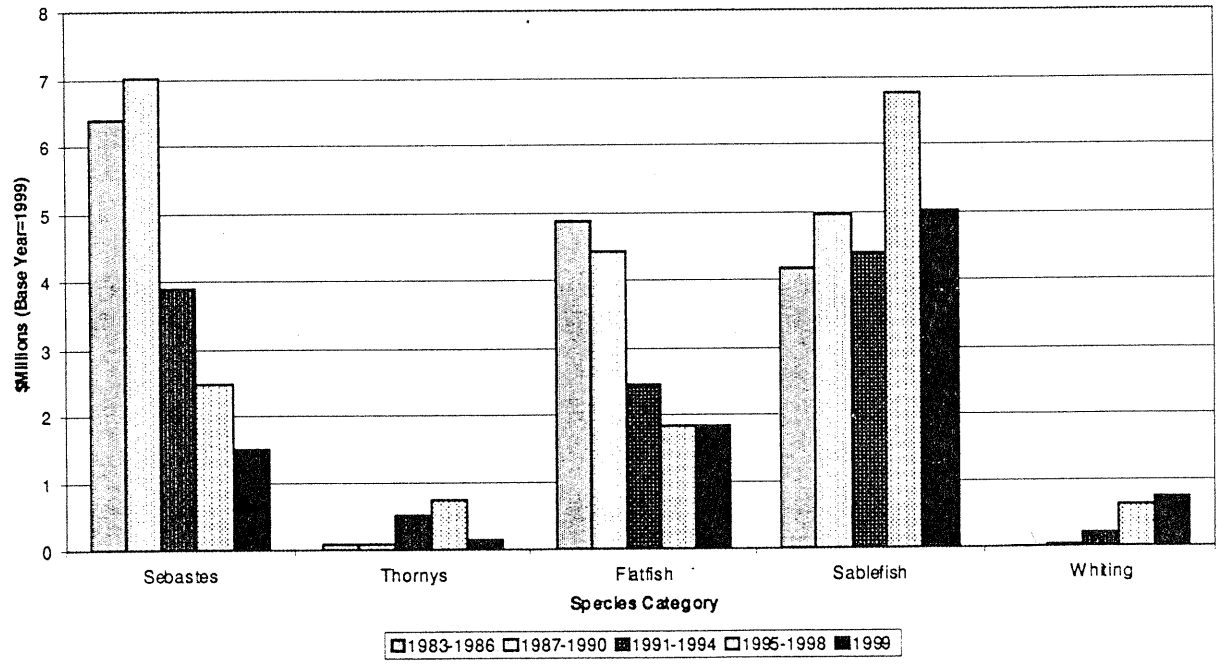


FIGURE II-14. Annual Commercial Groundfish Landings in Oregon, by Species Category, 1983-1999

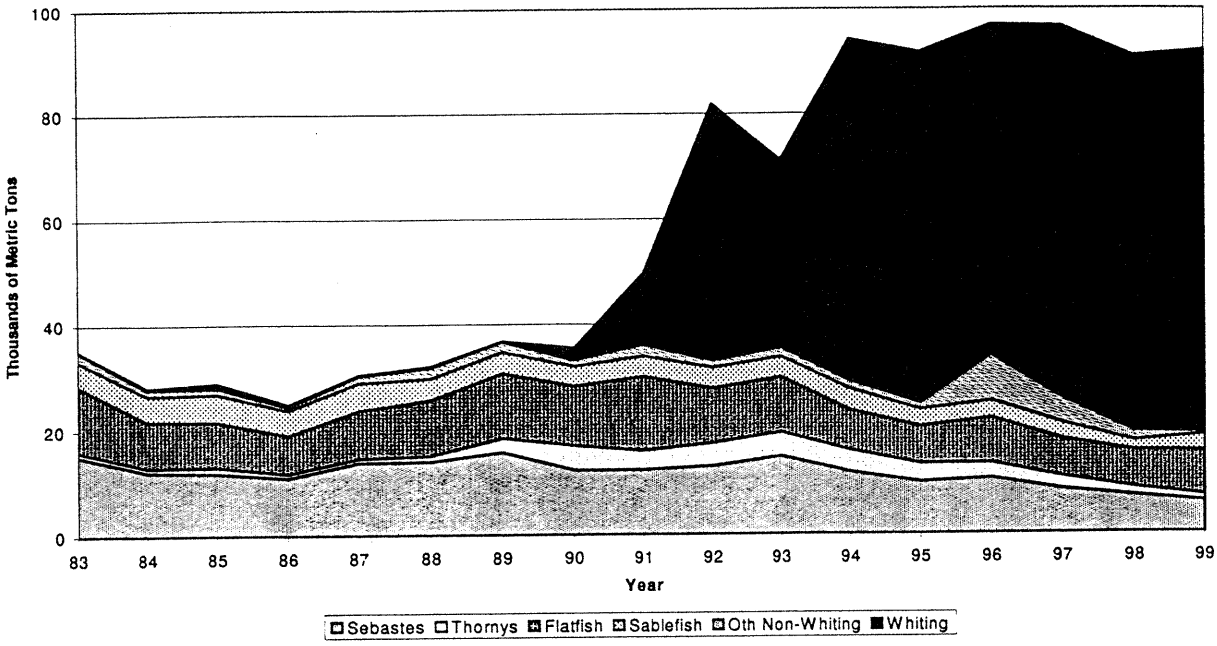


FIGURE II-15. Annual Commercial Groundfish Revenues in Oregon, by Species Category, 1983-1999

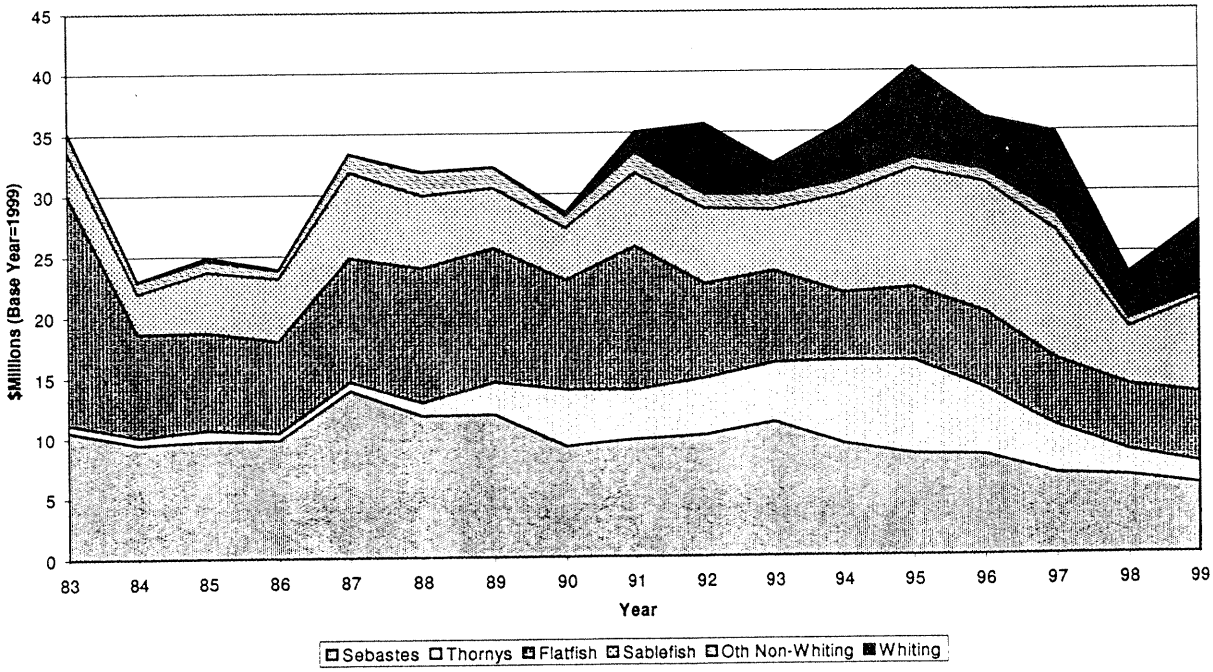


FIGURE II-16. Average Annual Commercial Groundfish Landings in Oregon, by Major Species Category and Time Period

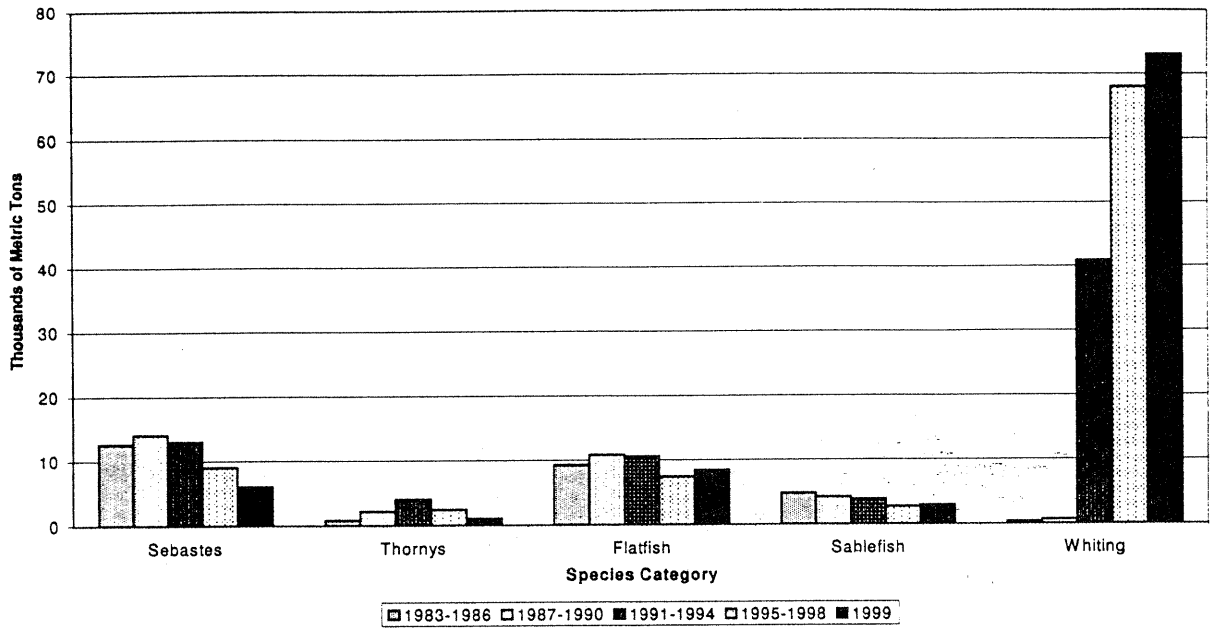


FIGURE II-17. Average Annual Commercial Groundfish Revenues in Oregon, by Major Species Categories and Time Period

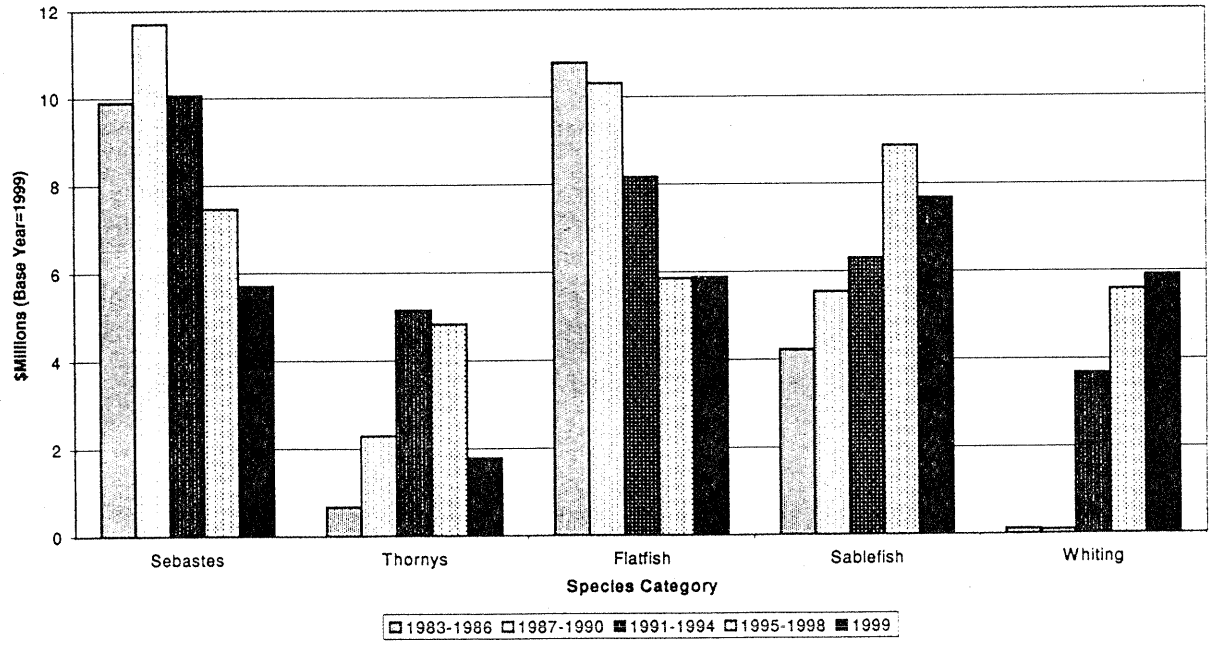


FIGURE II-18. Annual Commercial Groundfish Landings in California, by Species Category, 1983-1999

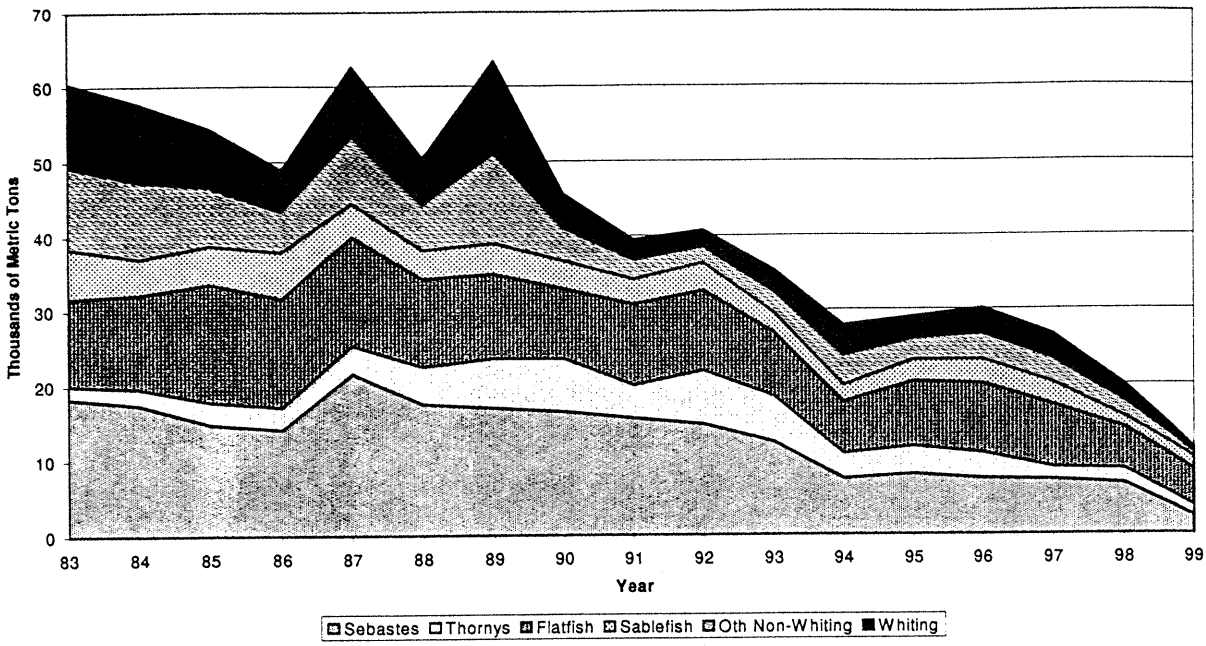


FIGURE II-19. Annual Commercial Groundfish Revenues in California, by Species Category, 1983-1999

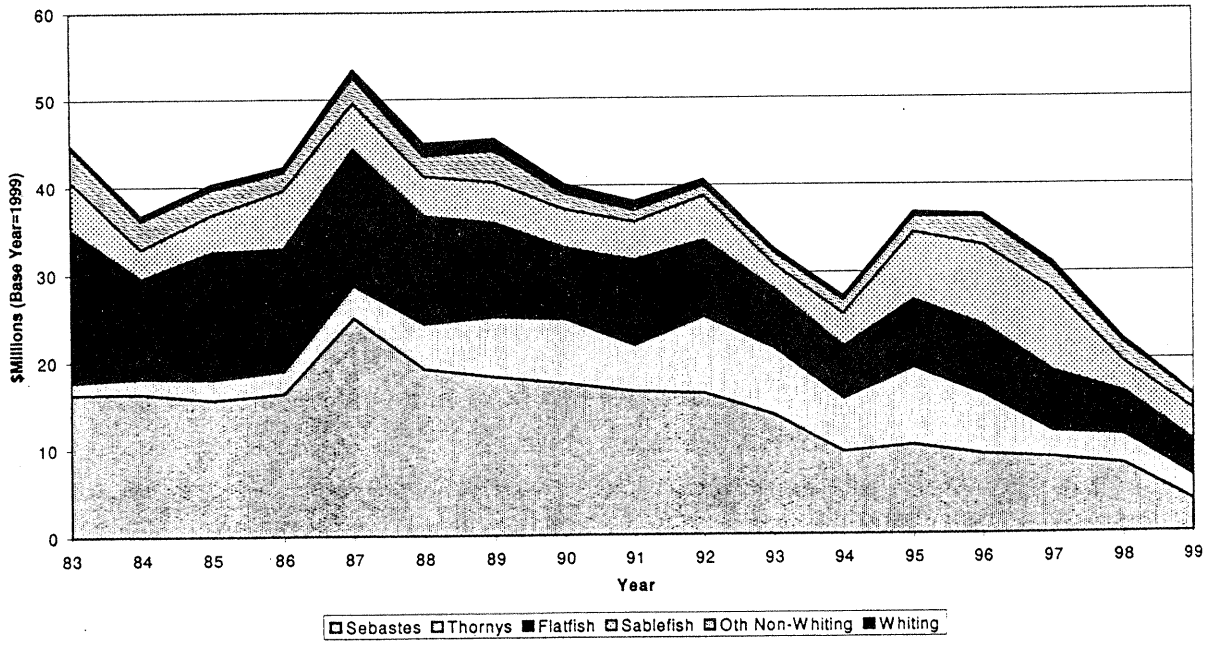


FIGURE II-20. Average Annual Commercial Groundfish Landings in California, by Major Species Category and Time Period

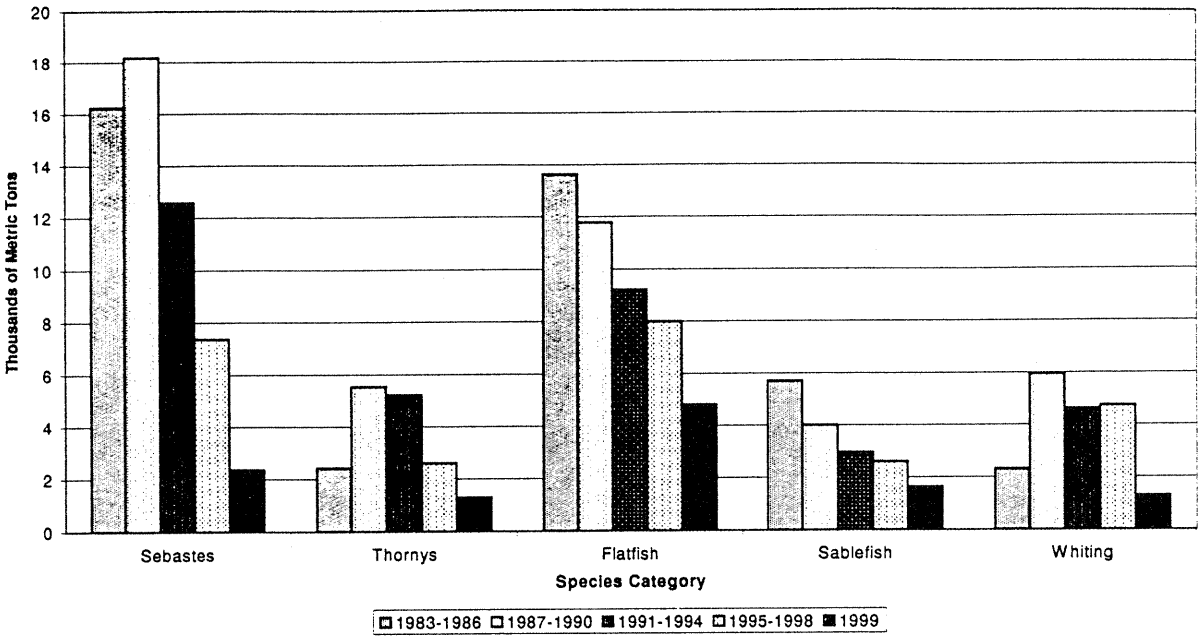


FIGURE II-21. Average Annual Commercial Groundfish Revenues in California, by Major Species Category and Time Period

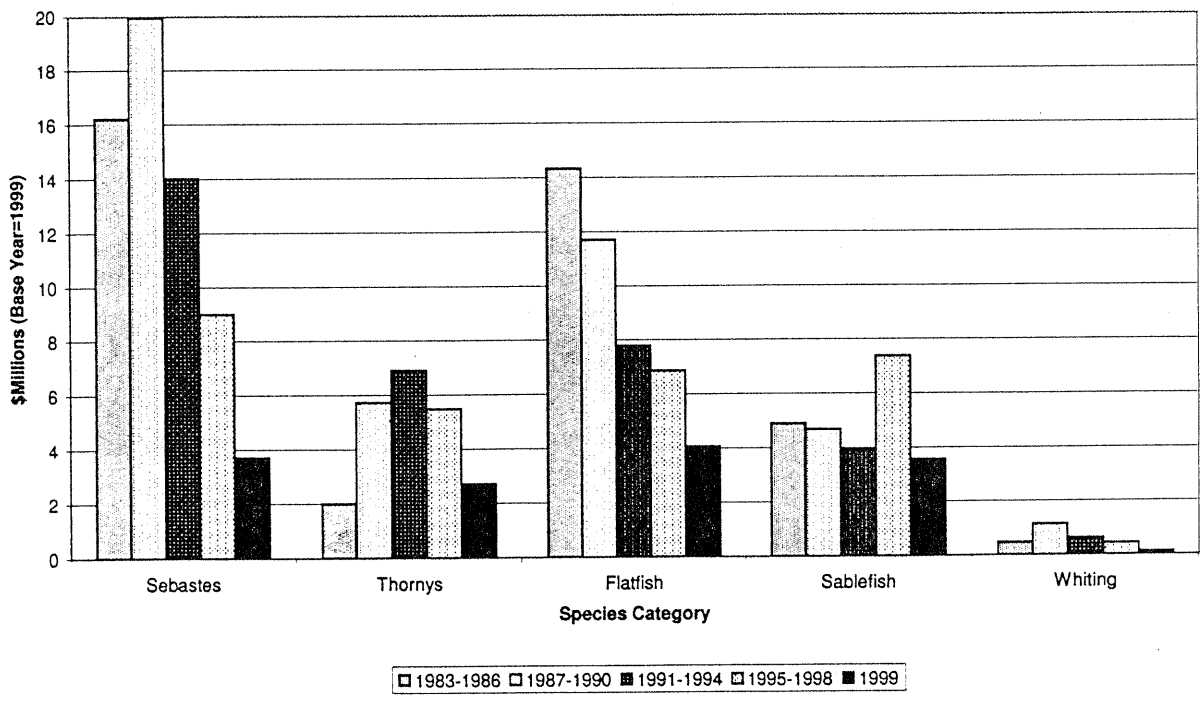


FIGURE II-22. Monthly-Equivalent Cumulative Landings Limits for the Groundfish Limited Entry Fleet, by Major Species Complex, 1984-2000

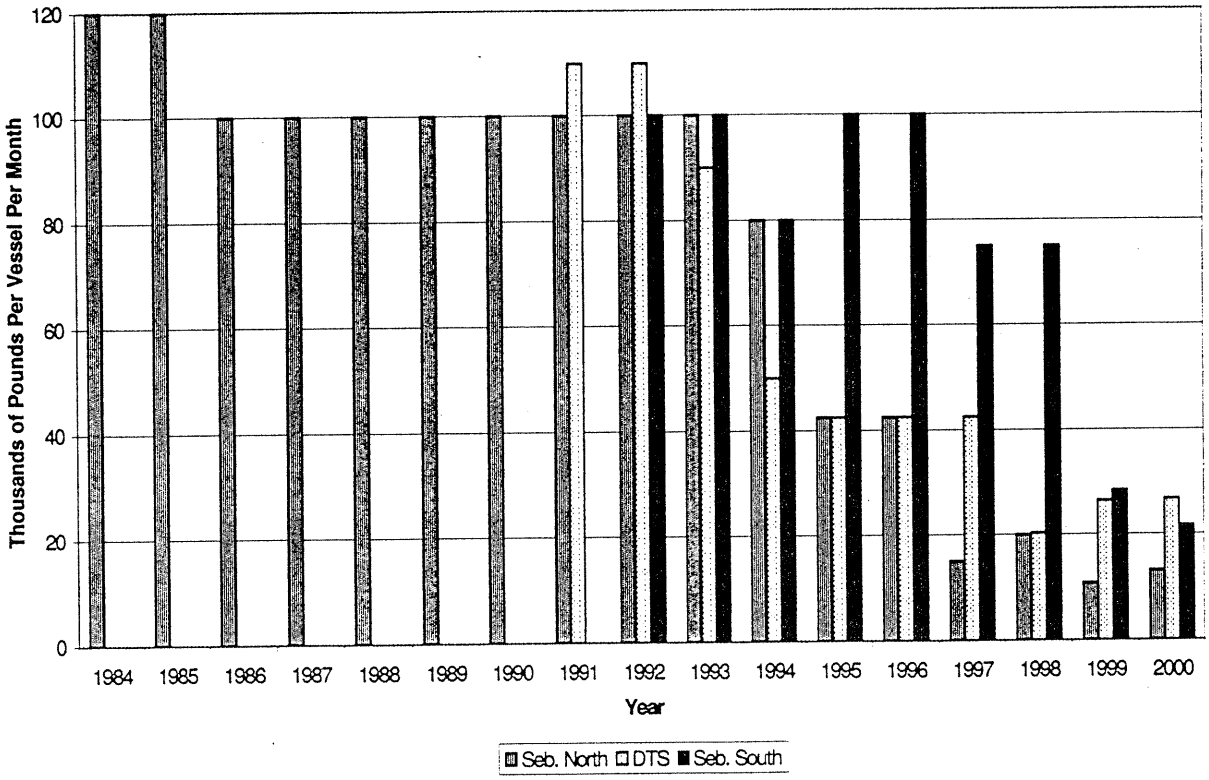
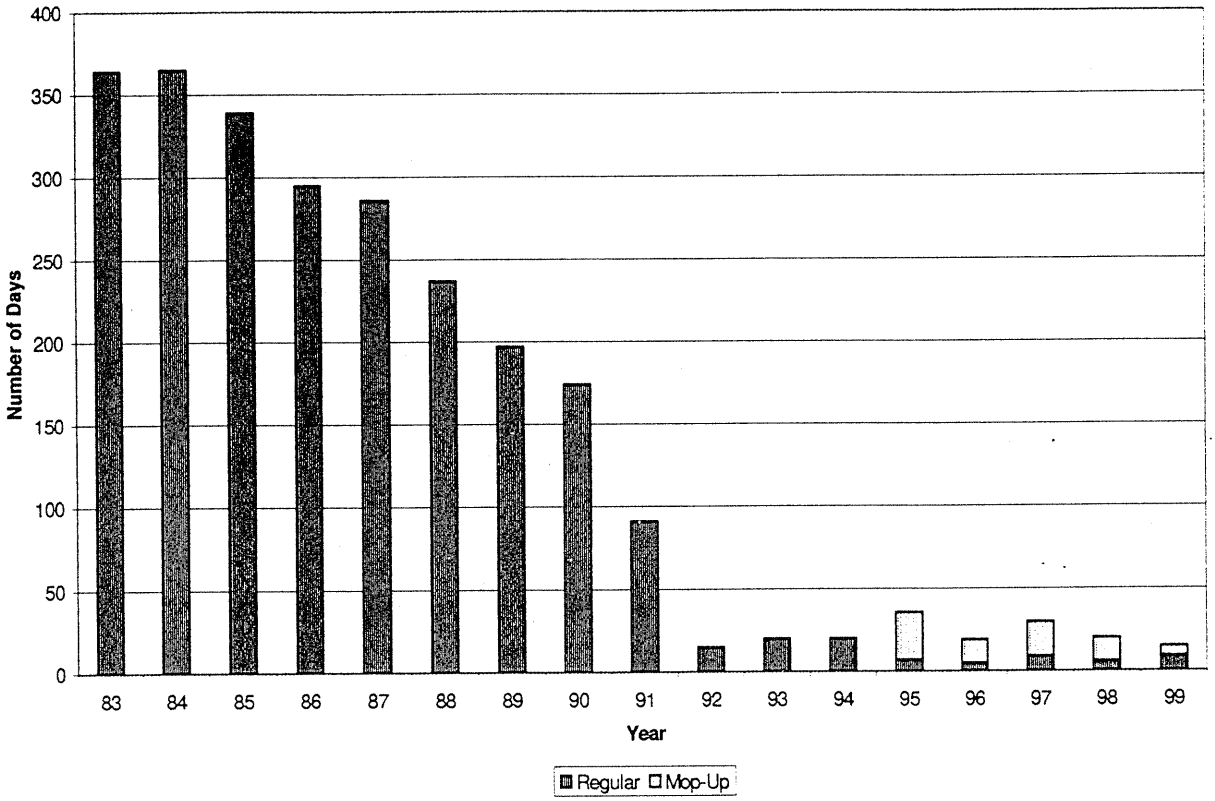


FIGURE II-23. Length of Limited Entry Fixed Gear Sablefish Season, by Year



III. A REVIEW OF CAPACITY REDUCTION PROGRAMS WORLDWIDE

III.A. Introduction

Overcapitalization and excess capacity are paramount problems for many of the world's fisheries, generating significant economic, biological, and social costs. On a global scale, existing capacity may exceed by a factor of three or four the capacity necessary for sustainable harvests.[17] In order to reduce overexploitation, the National Academy of Sciences' National Resource Council (NRC) report on Sustaining Marine Fisheries recommends that management target the elimination of overcapacity as its highest priority (NRC 1999b). Although there are many contributing factors, the fundamental cause of overcapacity is institutional failure: the inability of management to craft regulatory systems capable of "rationally" controlling capacity.[18] Recognizing the severity of the problem, FAO's Code of Conduct for Responsible Fisheries (adopted by the U.S. in 1996) recommends that "management develop plans that ensures that fishing effort is commensurate with the productive capacity of fishery resources and their sustainable utilization." Addressing this recommendation, however, requires that managers determine (1) the "productive capacity of the resource", (2) requirements for "sustainable utilization", and (3) explicit definitions of "productive capacity", "sustainable" and "excess capacity". These determinations are a difficult but necessary first step for developing plans capable of achieving clearly articulated goals, particularly goals related to managing capacity.

The need to reduce excess capacity in U.S. fisheries is addressed by the 1996 Sustainable Fisheries Act (SFA). Under SFA provisions, the Secretary of Commerce can fund capacity reduction programs (vessel buyout, license retirement, gear retirement) through various mechanisms, including an industry fee system. Such fee systems have been proposed for the West Coast groundfish limited entry trawl and Alaska crab fisheries.[19] Plan implementation has been stalled by a number of factors, including the slow pace of federal bureaucratic review and various equity, allocation, and resource-based issues. Other mechanisms in the SFA can also help address capacity problems. For instance, Section 312(a) authorizes the Secretary to contribute up to 75% of the costs to address natural or uncontrollable disasters, including measures to reduce capacity and compensate vessels owners and crew.

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[17] The National Research Council's (NRC) 1999 report on "Sustaining Marine Fisheries" and the OECD report on the economic aspects of managing marine resources (1997) cite a number of analyses which concur that worldwide, fisheries are overcapitalized by 300%-400% .

[18] "Rational" management is defined as a systematic management program capable of achieving clearly defined management objectives.

[19] See proposals by (1) Leipzig and Young (1997) describing the West Coast groundfish limited entry trawl permit buyback program, and (2) the Capacity Reduction And Buyback Group (CRAB) (1998) for purchasing licenses in the crab fisheries of the Bering Sea/Aleutian Islands.

Many programs have made efforts to reduce excess capacity and improve economic efficiency. A review of these programs demonstrates that management strategies for reducing capacity fall into roughly four categories: (1) buyouts of licenses or effort funded by government and/or industry; (2) incentive-based strategies, including taxes, fees and rights-based markets for quota, effort, or permits; (3) elimination of subsidies or other economic or socially "perverse" incentives supporting "excess" capacity; and (4) status quo or "do nothing" approaches which ultimately result in effort exiting the fishery due to decreasing stocks and negative profits. In many cases, capacity reduction programs contain elements from all four of these approaches.

Although a complete review of each of the four major capacity reduction approaches is beyond the scope of this report, a variety of programs that exemplify each approach and the strategic elements and impacts of these programs are highlighted. The following section describes these programs in terms of: (1) their primary goals and strategies, (2) sources and methods of program funding, (3) short and long term effects, and (4) fundamental lessons and principles applicable to West Coast groundfish fisheries.

III.B. Capacity Reduction Programs

Many efforts have been undertaken to reduce "excess" fishing capacity worldwide, particularly in response to economic crisis or low resource stock size. Most of these programs have occurred in developed nations, including Canada, the United States, Norway, Iceland, New Zealand and Australia. Several reviews of capacity reduction programs -- particularly programs based on government and/or industry buyouts -- have been conducted (Gates *et al.* 1996; Read and Buck 1997; GAO 1999; Poulsen 1999). Analyses have also been conducted of rights based market strategies and their impact on capacity reduction (ICES 1997; OECD 1997). The most detailed of these evaluations have summarized the design elements and success of these programs in achieving their objectives. Although limited by incomplete data, the evaluations have nevertheless provided a number of useful findings.

Government or industry funded buyout programs are the most common approach to reducing excess fishing capacity. At least thirty programs have been summarized and reviewed in recent literature. Although in some cases industry has committed substantial dollars, in most cases buyouts are funded primarily by the government. Government involvement is usually justified on the basis of humanitarian grounds or the failure of public managers to achieve management objectives. In many cases, government buyout programs are part of emergency relief efforts to help industry and fishing communities weather the financial crisis associated with overfishing and/or stock collapse. The cost of these programs has ranged from less than $1 million to over $500 million (Gates *et al.* 1996; GAO 1999).

III.B.1 Program Goals

Most capacity reduction programs are designed to achieve one or more of the following goals:

1. Improve resource conservation.
2. Generate greater economic benefits.
3. Serve as a conduit for transferring payments from one sector of society to another.

The conservation goal is linked to the assumption that reductions in fleet size will also reduce political pressure to maintain high harvest rates. The economic goal is linked to the expectation that the withdrawal of capacity from a fishery will improve overall fleet profitability by making more fish available for remaining capacity. The financial assistance goal is linked to a desire to help the industry survive until conditions improve or make a transition out of the fishery.

The following are examples of objectives specified for a variety of capacity reduction programs.

1. Economic objectives
    a. Reduce maximum capacity at the least cost (Atlantic Canada groundfish)
    b. Provide higher and more stable income to fishers/industry (Atlantic Canada lobster)
2. General capacity objectives
    a. Reduce overall fleet size (British Columbia salmon)
    b. Reduce fishing capacity (West Coast salmon)
3. Specific capacity objectives
    a. Reduce demersal fisheries capacity by 20%, benthic capacity by 15%, pelagic capacity by 0% (European Union)
    b. Reduce fleet by 17% gross tonnage and 15% horsepower (United Kingdom)
    c. Eliminate 16,000 gross tons while upgrading remaining fleet (Denmark)

Economic and physical capacity objectives are often stated generally; in many cases, they are secondary to the primary goal of providing financial relief to the industry. Objectives that are too general are not useful for structuring a capacity reduction program or measuring its effectiveness. Even specific objectives that set measurable targets may not achieve significant long run economic benefits if they fail to address the underlying causes of excess capacity.

III.B.2. Program Strategies

This section discusses strategies associated with the four categories of capacity reduction programs outlined in Section III.A above and provides brief examples of each from capacity reduction programs worldwide.

III.B.2.a. Buyout Strategies: Government Sponsored

Government sponsored buyouts are the most common form of capacity reduction program. Ten U.S. programs have been implemented since 1976: five for Pacific Northwest salmon, two for New England groundfish, and one each for Texas shrimp, Glacier Bay Dungeness crab and Bering Sea groundfish (a mixture of government backed loans and grants).[20] To date, $160.0 million has been spent on buyouts, including $80.3 million in federal grants and $75.0 million in federal loans. As a result of these buyouts, 2,907 permits have been purchased and 597 vessels either scrapped or barred from fishery participation. Average cost per license, or license plus vessel, has approximated $10,000 for salmon and small vessel fleets, $250,000 for mid-sized trawlers, and $10 million for factory trawlers. Administrative costs have ranged from .2% to 12% of total program costs.

Government sponsored buyout programs are structured in a variety of ways, depending on legal and regulatory constraints, program objectives and program funding. Most programs rely on an auction system to determine the selling price for permits or vessels; other programs offer a flat fee or "take it or leave it" price for a vessel or license. Some programs focus on short term retirement of capacity in the targeted fishery, while others are designed so that all elements of capacity -- including physical capital (vessel and gear) and human capital (owners, skippers and crew) -- are removed from the target fishery and are kept from leaking into other fisheries. In some cases, bidding rules are designed to favor retirement of capacity least likely to spill over into other fisheries. In the most extreme cases, the vessel and gear are purchased and scrapped, the permit purchased and retired, and the vessel owner required to sell or retire all other fishing permits.[21] In addition, the vessel owner or skipper/crew may be permanently banned from re-entering either the targeted fishery or other regional or national fisheries.

III.B.2.b. Buyout Strategies: Industry Co-Sponsored

Few buyout programs are completely sponsored by industry because most limited entry fisheries are managed on the basis of government-bestowed privileges and weak property rights. The insecure status of these rights, combined with other risks, results in significant private market loan premiums far exceeding the financial ability of most fishing industries, particularly industries that are unprofitable and overcapitalized.

Co-sponsored programs usually combine direct government financing with industry contributions generated through increased license fees, increased landing taxes or government guaranteed low interest loans. Because it may be financially or politically difficult to collect

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[20] The recent GAO report (1999) on U.S. federally funded buyout programs summarizes program results and costs.

[21] Europe in particular has designed capacity reduction programs in attempts to minimize spillovers into adjacent fisheries. See Hatcher and Robinson (1999) for examples.

significant fees from a highly overcapitalized fishery, the government typically uses public funds to buy out some proportion of capacity, then levies a license fee or landings tax (usually 1%-5% of ex-vessel revenue) on remaining vessels or permit owners. Government agencies acting as lenders must be convinced that loan programs will produce a return that justifies the investment and enables loan repayment.[22] The government usually manages the funds, which are used to either repay the loan or to buy out additional capacity from the fishery over time. To date, U.S. buyout programs have applied to at-sea catcher-processor vessels and permits in the Bering Sea/Aleutian Islands crab ($45-$60 million), Pacific salmon ($32 million), Atlantic swordfish ($18-$20 million), Atlantic scallop ($40-$60 million), Atlantic shark ($12-$50 million) and Pacific groundfish ($10-$30 million).

III.B.2.c. Long Term Incentive Strategies: Rights-Based Quotas

In contrast to many government and industry co-sponsored buyout programs, rights based systems rely on market incentives to adjust capacity. Probably the best known rights based system is the Individual Fishery Quota (IFQ). When IFQs are transferable, quota markets allow capacity to adjust to changing resource, market and technological conditions. Less efficient producers can gain more by selling their quota shares than by using them to fish, so will sell their quota shares to more efficient producers. Regulatory intervention is not required to adjust capacity to its economically efficient level. Because transferable IFQs can endow the initial recipients of quota share with considerable wealth, some governments require that at least some portion of the research and management cost be recovered from industry.[23]

About 65 to 75 IFQ programs exist worldwide. These programs vary in terms of goals, objectives and strategies. Programs with goals weighted toward efficiency have relatively few controls (e.g., New Zealand). In contrast, programs designed to protect jobs, family owned firms or geographic distribution of income (NRC 1999a) tend to include detailed controls (e.g., Alaska halibut).

Although many IFQ systems allocate quota to individuals, in some cases quota is allocated to communities or industry user groups (NRC 1999a). These programs have widely varying goals and designs. In some cases quota can be allocated and traded within the group; in other cases quota is managed through a corporate or cooperative organization.

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[22] Rollie Schmitten, Assistant Administrator for U.S. Fisheries, raised a number of these concerns in a January 1998 letter to Jerry Mallet, PFMC Chair, regarding a proposed industry funded buyout program for the Pacific groundfish limited entry trawl fishery.

[23] The National Research Council's recent report on IFQs (1999a) offers some discussion of cost recovery programs.

III.B.2.d. Incentive Strategies: Licenses and Permits

Many fisheries use licenses and permits to limit fishery participation. These permitting systems may be relatively simple or complex, depending on their objectives and design. Unless accompanied by input controls (e.g., restrictions on gear or fishing power) or output controls (e.g., trip limits, IFQs), licenses or permits are incapable of controlling effort. The reason is "capital stuffing", whereby the industry increases those elements of capacity not controlled by the program in order to increase the effectiveness of fishing effort and win the race for fish. Similarly, strategies such as permit stacking can reduce capacity only if management also includes complementary input or output controls. One example of this technique occurs in British Columbia, where salmon license owners are required to stack licenses in order to fish in different geographical areas (Muse 1999).

III.B.2.e. Incentive Strategies: Effort Based Quotas

Some capacity reduction programs are based on transferable effort quotas. One example is the Florida spiny lobster trap certificate program (Milon *et al.* 1999). Under this program, the state of Florida reduced capacity and increased catch per unit effort by instituting a tradable pot program while also mandating percentage-based trap reductions for the entire fleet. The program reduced the number of traps by approximately 50% and increased the value of remaining traps by 100%-400%. A second example of transferable effort quota programs is in the Australian gillnet baramundi fishery. The program mandated a significant reduction in total linear feet of gillnets while allowing the remaining linear feet of gillnet to be traded among permit holders (Gates *et al.* 1996).

III.B.2.e. Incentive Strategies: Taxes or Fees

Governments have instituted taxes on landings and/or fees on permits in order to recoup the cost of government funded buyouts or to recover research and management costs. Taxes and fees can also be used to limit the number of active participants and compel active participants to minimize their costs.[24] They also provide a mechanism for government to collect fishery royalties or rents. A few fisheries have instituted relatively high fees after government supported buyouts which not only helped pay back the cost of the buyout but effectively limited the number of fishermen who renewed their license (e.g., British Columbia salmon). However, because high taxes and fees are politically unpopular, they are rarely used as an incentive system to manage fisheries.

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[24] See FAO Technical Working Group (1998) report for a discussion regarding use of taxes or fees for fisheries management.

III.B.2.f. Removing Subsidies

Worldwide, approximately U.S. $10-$40 billion is spent annually to subsidize fisheries that generate approximately U.S. $160-$200 billion in revenue (NRC 1999b). These subsidies are a component of the total costs of fisheries, which exceed revenues by an estimated U.S. $60 billion annually. Approximately 30-40 subsidy programs have been implemented in the U.S. fishing industry (Federal Fisheries Investment Task Force 1999). The two most important U.S. programs are the Capital Construction Fund and the Vessel Loan Guarantee Fund. These two programs are believed by many to have contributed to overcapitalization and overcapacity in U.S. fisheries. However, not all support eliminating subsidies, particularly programs which are an important component of fishing operations and investments. This difference was highlighted by the Federal Fisheries Investment Task Force report (Federal Fisheries Investment Task Force 1999). While the Task Force was able to reach consensus on most findings, it was unable to reach strong consensus on the need to eliminate the Capital Construction Fund. A weak majority of panelists believed that the Fund should be eliminated but rolled-over into tax deferred investments; a strong minority argued that the Fund is necessary for rebuilding aging and technically obsolescent fleets.

III.B.2.g. Mixed Strategies

Many capacity reduction programs incorporate mixed strategies. One common approach is to combine a one-time voluntary government funded buyout with an incentive-based capacity management program like IFQs. In some cases the government may follow a one-time voluntary buyout with subsequent measures requiring additional mandatory retirement of capacity or effort.

III.C. Lessons from Existing Capacity Reduction Programs

The following section briefly describes lessons learned from existing approaches to capacity reduction and management. Very few programs, including buyouts and rights based approaches, have been subject to rigorous quantitative evaluation of long term effectiveness in achieving objectives. Most of the following discussion is based on qualitative reviews and assessments.

III.C.1. Buyout Strategies: Government Sponsored

Worldwide, at least 25 government sponsored fishery buyout programs have been implemented during the past twenty years (Gates *et al.* 1996; Read and Buck 1997). Although these programs vary significantly in detail, all were designed to reduce capacity and achieve some or all of the objectives summarized in Section III.B.1. These programs removed 3% to 40% of active licenses, and averaged 20%. In approximately half these cases, vessels were also purchased, scrapped or retired from the targeted fishery. However, given long run problems associated with technological innovation, re-entry of "highliners" and the transformation of latent to active capacity, long run successful capacity removal is estimated to be significantly less than 20%. Because the fisheries in which these programs were implemented were heavily

overcapitalized, an additional 40%-80% reduction in capacity would probably have been required to achieve maximum economic benefits.

A few programs, however, have successfully reduced capacity. For example, 18% of tonnage was successfully retired from the Norwegian purse seine fleet in 1986 (Hannesson 1986). Due to previous government efforts, little latent capacity existed in the fishery and only active permits and vessels were purchased. The resource stocks were also in reasonably healthy condition. The buyout was deemed to have generated positive net economic benefits exceeding the costs of the program.

Government sponsored buyout programs are often instituted when the industry is highly overcapitalized and experiencing severe financial hardship and resource depletions. Under these conditions, the primary objective of a government sponsored buyout is to relieve the short term financial crisis by transferring public dollars to industry and coastal communities rather that address the longer term "root" cause of the capacity problem. In fact, few government sponsored buyout programs require that fishery regulators resolve the conditions that created the capacity problem, which then remain a factor in limiting the effectiveness of capacity reductions.

Government sponsored buyouts in the form of grants tend to inflate the value of permits and vessels above private market prices if the value of the grant becomes capitalized in the value of the permit. Prices may be further inflated if expectations exist that future grants will be forthcoming; speculation primes the value of the fishery. Such expectations, whether realized or not, increase the market value of permits and vessels and therefore the cost of capacity reduction. However, while this is recognized as a potential problem, it has not been documented in empirical studies. Depending on the significance of this problem, the cost-effectiveness of government grants will be reduced. Other uses of government funds (e.g., for retraining or unemployment compensation) may also be capitalized in the value of permits, though perhaps to a lesser extent than if used directly to finance a buyout.

III.C.2. Buyout Strategies: Industry Co-Sponsored

Few analyses have been conducted of the costs and benefits of buyout programs co-sponsored by industry and government. When buyouts are primarily sponsored by industry, improved long-term economic performance becomes a more important objective than providing temporary financial relief. Loan programs co-sponsored by industry are also expected to have greater conservation impacts due to the significant reduction in participants, increased profitability and the longer term increase in the capitalized value of remaining permits.

A few industry supported buyout programs have been conducted in other countries, for instance, the South Australian rock lobster and northern prawn fisheries (Gates *et al.* 1996; Poulsen 1999). In the lobster fishery, the industry purchased 40 licenses but found that, due to decreases in lobster prices and capital stuffing, they had a difficult time repaying the loans. In the prawn fishery, the buyout failed to generate sufficient capacity reduction, and the government was compelled to mandate a 30% surrender of each vessel's "capacity units", measured by

horsepower and hold size. Remaining vessels were required to purchase remaining units from retiring vessels. The number of vessels in the fishery fell dramatically from 302 to 137, and today loans are being successfully repaid. However, some felt the program was inequitable because many small vessels could not afford to fund the loan and also purchase additional capacity units.

These examples demonstrate some of the risks inherent in an industry sponsored buyout program.[25] To some extent, these risks can be ameliorated by adopting bidding rules that allow purchases to be canceled if enough capacity is not removed from the fishery. There is an additional risk that loans will not be repaid due to uncertainties about fishery regulations and access to fishery resources and markets. To reduce these risks, the loan guarantor, usually the federal or state government, is expected to require fiscally conservative plans and develop predictable regulatory rules -- for example, guaranteeing fixed resource allocations. Government must also recognize that it can distort private and public decision making if, for example, industry believes that it can incur fewer costs by defaulting on a government guaranteed loan than by defaulting on a private bank loan. This possibility highlights the importance of government proceeding in a manner that is cautious, fiscally conservative and fair.

III.C.3. Incentive Strategies: Rights-Based Quotas

IFQs are relatively new forms of fisheries management, and few quantitative evaluations exist regarding their impact in reducing and managing capacity. Most evidence suggests that IFQ programs have reduced capacity significantly, in some cases more than 80% (NRC 1999a). However, a more precise determination of IFQ impacts on capacity, conservation and economic efficiency is difficult because they are relatively new, have multiple designs, and are implemented in different economic and resource contexts. Some evidence suggests that, while rights based quota programs may reduce capacity, they may not reduce it rapidly (FAO Technical Working Group 1998). In some programs, significant capacity reduction may take 5-10 years, depending on how initial allocations and transfer rules are designed. Programs designed primarily to achieve economic efficiency and maximize quota value can be expected to more rapidly reduce excess capacity to economically efficient levels. In contrast, programs designed to achieve other social objectives, such as maintaining distribution of quota share over different groups, are less directed at achieving economic efficiency. However, even in cases where social objectives are important (e.g., North Pacific halibut IFQs), there is evidence that excess capacity has been reduced and effort made more efficient across space and time.

Government or industry buyouts may reduce capacity at much faster rates than rights based management. The advantage of a transferable rights based program is its ability to manage capacity over the long term by letting the market provide signals to quota holders regarding how

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[25] Hastie (1998) analyzed some of the risks inherent in conducting an industry sponsored buyout for the West Coast groundfish limited entry trawl fishery, including uncertainties regarding allowable harvest levels and numbers of remaining permits.

to adjust capacity in response to changing technological, market and resource conditions. This advantage stands in sharp contrast to management systems that rely on regulations to manage capacity. The fewer restrictions placed on transferability, the more this advantage is likely to be realized. Transferability also has the potential to generate significant economic rents that are capitalized in the value of quota shares. These rents can be taxed as a source of revenue to the public or to recover the costs of research and management. As a cost to industry, these taxes can act as an additional incentive to eliminate inefficiencies and reduce excess effort.

Little detailed information exists on the capacity reducing effects of programs in which industry or community groups own quota shares. Recent reports on the Pacific whiting and Alaska pollock cooperatives suggest that the cooperative approach has significantly reduced active effort, but not necessarily latent capacity. These programs have eliminated the race for fish and reduced the number of vessels active in the fishery (NRC 1999a). The reduction in capacity in the coop fisheries, however, has reportedly resulted in significant leakage of effort to other West Coast groundfish fisheries.

III.C.4. Incentive Strategies: Licenses and Permits

Controls on the number of licenses and permits can reduce capacity fairly rapidly. However, unless the race for fish is also eliminated, their long term effectiveness can be compromised because of capital stuffing. Output controls such as trip limits are sometimes used in conjunction with licenses/permits to discourage capital stuffing. The potential for capital stuffing is common to all capacity reduction approaches that regulate one or several dimensions of capacity while leaving other dimensions unrestricted.

License stacking (multiple purchase of licenses by a single owner) when licenses are associated with some proportion of the total quota is similar to an IFQ. However, while license stacking may have some potential to control capacity, it may be inflexible over the long term due to difficulties in disaggregating quota share associated with the license.

III.C.5. Incentive Strategies: Effort Based Quotas

In three fisheries where effort based quotas have been applied (Florida spiny lobster fishery, Western Australia lobster and baramundi fisheries), they have succeeded in reducing and managing capacity, increasing profitability and sustaining the resource. All three programs occur in relatively homogeneous single-species fisheries based on pot or gillnet technologies. In each program, capacity was reduced by first requiring each permit holder to eliminate some proportion of effort, then instituting markets for trading units of remaining effort (pots or linear feet of gillnets). Whether these systems can successfully maintain capacity reductions over the long term will depend on management's ability to successfully thwart industry's attempts to increase the effectiveness of their gear.

III.C.6. Incentive Strategies: Taxes or Fees

Taxes and fees can be used to recoup management costs, transfer rents to the public treasury, and control effort. High taxes or fees, however, are rarely used in fisheries because they are politically unpopular. Some economists argue that taxes can help manage fisheries more efficiently than quota share programs, particularly where stock size is uncertain (FAO Technical Working Grouping 1998). It is unclear, however, how optimal tax rates can be calculated when they generate an uncertain response by industry in reducing costs, improving technology and increasing output market value.

III.C.7. Removing Subsidies

Although subsidies may help fishery participants in the short term, in the long term they often act as perverse incentives and encourage excess capacity and economic inefficiencies. This is true for the Capital Construction Fund and the Loan Guarantee Fund. Once instituted, subsidies are difficult to eliminate because industry depends upon them as essential elements in their business operations and planning. In some cases, subsidies may be useful for achieving certain fishery objectives or to support fishery research. A scheduled phase-out of industry subsidies, combined with deferred tax payments, may be a reasonable and equitable approach.

III.C.8. Mixed Strategies

Many capacity reduction programs have used mixed strategies, including buyouts, mandatory retirements and incentive programs. In a number of cases these programs were instituted in discrete phases. In the first phase, buyouts or mandatory retirement programs were instituted in order to rapidly reduce capacity in overcapitalized fisheries and provide financial disaster relief. In the second phase, incentive-based market systems were implemented in order to increase economic efficiency. In some cases, a third phase may have also been instituted in order to transition to more effective incentive systems. Although a phased strategy may not always be the best approach for reducing capacity, it may provide some advantages including increasing the possibility for reaching consensus decisions, allowing for transition strategies to prepare for the next phase, and providing opportunities for adaptation and learning.

III.D. Fundamental Issues and Relevance to West Coast Groundfish Fisheries

This section highlights some lessons from capacity programs worldwide that are particularly relevant to the West Coast groundfish fishery. The review of fishery capacity reduction programs demonstrates that capacity reduction and management is a complex challenge, with many issues influencing success or failure.

Most Critical Lessons

- ***"Optimal capacity" should be defined in reference to specific management goals and objectives.***

The optimal amount of capacity depends on management objectives. Managing to achieve economic efficiency may result in an optimal capacity and fleet configuration quite different from an objective of sustaining geographically diverse fishing communities. The fundamental question for capacity reduction is which program most effectively achieves the management objectives. Since fisheries are dynamic, the optimal level of capacity is also dynamic and will change and evolve over time.
Optimal capacity can also be defined on different scales -- for example, a targeted species, a species mix, an ecosystem or a region. Capacity that is considered optimal on one scale may not be optimal on another. Trying to control capacity at a fixed level is an elusive goal. The more appropriate capacity management objective is to design a program that allows adjustments consistent with other fishery objectives. Capacity reduction and management objectives for West Coast groundfish will need to address not only the objectives of the Groundfish FMP but also those reflected in the SFA. Capacity management programs that address broader fishery issues such as discards, allocation, essential fish habitat, and stabilizing coastal communities will have a greater chance of being supported and funded.

- ***Capacity reduction and management programs must be skillfully designed and implemented in order to achieve short and long run management objectives.***

There are many ways to reduce and manage capacity. In order to craft the best combination of strategies and actions, short and long term objectives must be explicitly defined. Program objectives, fishery characteristics and resource constraints will dictate the specific combination. Lessons from fishery experience worldwide are that managers must ensure that they:

- carefully define management goals for the fishery,
- define specific objectives that will lead to the achievement of goals,
- design a cost-effective program that will meet the objectives,
- adequately fund the program, and
- monitor and evaluate progress toward meeting program goals and objectives.

Failure to follow these steps may be the reason so many government buyouts have been less effective than intended.

- ***Designing and implementing an incentive-based system for "managing" capacity is the paramount long run challenge.***

Capacity reduction strategies are a subset of capacity management strategies. Capacity reduction may not ensure future optimal levels of capacity. Because capacity is a complex and dynamic concept influenced by evolving and rapidly changing resource and market conditions, it cannot be micro-managed through a bureaucratic or political process. Incentive based management systems are necessary to allow industry to efficiently adjust capacity to evolving conditions. Designing incentive systems that achieve these long term adjustments is the paramount challenge.

Other Important Lessons

- ***"Target-based capacity reduction" is a fundamentally different approach than "maximizing capacity reduction given available budget".***

Most capacity reduction programs involve one of two basic approaches: (1) eliminating the greatest amount of capacity given the available budget ("biggest bang for the buck"), or (2) achieving a "target capacity" regardless of the available budget. As this review has demonstrated, most government sponsored buyouts are structured around the first strategy. In contrast, industry sponsored programs focus on the second strategy because, if the target is not achieved, those remaining in the fishery will be incapable of earning sustained profits. A focus on the target is important for ensuring that the range and mix of potential strategies is appropriate to the target.

- ***"Capacity" is also defined by its human dimensions.***

Capacity is composed of human as well as physical capital. A focus on technical or physical measurement will miss the importance of human capital and may result in poor planning and predictions of capacity adjustment. For example, poorly managed fisheries may attract a different set of owners, skippers and crew than well managed fisheries. As management changes, new human capital may create, select and use physical capital in new and innovative ways. Ignoring this vital dimension can result in implementing an inappropriate management approach, or poorly predicting its consequences.

- ***Socioeconomic information on West Coast groundfish fisheries will help managers design cost-effective capacity reduction programs and evaluate their performance.***

Given the magnitude of excess capacity in West Coast groundfish fisheries, resolution of this problem should not be delayed while additional data are collected. However additional social and economic information on vessel operations, fleets and communities will enhance the ability of managers to adjust program design to improve cost-effectiveness and evaluate performance.

- ***A number of relatively successful capacity reduction and management programs have used multiple and phased strategies to reduce and manage capacity.***

  Some programs have used a mix of strategies, such as combining initial capacity reduction strategies (e.g., grant and loan supported buyouts, mandated reductions) with long run effort or quota based market incentive systems. A comprehensive capacity program would combine short run capacity reduction and long run capacity management in a single package. Grants could be made contingent on the development of long term capacity management programs capable of achieving targets consistent with fisheries management objectives. Programs could incorporate transition periods between major program elements.

- ***Capacity spillover into adjacent fisheries may be a problem, depending on whether capacity in these adjacent fisheries is already subject to rational management.***

  Reducing and managing capacity in one fishery may have significant spillover effects in adjacent fisheries if those fisheries are without effective access control. Managers should be aware of the potential for this problem in the program design phase and take steps wherever possible to protect other fisheries from unintended spillovers.

- ***Buyouts funded by industry have been more successful at producing significant reductions in capacity than programs funded by government alone.***

  Loan programs with at least partial industry funding have been more successful at reducing capacity than those funded by government, since industry will not support a buyout program and the associated management adjustments unless they are expected to result in a profitable fishery. Actual or proposed government funded buyouts can result in inflated permit and vessel values, increase speculation and actually encourage increases in industry capacity and/or effort by those who want to qualify for the next buyout. Government buyout programs have rarely required that management address the fundamental problems causing overcapacity. Management change may not even be considered if the overcapacity problem is defined as a "natural" (rather than man made) disaster.

- ***The bid offers obtained in capacity buyout programs reflect bidding system design, the current situation and future expectations.***

  The level of bid reflects both the design of the bidding system and the discounted stream of expected net benefits associated with retaining a permit and/or vessel. Since government supported buyouts, and to a lesser degree government backed loans, are a form of subsidy, these subsidies (and expectations of future subsidies) will become capitalized into the bid prices. The larger the government grant, the more valuable individual permits become and the more expensive it will be to buy out those permits.

The "availability" or effectiveness of the subsidy will depend to some degree on how bidding rules are crafted (e.g., whether the permit purchase price is capped).

Bid prices also reflect expectations about future management. If, for example, industry expects management to develop in the near future in a way that will lead to more stable or more efficient fishery operations, this would also increase the value of the permits. The paradox is that the greater the commitment to solving the capacity problem and improving management, the greater the present and future value of the fishery and, therefore, the higher the bid price.

Bidding systems should be designed to reflect buyout objectives. For example, if minimizing spillovers into other fisheries is an objective, the bid system should promote this outcome. The trade-offs associated with alternative bidding systems (e.g., retiring fewer vessels from all fisheries versus retiring more vessels from the targeted fishery) should be carefully evaluated before selecting the system that best meets overall needs and achieves political consensus.

III.E. Conclusions

Reducing fishing capacity consistent with resource productivity and management objectives is a paramount challenge for world fisheries. Potential solutions include buyouts, mandatory retirement and rights-based management. This review of capacity reduction demonstrates that programs primarily focused on providing short term financial assistance rarely reduce capacity enough to significantly enhance industry profitability or resource conservation. Fundamental problems remain unaddressed. In contrast, programs designed to reduce capacity while improving industry profitability are more successful. These programs often use mixed strategies including loan programs, mandatory capacity retirement or consolidation, and market-based incentives. Their focus broadens beyond short term capacity reduction to encompass longer term capacity management.

This review strongly supports the proposition that the fundamental cause of overcapacity is the failure of management to craft regulatory systems capable of rational capacity management. Initial capacity reduction strategies (e.g., buyouts, mandated reductions) provide a first step. The second step is to address the fundamental cause, which requires that managers end the race for fish and provide incentives for industry to adjust capacity in response to changes in technology, markets and the resource.

As programs worldwide demonstrate, the most significant challenge to solving capacity problems is marshaling the political will to implement programs that offer both short term and long term solutions. For West Coast groundfish, finding political common ground will be difficult, given the linkage of the capacity problem to other issues, including harvest allocations. bycatch and community sustainability. Success in reducing capacity will depend on the ability of managers, politicians and industry leaders to address a range of related problems. The strategies discussed in this section provides some tools for developing workable solutions.

IV. CAPACITY REDUCTION APPROACHES FOR WEST COAST GROUNDFISH

IV.A. Introduction

This section provides a strategic analysis of how harvest capacity reduction can be accomplished in the West Coast groundfish fishery. Neither the time nor the resources were available to conduct an exhaustive analysis of all possible methods of reducing capacity, nor are specific plans proposed for implementing any single alternative. Nevertheless, sufficient information is available to draw some implications regarding what will happen if capacity is not reduced, and to define the major issues that will be associated with some prominent methods of reducing capacity.

The strategic analysis was conducted as follows:

1. Characteristics of West Coast groundfish fisheries relevant to overcapacity were identified.

2. Groundfish management goals were examined, and criteria identified to evaluate the potential of capacity reduction to achieve these goals.

3. Alternative capacity reduction approaches were discussed in terms of their potential for meeting the evaluation criteria.

4. Conclusions and recommendations were made regarding the nature of the overcapacity problem, the likely outcomes associated with alternative approaches to reducing capacity, and alternative transitions to where the Council might want the fishery to be in the future.

IV.B. Factors Relevant to Evaluating Extent of and Effects of Overcapitalization

The West Coast groundfish fishery is characterized by a number of uncertainties that complicate the problem of defining the extent of the overcapacity problem and evaluating alternative solutions to the problem.

Adaptation/diversification: West Coast fishing vessels have always participated in multiple fisheries as a way to increase profits and diversify their fishing "portfolio" in order to reduce the risk of a poor season in any individual fishery. For instance, some groundfish vessels diversify by utilizing several different fishing gears or fishing strategies to target different species complexes within the groundfish fishery; diversification can also take the form of participation in non-groundfish fisheries. This type of behavior is a function of the economic opportunities available in one fishery relative to another and is by no means unique to groundfish. For instance, just as current difficulties in the groundfish fishery have prompted some boats to increase their participation in

non-groundfish fisheries, the groundfish fishery has also been impacted by developments in other fisheries (e.g., IFQs in the Alaska sablefish fishery, decline of the West Coast salmon fishery, periodic bad years in the West Coast shrimp fishery). The ability of West Coast fishermen to diversify their operations has declined in recent years, as an increasing number of fisheries have reverted to limited entry and an increasing number of fish stocks have become fully if not over-subscribed. Nevertheless, adaptation/diversification remains a well-used strategy in fisheries for enhancing financial returns, stabilizing income and reducing risk.

Future groundfish fishery and market conditions: Uncertainties exist regarding the future abundance of groundfish stocks and future groundfish harvest policy, both of which have a significant bearing on future groundfish OYs. Since overcapitalization is measured by the difference between potential harvest capacity and OYs, uncertainties regarding future OYs complicate the ability to predict the extent to which overcapitalization is likely to increase or decrease over time. Groundfish prices are also relevant to predicting the effects of capital reduction, as they can either mitigate or exacerbate the economic effects of capacity reduction on the industry.

Future non-groundfish fishery and market conditions: Management, markets and prices in non-groundfish fisheries such as shrimp, albacore, Dungeness crab and sardine will have a significant bearing on the ability of groundfish participants to adapt to low groundfish OYs. These conditions will also affect the ability of non-groundfish fisheries to absorb the effort being diverted from the overcapitalized groundfish fishery.

Technological change: Improvements in technology increase the harvest capacity of individual vessels by enhancing the ability of fishermen to generate more catch. The rate of technological advance in electronics and fishing gear, estimated at 1%-5% annually (Gates *et al.* 1996), can significantly undermine the effectiveness of permit reduction programs in reducing excess capacity over the long term. For example, given a 2.5% rate of technological change, a 25% reduction in capacity could be absorbed (i.e., remaining capacity can harvest 25% more fish) in less than ten years.

IV.C. Alternative Approaches to Capacity Reduction

Because of the tendency of many West Coast fishing vessels to participate in multiple fisheries, overcapitalization will be best addressed by a coordinated approach that considers the harvest capacity requirements of all fisheries simultaneously. However, given the extent to which different fisheries fall under different management jurisdictions, such coordination will require lengthy and extensive data exchange and collaboration among the various management jurisdictions. While a comprehensive approach to capacity reduction may be a more beneficial

and efficient way to manage fisheries, it is not likely to be achieved in time to address the immediate and pressing need for capacity reduction in the groundfish fishery. For this reason, the management approaches discussed in this section will focus largely on capacity reduction for groundfish only.

The capacity reduction approaches covered in this section include the status quo, limited entry (over and above the limited entry program already in place under the status quo), government and industry funded buyouts, voluntary and mandatory permit stacking and individual fishery quotas (IFQs).[26]

As indicated in Section IV.B, effects of capacity reduction are contingent on factors such as the ability of groundfish participants to diversify into other fisheries, future groundfish and non-groundfish fishery and market conditions, and technological change. The evaluation provided here does not dwell explicitly on the first two factors, since changes in either of these factors are not likely to affect the relative rankings of the different capacity reduction approaches. However, the third factor (technological change), which does affect the relative ranking of IFQs relative to the other capacity reduction approaches, is reflected in the discussion below.

IV.C.1. Status Quo

The status quo pertains not only to the current state of the fishery under the current management regime but also what will likely occur if the current regime is continued indefinitely into the future. Given current OYs, the status quo will likely result in more complex and costly management and enforcement. In order to prevent further declines in cumulative landings limits,

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[26] Some industry members have expressed interest in having the OYs allocated among industry cooperatives, who would then be responsible for allocating the available harvest among their individual members. One example of an industry-initiated group quota already operational in the groundfish fishery is the Pacific Whiting Conservation Cooperative, a small group of offshore whiting processing companies who have devised a "gentlemen's agreement" regarding the disposition of their share of the whiting allocation. The Whiting Cooperative possesses a number of features that tend to be conducive to the success of cooperative arrangements; that is, it involves a small number of homogeneous producers whose share of the OYs had already been established by decision of the Council. The SSC has little information regarding how cooperatives might be applied more broadly to other more heterogeneous sectors of the groundfish fishery, and is therefore unable to evaluate their potential as capacity reduction mechanisms. However, several issues were raised regarding the practicality of applying this approach across the spectrum of groundfish fisheries. For instance, cooperatives will require that the Council decide which groups are eligible to receive a portion of the OYs, and how to allocate the OYs among all eligible groups. Once the allocations are made, the Council and NMFS will likely have to provide some oversight to ensure that the actions of each cooperative are consistent with the requirements of the SFA and the Groundfish FMP. Monitoring and enforcement may be an issue as well, particularly if separate cooperatives establish separate rules for their members.

pressures will increase to terminate year-round fishing opportunities for all vessels, possibly through "platooning" (i.e., dividing the fleet into separate groups that are allowed to fish at alternative times of the year). As vessels are no longer given the opportunity to fish groundfish the entire year, participation in other fisheries can be expected to increase, with a consequent worsening of the spillover effect. Financial difficulties within the industry will cause allocation disputes to intensify, reduce safety as operators attempt to cut corners by postponing maintenance, and make it difficult for the industry to contribute to observer programs and other activities that are intended to improve management.

These problems will not be resolved by waiting for vessels to leave the fishery. Rebuilding currently overfished stocks will take several decades. Fewer non-groundfish options are available, due to limited entry in other fisheries. Most groundfish permit holders will be willing to pay the nominal groundfish permit renewal fee (regardless of whether they intend to fish for groundfish in the current year) in order to retain the option to fish in future years. Permit holders who are not interested in retaining the groundfish option will likely find a buyer willing to speculate on the possibility that fishing conditions will improve over the long term or on the possibility that government will provide grants and disaster relief. Some vessels will file for bankruptcy; however, most of these boats will simply be returned to the fishery at lower capital values. Given that vessels are much more likely to hold or transfer their permits than allow them to lapse, a significant amount of latent capacity will remain in the groundfish fishery. Thus, even if OYs were to increase, there is no reason to expect an improvement in cumulative landings limits or seasons, since the significant latent capacity already in the fishery can be easily mobilized and keep landings limits low and seasons short. The problems now being experienced in the groundfish fishery will not disappear without a significant reduction in harvest capacity.

IV.C.2. Limited Entry

Participation in the open access fishery has increased over the years by vessels targeting groundfish for niche markets (e.g., the lucrative live fish market). While some type of open access fishery will likely continue to be needed to accommodate incidental groundfish landings, capacity reduction is needed for open access vessels that target groundfish. Limited entry is one option for achieving such reduction.

The existing limited entry fleet is also overcapitalized. Imposing new and more restrictive limited entry requirements on existing limited entry vessels is one option. However, given that reductions in the limited entry fleet will likely be more palatable to the industry if accompanied by some kind of compensation mechanism, buyout and permit stacking programs should also figure prominently in the range of options.

IV.C.3. Buyout

Buyout programs may be government or industry funded, and may apply to permits alone or to both vessels and permits. Because fishery participants generally require less compensation to be bought out of a single fishery than to forgo fishing altogether, a given sum of money can

achieve a larger reduction in fleet size if buyout is limited to a single fishery. Thus industry funded programs tend to be fishery-specific, in order to achieve the maximum reduction in capacity for the individuals who are financing the buyout. Government funded programs may have some potential for retiring vessels as well as permits, thereby allaying concerns regarding spillover effects on other fisheries. However, vessel buyout requires a substantial amount of funding and resolution of many complex issues (including some involving other management jurisdictions)[27] in order to be successful.

One potential source of funding for a government funded buyout is disaster relief. However, it is not known whether such funding will be made available for West Coast groundfish. Disaster relief requires Congressional appropriation, with 25% matching funds to be provided by States or other non-Federal entities. About a half dozen requests for such relief have been made for fisheries across the U.S., and there is no guarantee that West Coast groundfish will be a priority.

The business plan for the 1997 trawl buyout proposal is now outdated. Given the recent precipitous decline in groundfish OYs, the original target of a 30% reduction in fleet size may no longer be adequate to ensure an economically viable trawl fishery. Moreover, the affordability of the trawl buyout critically depends on permit prices, which are currently unknown and are not likely to settle into a stable pattern until expectations solidify regarding disaster relief, future groundfish revenues, and future groundfish management policy. The willingness of industry to finance a buyout, and the willingness of government to guarantee that buyout, will likely have to await more definitive information regarding permit prices. It is also not clear whether non-trawl sectors of the groundfish fishery will be willing to consider an industry-funded buyout even after prices stabilize.

IV.C.4. Permit Stacking

As indicated in Section II, cumulative vessel landings limits are widely used in the groundfish fishery as a method of ensuring that harvests do not exceed OYs. Permit stacking has been suggested as a way to alleviate the problem of discards associated with low cumulative limits by allowing vessels holding multiple limited entry permits to harvest multiple cumulative limits. Permit stacking also provides an opportunity to reduce harvest capacity in the fishery by essentially serving as an industry funded buyout without government backing. Depending on the specific provisions of the stacking program, the program may provide incentives for permit holders to develop cooperative arrangements with regard to permit sharing.

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[27] For instance, some State-managed limited entry fisheries have numerical goals for the number of permits in a fishery. Without proper coordination, policies of this type can undermine a buyout program that retired all permits held by a vessel if State managers respond by issuing new permits to replace the retired permits.

Since permit stacking will likely result in the transfer of permits from less active vessels to vessels that are most able to take advantage of an additional cumulative limit, the cumulative limit per permit will have to be reduced to ensure that harvests continue to remain within the OYs. Thus permit holders who do not stack will be placed at a disadvantage relative to their situation under the status quo. Vessels who already hold multiple permits will be able to stack without additional cost, although such cost may have been previously incurred if the permit was purchased from a prior permit holder.

Permit stacking can be voluntary or mandatory. In order for voluntary stacking to be successful at achieving capacity reduction (as well as reducing discards), a significant number of vessels must choose to stack permits. However, the more compelling are the incentives to stack, the lower the cumulative limit per permit is likely to be. Moreover, given the difficulty of predicting the number of vessels that will choose to stack, the success of a voluntary stacking program in achieving a target fleet size will be highly uncertain. Under mandatory stacking, each permit holder will be required to have more than one permit in order to participate in the limited entry fishery, thereby providing much greater certainty of achieving a target fleet size than voluntary stacking. In order to ease the financial burden associated with mandatory stacking, it may be desirable to establish a phase-in period for complying with this requirement.

IV.C.5. Individual Fishing Quotas

Individual fishing quota (IFQ) programs allocate shares of the total OY among individual fishery participants. Although the development of new IFQ programs are under a moratorium, the possible lifting of the moratorium in 2000 means that Council may wish to consider this approach and its implications for long term management of the groundfish fishery .

While limited entry, buyout and permit stacking restrict inputs in terms of the number of vessels that can participate in the fishery, IFQs regulate access to output by designating the share of total quota that each quota holder is eligible to harvest. Because of the relative ease with which IFQs can be disassociated from fishing vessels, debates regarding who is eligible to receive an initial allocation of quota may include not only harvesters but also other types of fishery participants (e.g., processors, crew members). Moreover, because quota shares tend to generate stronger feelings of "ownership" than limited entry permits, the initial allocation of IFQs is typically intense and contentious. Once allocation is accomplished, however, this sense of ownership may serve to enhance the interest of quota holders in the long term sustainability of groundfish stocks and in the fishery management process. Given the personal financial stake that quota holders have in stock assessment results, IFQs may also increase public pressure for more precise stock assessments.

Because IFQ holders are guaranteed a share of the total OY at the beginning of the season, they are in a much better position to set the pace of their own fishing than limited entry permit holders, who are required to stop fishing once OYs become fully utilized. This has a number of implications:

1. Participants in derby fisheries have an incentive to make investments (in electronics, fishing gear, etc.) that allow them to catch as much fish as quickly as possible. This competitive advantage, however, dissipates as other vessels make similar investments, leading to repetitive and wasteful rounds of investment in order to catch the same OY. This type of inefficiency, which occurs under the status quo and can also be expected under capacity reduction programs that restrict numbers of boats (limited entry, buyout, permit stacking), does not occur in IFQ fisheries, because there is no race for fish.

2. Rather than focusing on maximizing the size of their catch (as derby fishery participants do), IFQ holders instead focus on maximizing the value of their quota share. Strategies to increase value (e.g., careful handling of catch, at-sea processing) may provide economic benefits to the industry in the form of higher ex-vessel prices. The incentive to enhance the value of quota shares may also increase the likelihood of discarding and highgrading.

3. IFQ holders can time their groundfish harvests in such a way as to maximize their opportunities in other fisheries. Thus IFQs are likely to lead to greater spillover effects on other fisheries than capacity reduction programs that restrict numbers of boats.

IFQs typically require more detailed monitoring and enforcement than other types of capacity reduction approaches. The amount of quota held by each individual, as well as transfers of quota among individuals in programs where transfer is allowed, must be carefully monitored. If, for instance, the IFQ program allows quota holders to carry overages or underages into the following year, that must be monitored as well. Monitoring becomes significantly more complicated when IFQs are used in multispecies fisheries like groundfish that have separate quotas for individual species. In such cases, species composition must be ascertained on a landing-by-landing basis in order to ensure that each individual IFQ holder is not exceeding his individual species quotas. At-sea observers may be required to ensure adherence to quotas, as well as measure discards. For such reasons, IFQs are easier to design and implement for single species (e.g., whiting, sablefish) than for a multispecies groundfish fishery.

To the extent that IFQs are freely transferable, they tend to facilitate industry adaptation to changing fishery circumstances better than other types of capacity reduction. For instance, as OYs decline in an IFQ fishery, the poundage accruing to each individual quota holder automatically decreases commensurately. This creates an incentive for transfers of quota share from less to more productive IFQ holders until shares become sufficiently concentrated to provide economic viability for the smaller number of IFQ holders that remain in the fishery. Conversely, as OYs increase and the poundage accruing to each quota holder increases accordingly, transfers of quota share allow participation in the fishery to expand to include a larger number of IFQ holders.

It is not uncommon for IFQ programs to include restrictions on the maximum amount of quota share that can be held by individuals, and to ensure a particular allocation of quota among different sectors of the fishery by prohibiting transfers of quota across sectors. However, to the extent that the Council is willing to allow quota transfers across gear types or geographic areas, the Council will have fewer allocation issues to contend with over the long term, since adjustments in allocation will instead be accomplished by transfers of quota in the market.

IV.D. Evaluation of Alternative Approaches to Capacity Reduction

Table IV-1 qualitatively summarizes the potential effects of the alternative capacity reduction approaches discussed in Section IV.C. Each approach is discussed in terms of its immediate feasibility and its potential effects on capacity reduction, long term capacity management, industry efficiency and profitability, discards, management costs, monitoring and enforcement costs and spillover effects on non-groundfish fisheries.[28] All of the effects evaluated here are described as "potential" to highlight the fact that they probably can but will not necessarily be realized, depending on the specific details of the program actually adopted. The table is intended to increase awareness of the full range of potential effects associated with each approach, and should be considered a starting point rather than a definitive evaluation of capacity reduction options. Although each approach is evaluated in isolation, the eventual goal is to encourage discussion regarding how various approaches could be combined in ways that allow the strengths of one approach to offset the weaknesses of another, and vice versa.

Each capacity reduction approach is evaluated relative to the status quo. The status quo pertains not just to the current state of the fishery under the current management approach but also what will likely occur if the current approach is continued indefinitely into the future. The evaluation of buyout programs reflects what would occur if a similar amount of money were available for each type of buyout. The table distinguishes between a government buyout that retires vessels from all fisheries versus one that buys out groundfish permits only. Given the

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[28] Capacity reduction also has the potential to produce significant distributional effects. These distributional effects may pertain, for instance, to different sectors of the groundfish fishery (e.g., harvesters, processors, crew members); different components of the harvesting sector (e.g., limited entry/open access, trawl/fixed gear, open access vessels for whom groundfish represent target species versus incidental catch); different coastal communities, ports, states or management areas; and different individuals in terms of those who remain in versus those who exit the fishery. Many of the specific decisions that are made in the course of designing a capacity reduction program -- e.g., eligibility criteria for participation in the fishery, restrictions on transfers of permits or quota shares, limits on the number of permits or quota shares held by each individual -- are intended to achieve (or avoid) certain types of distributional outcomes. Distributional effects can vary widely, depending upon the specific details of the program being devised. Thus, although distributional effects are an important concern to both the industry and the Council, little can be said about such effects at the level of generality at which capacity reduction is discussed in this document.

likely reluctance of the groundfish industry to finance capacity reduction in other fisheries, the only type of industry funded buyout considered in the table is one that retires groundfish permits. Given the common tendency in existing IFQ programs to restrict transferability of quota shares, the table also demonstrates the differential effects of transferable versus non-transferable IFQs.

The results of the table can be summarized as follows:

Immediate Feasibility: IFQs are not feasible at this time due to a Congressionally imposed moratorium, although that moratorium may be lifted in 2000. Funding for a government financed buyout is not currently available, and it is uncertain whether such funding will be available in the future. It is also not clear whether industry can afford to fund a buyout, given the low OYs and uncertainty regarding permit prices. Nevertheless IFQs and buyout programs are included in this evaluation, based on the possibility that IFQs will become legal, that an industry buyout will be viable and that a government buyout can be funded.

Groundfish capacity reduction: The status quo will not result in any significant capacity reduction, as permit holders are much more likely to retain or transfer their permits than allow them to lapse, even under current depressed fishery conditions. Limited entry and mandatory permit stacking are "command and control" approaches that can be designed to achieve significant capacity reduction. Given that industry will fund a buyout only if it expects it to result in a profitable fishery, an industry buyout -- if affordable -- can also result in significant capacity reduction. Government funded buyouts, which are typically intended as a source of short term financial relief, can -- given sufficient political will -- be designed to achieve some capacity reduction. However, given the difficulty of fully dampening the speculative increase in permit prices that typically accompanies government programs, a government buyout will be less successful at reducing groundfish capacity than a similarly funded industry buyout. A government buyout designed to retire vessels will have a smaller impact on groundfish capacity than a similarly funded government buyout that retires groundfish permits only, since the monetary incentive needed to induce a vessel to retire from all fisheries will be greater than the monetary incentive needed to induce retirement of the vessel's groundfish permit. The success of voluntary permit stacking in achieving capacity reduction is highly uncertain, given the difficulty of predicting the number of vessels that will choose to stack under any given set of circumstances. IFQs are similar in some respects to the cumulative landings limits already used in the groundfish fishery, except that IFQ shares (unlike landings limits) vary across individual vessels. Non-transferable IFQs will produce modest capacity reduction, at best, and only to the extent that the number of vessels receiving initial IFQ allocations is smaller than the number of vessels participating in the fishery under the status quo. Transferable IFQs may produce significant capacity reduction as quota shares are transferred from less to

more efficient producers. However, capacity reduction will likely occur at a slower rate with transferable IFQs than with limited entry, buyouts or permit stacking.

Long term groundfish capacity management: Effective long term capacity management requires that industry be provided with incentives to efficiently adjust capacity in response to changes in technology, markets and resources. A necessary condition for facilitating industry adjustments is that the fishing privilege be freely transferable. For this reason, non-transferable IFQs are no more likely to achieve capacity management than the status quo. Transferable IFQs, which allow quota holders to adjust capacity in response to changes in economic and harvest conditions, are well suited to long term capacity management. Programs that regulate inputs (e.g., limited entry, permit stacking, buyouts) rather than outputs are intended, by design, to restrict the ability of permit holders to change the existing level of capacity; they are therefore less conducive to achieving long term capacity management than transferable IFQs. However, an input control program that incorporates transferable permits can at least facilitate movement of existing harvest capacity among fishery sectors in response to changing conditions. Input control programs can also contribute to capacity management by incorporating features (e.g., trip limits) that effectively discourage the race for fish and the wasteful capital stuffing resulting thereof.

Groundfish fishery efficiency and profitability: The success of a capacity reduction approach in enhancing industry efficiency and profitability will be correlated with its success in achieving capacity reduction. On this basis, the status quo and non-transferable IFQs are least likely to enhance groundfish profitability. Efficiency and profitability will be somewhat higher under government sponsored vessel retirement or voluntary permit stacking, and even higher under limited entry, mandatory permit stacking and government or industry buyout of groundfish permits. The potential for enhancing profitability is highest for transferable IFQs, since the incentive to race for fish is replaced under IFQs with the opportunity and incentive to enhance the value of quota shares.

Discards: Capacity reduction is needed to reduce discards associated with currently low cumulative landings limits. In other words, the success of a capacity reduction approach in reducing discards will be correlated with its success in achieving capacity reduction. With regard to input control approaches, discards will be somewhat lower under government funded vessel retirement or voluntary permit stacking, and even lower under limited entry, mandatory permit stacking and government or industry buyout of groundfish permits. Discards are likely to be no lower under non-transferable IFQs than they are under the status quo. If IFQs are transferable, the potential for discards may diminish as quota shares become consolidated among fewer quota holders. However, this tendency may be offset by the incentive for highgrading.

Groundfish management costs: Excess capacity in the groundfish fishery is undermining the effectiveness of traditional management measures, and the Council has adopted increasingly complex measures to prevent further erosion of landings limits and seasons. Given the contribution that capacity reduction can make to reducing management complexity, the success of a capacity reduction approach in reducing management costs will be correlated with its success in achieving capacity reduction. Non-transferable IFQs will likely result in management costs similar to the status quo. Management costs will be somewhat lower under government sponsored retirement of vessels or voluntary permit stacking, and even lower under limited entry, mandatory permit stacking, and government or industry buyout of groundfish permits. Transferable IFQs will be even less burdensome and costly for the Council over the long term than approaches based on input controls, since transferable IFQs remove the competitive incentive for capital stuffing, allow capacity to adjust to changes in OYs and provide market solutions to allocation issues.

Groundfish monitoring/enforcement costs: Monitoring and enforcement costs are partially a function of management complexity, which is in turn affected by the degree of overcapitalization in the fishery. In other words, the success of a capacity reduction approach in reducing monitoring/enforcement costs will be correlated with its success in achieving capacity reduction. These costs are likely to remain as high under non-transferable IFQs as they are under the status quo. Monitoring/enforcement costs will be somewhat lower under government sponsored retirement of vessels and voluntary permit stacking, and even lower under limited entry, mandatory permit stacking, and government or industry buyout of groundfish permits. Transferable IFQs have the potential to generate significant monitoring/enforcement costs, given the need to monitor each IFQ holder's quota availability and quota use, and track quota transfers across individuals. This task becomes particularly burdensome if tracking must be done for individual species caught in multispecies complexes.

Spillover effects: The low cumulative landings limits and other regulatory restrictions that characterize the status quo provide an incentive for existing groundfish permit holders to seek alternative opportunities in non-groundfish fisheries. Limited entry, voluntary or mandatory permit stacking, and government or industry funded buyout of groundfish permits all have the potential to exclude some groundfish participants, who will subsequently become fully committed to non-groundfish fisheries. Conversely, however, those who remain in the fishery may be more likely to specialize in groundfish and less likely to diversify into other fisheries. Given the difficulty of predicting the spillover effects associated with these approaches relative to the status quo, they are all considered to be indistinguishable for purposes of the table. Government funded vessel retirement will result in less spillover than any other approaches, since it removes vessels

from other fisheries as well as from groundfish. IFQs, because they allow quota holders to time their groundfish harvests to enhance their fishing opportunities in non-groundfish fisheries, will provide greater opportunity for spillover than the other approaches.

IV.E. Conclusions and Recommendations

- ***Overcapitalization is the single most serious problem facing the West Coast groundfish fishery.***

  Harvest capacity in the groundfish fishery is exceedingly high relative to OYs. This overcapitalization is making it increasingly impossible for the Council to achieve the biological and economic objectives of the Groundfish FMP. The effectiveness of traditional management measures (e.g., landings limits, seasons) in ensuring that discards are minimized and that a reasonable economic livelihood can be made from the groundfish fishery has been seriously eroded in recent years. Management has become increasingly complex and contentious as the Council attempts to allocate the low OYs equitably among fishery sectors.

- ***The problems associated with overcapacity will not be resolved by waiting for vessels to leave the fishery.***

  Given the ever-present potential for entry into the open access fishery and the propensity of limited entry permit holders to retain or transfer their permits rather than allow them to lapse, the amount of latent capacity in the groundfish fishery is likely to remain high. This capacity will be available for mobilization at any sign of improved fishing opportunities. Fishing effort can easily outpace OYs, even if the OYs increase to much higher levels (an unlikely scenario). The current problems associated with low landings limits, short seasons and complex and contentious management will not go away unless the Council takes deliberate action to permanently remove latent capacity from the groundfish fishery.

- ***There are no quick or easy fixes for the problems caused by excess capacity.***

  Capacity reduction should not be viewed as just another type of management measure. It is an essential element of a broader strategy to enhance management effectiveness and reduce management complexity. Eliminating excess capacity will be complex, costly and time consuming, regardless of which capacity reduction approach or combination of approaches is used. However, the status quo is also complex, costly and time consuming, and provides no solution to excess capacity and its associated problems.

- ***The Council should take immediate action to develop stringent capacity reduction programs for all sectors of the West Coast groundfish fishery.***

  The need to address groundfish overcapacity is urgent. Potential solutions, including limited entry for the open access fishery and buyouts and/or permit stacking for the limited entry fishery, should be subject to immediate consideration. Given the current moratorium on IFQs and the potentially complex design requirements of IFQ systems, IFQs are best viewed as a long term management strategy for West Coast groundfish.

- ***The Council should establish clear goals and objectives for capacity reduction in each fishery sector, and should incorporate design features into the program that provide a realistic basis for achieving those objectives.***

  Goals and objectives have a direct bearing on the design of a capacity reduction program and the measures used to monitor "success" of the program. It is therefore critical that goals and objectives be clearly defined at the outset. Goals and objectives may be different for different sectors of the fishery.

  The design features of a capacity reduction program will have a direct bearing on progress toward meeting its objectives. For instance, if the objective of an IFQ program is to provide a long term, self-adjusting solution to the overcapacity problem, quota holders must be allowed to adjust quota shares in response to changes in OYs, technology or markets. Restrictions on transferability of quota shares (across gear types, vessel size classes, geographic areas, etc.) will undermine the program's ability to meet that objective.

  If an effort based approach (e.g., buyout, permit stacking) is being considered to achieve a target level of capacity reduction, it is important that the program include provisions to discourage capital stuffing (e.g., trip limits, restrictions on permit transfers based on vessel "size"). It is also important to recognize that, while such provisions may discourage the amount of capital stuffing that occurs, they will not eliminate the incentive for fishermen to seek ways to engage in capital stuffing.

- ***The Council should consider using different capacity reduction approaches for different sectors of the fishery, and using a combination of approaches within a given sector.***

  For instance, although IFQs are not legally feasible at this time, the Council may wish to consider IFQs as a potential long term groundfish management strategy. If so, it should be noted that capacity reduction programs such as permit stacking and buyouts are not inconsistent with IFQs, should the IFQ moratorium ever be lifted. Particularly in severely overcapitalized fisheries like West Coast groundfish, removal of latent capacity may: (1) be a desirable precursor to IFQs, (2) help ensure that the initial IFQ allocations go to active fishery participants and (3) enhance the "efficiency" of quota transfers once the

initial allocations are made by reducing the number of small quota transactions that would occur as marginal participants cash out of the fishery. It is also important to note, however, that justifying a "lenient" permit stacking or buyout program on the basis that it is merely an intermediate step toward IFQs (rather than as an ultimate end in itself) poses the risk of ending up with an inadequate permit stacking/buyout program if IFQs are not actually implemented.

- ***Given that sufficient funds for a buyout program will probably not be available from any single source, the Council should investigate combining government, industry and other sources of funding.***

Experiences in other fisheries indicate that, for highly capitalized fisheries experiencing resource depletion, government sponsored buyouts tend to focus primarily on disaster relief and wealth transfer from the public to the private sector. The prospect of transfer payments creates an incentive to inflate permit and vessel values and encourages speculation. As a result, such programs tend to generate modest reductions in capacity. By contrast, industry sponsored programs tend to be more successful in achieving capacity reduction, since industry will only support a buyout program and associated management adjustments if they expect the outcome to be a profitable fishery. Extensive industry involvement will be critical to the success of any buyout program considered by the Council.

This is not to say that government funding should not be pursued. It may be possible to temper the price inflation and speculation that often occur with government buyouts by adopting an appropriate bidding system (e.g., capping the permit purchase price). Even if government funding is sufficient to finance only an incremental reduction in capacity, that reduction will still bring the fishery closer to the Council's capacity target. It may also create more favorable circumstances for achieving a meaningful long term solution to the problem by "weeding out" some of the more marginal participants in the fishery. Overcapitalization is currently so high as to jeopardize the ability of affected parties to engage in meaningful discussion, much less come to compromise or consensus.

At this time, it will be useful to re-evaluate the business plan prepared in 1997 for the trawl buyout and prepare similar plans for other sectors of the fishery. These business plans will provide a means for evaluating the affordability of capacity reduction targets designated by the Council. Sources of cost uncertainty should be identified and factored into the analysis. Given that sufficient funds will probably not be available from any single source to achieve significant capacity reduction, the cost estimates can nevertheless serve as a starting point for evaluating whether funding from a variety of sources can be combined in such a way as to achieve the desired result.

Some approaches that could be considered include: (1) converting the government grant to a loan fund (if legally permissible) and using the loan repayments to support long term cooperative research, co-management, or observer programs; (2) using the grant portion

of a buyout plan to purchase (and scrap) vessels, while using government guaranteed loans (or industry loans using Capital Construction Fund dollars) to retire and/or stack permits; and (3) if grants are inadequate to significantly reduce capacity, using government guaranteed loans to purchase some proportion of permits from the fleet, combined with either mandatory "point reduction" to achieve specific targets or with a longer term market based "point capacity management system".[29]

- ***Long term allocation decisions must be made to ensure that the benefits of capacity reduction accrue to those who bear the costs.***

Allocation will remain a contentious issue under each of the capacity reduction approaches discussed here. Buyouts, permit stacking (which is essentially an industry funded buyout without government backing) and IFQs all require that someone (industry, government or both) make financial decisions on the basis of their expectations regarding future harvests, markets and regulations, and that they assume the risk associated with erroneous expectations. A major element of this risk pertains to how much of the groundfish OYs each sector (including recreation) can expect to receive each season. Resolution of this issue through long term allocation decisions is necessary to ensure that capacity reduction will be acceptable to those who will pay for it.

- ***While spillover effects on other fisheries are a legitimate and serious concern, they are not an adequate justification for ignoring the overcapitalization problem in the groundfish fishery.***

Capacity reduction programs such as buyouts can be designed to minimize spillover by including a requirement that vessels be scrapped. However, the cost of scrapping a boat may be significantly higher than the cost of retiring it from a single fishery. Given funding limitations, the Council will likely be faced with the prospect of retiring a smaller number of vessels from all fisheries versus retiring a larger number of vessels from the groundfish fishery only. The magnitude and distribution of benefits and costs will likely be very different with these two different approaches.

Given the various government jurisdictions associated with management West Coast fisheries, any capacity reduction approach that involves scrapping vessels will require extensive coordination between State and Federal management entities. Such coordination will likely be complex and the outcome uncertain relative to a program that focuses on groundfish capacity reduction only. However, scrapping vessels also has the potential to provide long term benefits to West Coast fisheries as a whole.

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[29] The West Coast limited entry groundfish fishery uses a "point" system to determine permit price per vessel class-size. The existence of the point system provides one avenue to reduce overall capacity by requiring each permit class to "retire" some proportion of points and repurchase points (in a point-based market) in order to remain in the fishery.

Capacity reduction approaches that involve retiring vessels from groundfish only will almost inevitably result in some spillover into other fisheries. Given the flexibility afforded by IFQs with regard to the timing of harvest, the potential for spillover is probably greater for IFQs than for other approaches. However, some spillover can be expected regardless of which capacity reduction approach is adopted, including the status quo. While spillover is a legitimate and serious concern, the groundfish fishery should not be held hostage to inadequate capacity regulation in other fisheries.

Table IV-1. **Potential** effects of alternative capacity reduction approaches **relative to the status quo**.

	Immediate Feasibility	Groundfish Cap Reduction	Long Term Groundfish Cap Mgmt[2]	Economic Efficiency and Profitability	Groundfish Discards	Groundfish Management Costs	Gr Monitoring &Enforcement Costs	Spillover Effects
Status Quo	YES	NONE	NONE	LOW	HIGH	HIGH	HIGH	SOME
Govt Buyout (Vessel Retirement)[3]	Maybe	Some	Some	Somewhat higher	Somewhat lower	Somewhat lower	Somewhat lower	Lower
Govt Buyout (Gr Permits Only)[3]	Maybe	More	Some	Higher	Lower	Lower	Lower	Same as status quo
Industry Buyout (Gr Permits Only)[3]	Maybe	Most	Some	Higher	Lower	Lower	Lower	Same as s.q.
Limited Entry	Yes	Most	Some	Higher	Lower	Lower	Lower	Same as s.q.
Permit Stacking (Mandatory)	Yes	Most	Some	Higher	Lower	Lower	Lower	Same as s.q.
Permit Stacking (Voluntary)	Yes	Some	Some	Somewhat higher	Somewhat lower	Somewhat lower	Somewhat lower	Same as s.q.
IFQs (Non-transferable)	No	None/some	Same as status quo	Same as s.q.	Same as s.q.	Same as s.q.	Same as s.q.	Higher
IFQs (Transferable)	No	Most (not immediate)	Most	Highest	Don't know	Lowest	Higher	Higher

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OBSERVER PROGRAM

Situation: In November 1999, the Council reviewed draft regulations to implement a West Coast groundfish observer program presented by the Northwest Region, National Marine Fisheries Service (NMFS). At that time, NMFS indicated the proposed regulatory package, including draft regulatory impact and environmental impact reviews, would be available in April 2000. At this meeting, NMFS will present the draft regulations for Council consideration. In step with development of the regulatory package, the Northwest Fisheries Science Center, NMFS is analyzing results of Oregon's Enhanced Data Collection Project. Preliminary results and implications for observer coverage options will be presented to the Council at this meeting.

NMFS Attachment B.12.a. is a comprehensive package of generic regulations. The purpose of these generic regulations is to set in place the process for deploying at-sea observers. This rule would establish notification requirements for vessels that may be required to carry observers and establish responsibilities and prohibited actions for vessels that are required to carry observers. When funding for a West Coast observer program becomes available, these regulations would be in place to quickly implement an at-sea observer program for groundfish fisheries that land catch shoreside. The draft regulatory package does not pertain to at-sea observers for offshore fisheries, e.g., the at-sea Pacific whiting fishery.

The observer coverage analysis is still in the initial stage and has focused on examining data from Oregon's Enhanced Data Collection Project to determine patterns of bycatch in groundfish fisheries. Results from this analysis will be used to demonstrate the types of information and levels of detail at-sea observer coverage can be expected to provide. NMFS will discuss the results of the initial analysis. Notably, the analysis has provided insight to the informational differences between observer coverage of a small number of vessels over the length of the cumulative limit period and a random sampling of a larger number of vessels throughout the cumulative limit period.

Council Action:

1. **Adopt for public review and publication in the *Federal Register* the draft regulatory package for an at-sea observer program.**

Reference Materials:

1. DRAFT Proposed rule to provide for a West Coast at-sea observer program (NMFS Attachment B.12.a.).
2. DRAFT Environmental assessment/regulatory impact review for a West Coast at-sea observer program (Supplemental NMFS Attachment B.12.b.).

PFMC
03/20/00

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON GROUNDFISH OBSERVER PROGRAM

The Groundfish Advisory Subpanel (GAP) spent a considerable amount of time in debate on observer programs, their design, their coverage, their cost, how they are paid for, and what objectives they seek to achieve. A wide variety of opinions were expressed. Ultimately, the GAP agreed the draft observer program package should be adopted for public review.

The key to establishing a West Coast observer program is adequate funding to pay for it. Given the current state of affairs, the industry simply cannot afford to pay the entire cost of an observer program. The GAP was influenced in their decision on the observer program package by their understanding that this package constitutes the report to Congress on observers which was required by the Fiscal Year 2000 Commerce Appropriations Bill. Absence of that report has had a serious adverse impact on efforts to obtain funding for an observer program. Better communication between NMFS and the industry on this issue would have greatly facilitated work on getting the necessary funding to begin implementing an observer program.

Considering the costs of an observer program, the GAP strongly suggests that additional - or if necessary, alternative - means be used to provide better information on total fisheries mortality. In particular, the GAP recommends that displaced fishermen be trained and hired to serve as observers. The practical knowledge available to such men and women will be of great use in an observer program.

The GAP also again urges the Council and NMFS to move forward with a program involving landing of trip limit overages. The GAP has recommended this several times and the Council has already approved - but never implemented - a voluntary pilot project. Given the difficulty in obtaining funding for an observer program, a requirement to land overages may be the best interim means to get better information.

PFMC
04/05/00

Supplemental NMFS Report B.12.
April 2000

Preliminary Results from the Enhanced Data Collection Project: Trip Limit Induced Discarding

Introduction

There are three basic sources of discard in the multi-species groundfish fishery. One is bycatch of prohibited species such as Pacific halibut and salmon. A second is the capture of undersized fish and unmarketable species. A third is nearly unique to the west coast groundfish fishery where a limit is placed on each vessel's monthly catch in order to slow the cumulative pace of landed catch and obtain year-round fishing, processing, and marketing opportunities. Natural variability in catch rates cause these limits to be sometimes exceeded as vessels attempt to catch as much of each limit as possible.

During 1995-1998, the Enhanced Data Collection Project (EDCP) collected information on the discarding of groundfish and prohibited species and survival condition of halibut. A primary goal of this preliminary analysis of the EDCP observer data is to provide insight into when discarding is more likely to occur during a limit period. The final analysis will compare the statistical accuracy of a future program that selects vessel-trips at random, with the accuracy of a program that follows randomly selected vessels throughout a cumulative limit period.

Methods

Groundfish discard information collected by EDCP observers on board trawlers during the vessel's first trip of a trip limit period and subsequent trips was investigated to determine at what time during the trip limit period discarding occurred most frequently. Vessels that did not carry an observer during the first trip were eliminated from the data set since there was no way to estimate how much cumulative discard had occurred during the cumulative period. Likewise, if an observer disembarked prior to the completion of a trip limit period, cumulative discard information was only available during the period the observer was on board. Since landed catch was not recorded by the observers, information on the vessel's cumulative landed catch during the cumulative limit period was obtained from fish ticket data in PacFIN.

A vessel's cumulative discard for each of the four main deepwater species (SST, LST, sablefish, and Dover sole) was compared with the proportion of the limit used. If discarding were occurring as a constant proportion of catch throughout a trip limit period, the graph would appear as the straight line in Figure 1. However, if discard is predominately occurring when vessels approach their cumulative limit, then the pattern would be like the curved line in Figure 1.

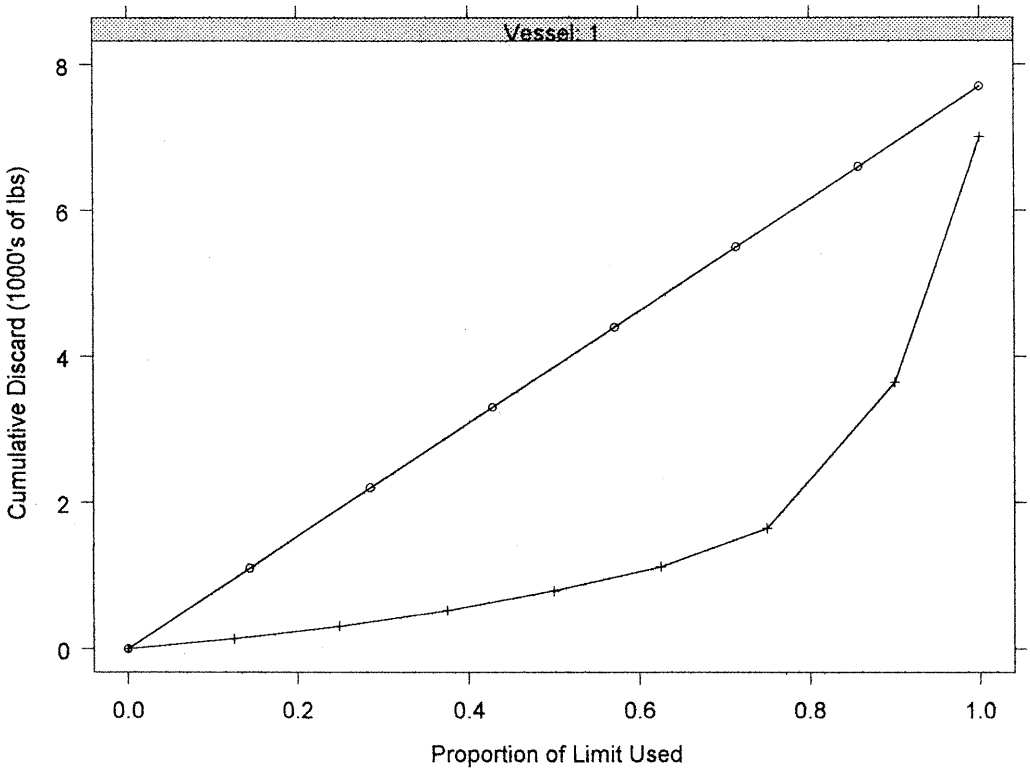


Figure 1. Representative illustration of two different kinds of discarding behavior. The straight line corresponds to random discarding of fish throughout a trip limit. The curved line represents discarding occurring more frequently as fishers approach their cumulative limit.

Results

Data from 25 vessels making 136 trips (718 tows) during 1996-1998 were analyzed to determine what percentage of total catch of a particular species were discarded.

A typical discarding pattern is shown in Figure 2. During three separate periods, discarding increased as the vessel approached its cumulative limit. Similar patterns occurred for other vessels and other species.

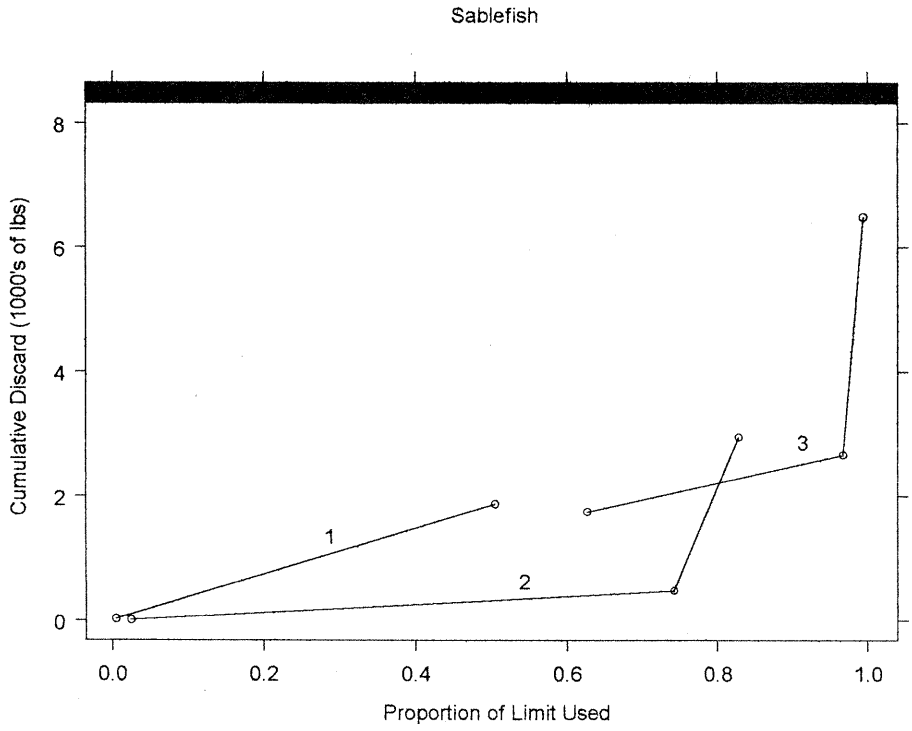


Figure 2. Discarding rate for a single vessel during three separate trip limit periods.

The EDCP data also show that discarding occurs in a small fraction of the total number of tows. For example, Figure 3 shows the cumulative percentage of sablefish discarded for all vessels versus the cumulative percentage of tows in which sablefish occurred. Around 60% of the tows appear to retain all sablefish caught in the catch. About 20% of the tows accounted for 15% of the sablefish discarded. Another 20% of tows accounted for the remaining 85% of total sablefish discard. For other species, this pattern of a few tows accounting for most discard is even more accentuated.

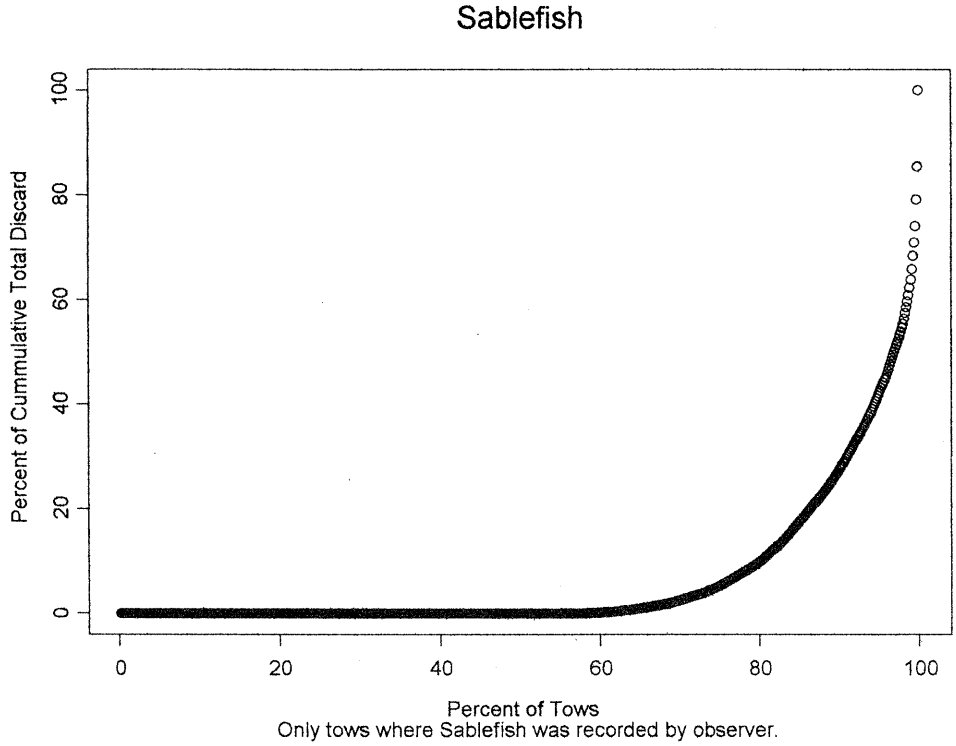


Figure 3. Percentage of sablefish discarded on a cumulative tow basis.

Conclusion

These preliminary results indicate that some discarding of fish is occurring throughout the trip limit period, but discarding is not occurring at an even rate among all tows or all trips. The greatest discard occurs as a vessel approaches its cumulative limit and in our planned analyses we will quantify this effect. Therefore, it is important that the observer coverage be designed so that these last trips of the period are covered in their true proportion, or that the statistical approach to analyzing the observer data adjust for any lack of proportionality

We will continue to analyze these results to determine the relative statistical power of a program that randomly selects vessel-trips for observation, versus a program that selects entire vessel-periods for observation.

NMFS DRAFT

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Parts 600 and 660

[Docket ;I.D.]

RIN

Fisheries off the Pacific Coast States and in the Western Pacific; Pacific Coast Groundfish Fishery; Groundfish Observer Program

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed rule; request for comments.

SUMMARY: NMFS proposes to amend the regulations implementing the Pacific Coast Groundfish Fishery Management Plan (FMP) to provide for an at-sea observer program on all limited entry and open access catcher vessels. This rule establishes notification requirements for vessels that may be required to carry observers, and establishes responsibilities and prohibited actions for vessels that are required to carry observers. This action is taken under the authority of the Magnuson-Stevens Fishery Conservation and Management Act and the Pacific Coast Groundfish Fishery Management Plan (FMP).

DATES: Comments on this proposed rule must be received by [30 days after publishing this Federal Register notice]

ADDRESSES: Written comments should be sent to William Stelle,

Jr., Administrator, Northwest Region, NMFS, 7600 Sand Point Way N.E., BIN C15700, Bldg. 1, Seattle, WA 98115-0070. Comments also may be sent via facsimile (fax) to 206-526-6736. Comments will not be accepted if submitted via e-mail or Internet. Copies of the Environmental Assessment/Regulatory Impact Review (EA/RIR) may be obtained from the Pacific Fishery Management Council (Council) by writing to the Council at 2130 SW Fifth Avenue, Suite 224, Portland OR 97201, or by contacting Don McIsaac at 503-326-6352, or may be obtained from William L. Robinson, Sustainable Fisheries, Northwest Region 1, NMFS, 7600 Sand Point Way N.E., BIN C15700, Bldg. 1, Seattle, WA 98115-0070.

FOR FURTHER INFORMATION CONTACT: William L. Robinson, Northwest Region, NMFS, 206-526-6140; fax: 206-526-6736 and e-mail: bill.robinson@noaa.gov or Svein Fougner, Southwest Region, NMFS, 562-980-4000; fax: 562-980-4047 and e-mail: svein.fougner@noaa.gov.

ELECTRONIC ACCESS: This Federal Register rule also is accessible via the Internet at the Office of the Federal Register's website at http://www.access.gpo.gov/su_docs/aces/aces140.html

SUPPLEMENTARY INFORMATION: The U.S. groundfish fisheries off the Washington, Oregon, and California coasts are managed pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801-1883) and the Pacific Coast Groundfish FMP. Regulations implementing the FMP appear at 50 CFR Part 660 Subpart G. General regulations for all U.S. fisheries are at 50 CFR Part 600 Subpart H.

The Magnuson-Stevens Act at 16 U.S.C. 1853(b)(8) provides that an FMP may require that one or more observers (50CFR 600.10) be carried on board a vessel of the United States engaged in fishing for species that are subject to the plan, for the purpose of collecting data necessary for the conservation and management of the fishery. The Pacific Coast Groundfish FMP provides that all fishing vessels operating in the groundfish fishery may be required to accommodate onboard observers for purposes of collecting scientific data. Under the Magnuson-Stevens Act at 16 U.S.C. 1855(d), the Secretary of Commerce, acting through NMFS, has general responsibility to carry out any fishery management plan, and may promulgate such regulations as may be necessary to discharge this responsibility.

With the exception of the mid-water trawl fishery for Pacific whiting, most groundfish vessels sort their catch at sea and discard species that are in excess of cumulative trip limits, unmarketable, in excess of annual allocations, or incidentally caught non-groundfish species. Landed or retained catch is monitored by individual state fish ticket programs in Washington, Oregon, and California. However, because a portion of the catch is discarded at sea, there is no opportunity for NMFS or the states to monitor total catch (retained plus discarded catch) at onshore processing facilities. This lack of information on at-sea discards has resulted in imprecise estimates of total catch and fishing mortality.

Discard information is needed to assess and account for

total fishing mortality and to evaluate management measures, including rebuilding plans for overfished stocks. Discard estimates based on limited studies conducted in the mid-1980's, and information on species compositions in landings, are available for some groundfish species. For other species there is little or no discard information. During the past decade there have been significant reductions in cumulative trip limits, and trip limits have been applied to increasing numbers of species. In light of these changes in the regulatory regime, doubt has been raised about the old discard estimates, which were based on data collected in the 1980's. Accurate estimates of discards are essential to computing total catch, and thus are an important component of any fishery conservation and management program. If the discard estimates are too high, harvest allocations may be set too low; if discard estimates are too low, then harvest allocations may be set too high, and the long-term health of the stock may be jeopardized.

The Pacific Coast Groundfish FMP was developed by the Pacific Fishery Management Council (Council) and approved by NMFS in 1982. Since the early 1990's the Council has regarded at-sea observers as a viable means to collect much-needed data. The Council's Groundfish Management Team has continually stressed the need for an on-board observer program to accurately assess total catch. Observers have been placed on a voluntary basis aboard offshore catcher/processors and processing vessels in the Pacific whiting fishery since 1991. From 1995 to 1998 a small number of

groundfish trawl vessels participating in the Oregon Enhanced Data Collection research project voluntarily carried observers to monitor trip limit induced discards and the bycatch of prohibited species. At its April 1999 meeting, the Council proposed development of an on-board observer program for all limited entry and open access vessels, with the goal of having a program ready for implementation in 2000, if funding became available.

Observers are a uniformly trained group of qualified technicians. They are stationed aboard vessels to gather conservation and management data that is too burdensome for vessel personnel to collect, and which would otherwise not be available for managing the fisheries or assessing interactions with non-groundfish species. The purposes of this rulemaking are to establish the obligations of vessels that will be required to carry observers; to safeguard the observers' well-being; and to provide for sampling conditions necessary for an observer to follow scientific sampling protocols and thereby maintain the integrity of observer data collections. Nationwide regulations addressing vessels with conditions that are unsafe or inadequate for purposes of carrying an observer are found at 50 C.F.R. 600.746. Nationwide regulations applicable to observers are also found under "General Prohibitions" at 50 C.F.R. 725(r), (s), (t), and (u).

BIOLOGICAL IMPACTS

These proposed regulations will have no direct biological or physical impacts on the environment. However, promulgation of

these regulations is expected to provide, in the long term, a positive biological effect. Data collected by observers will improve the quantity and quality of data available for stock assessments. It will also provide fisheries managers with information needed to minimize the risks of overfishing groundfish and non-groundfish species, and to develop effective rebuilding plans for depleted stocks.

SOCIO-ECONOMIC IMPACTS

If the program receives $2 million of funding annually, it is expected that 15-20 observers could be deployed each year. It is NMFS's intention, providing funds are available, to provide for observer training and the direct costs of deploying observers including salaries, payroll taxes, employment insurance, medical insurance, pension, and travel costs. The observers' employer will provide protection and indemnity insurance to cover bodily injury or property damage claims that may result from actions of the observer. Observers will be employed directly by NMFS or through an NMFS procurement contract.

Each vessel within the sector(s) of the groundfish fleet designated for coverage would be required to keep NMFS or its designated agent informed of its fishing schedule, including anticipated departure dates and times. Additional time would be required in port for selected vessels to arrange for the required observer coverage. Vessels that are selected to carry an observer would be responsible for providing living quarters and food equivalent to that which is provided to the crew. Some of

the smallest groundfish vessels may find that crew members are displaced because limited bunk space must be allocated to the observer.

Observers may be expected to perform multiple duties including estimating total catch, sampling for catch and discard species composition, collecting biological data and specimens, and collecting data on interactions with non-groundfish species, the operation and characteristics of the vessel and fishing effort. To allow the observer to follow sampling protocols, vessels will need to provide adequate sampling facilities and unobstructed access to catch. This may result in minimal increased handling time if sorting of the catch needs to be slowed or centralized to allow an observer to collect samples. Space requirements for analyzing and storing samples may reduce the available work and storage space for vessel activities. It is likely that the smallest groundfish vessels would be most affected by space requirements. However, without minimal sample space, data quality cannot be assured. If it is determined that a class of vessel is too small to accommodate an observer, alternative sampling or monitoring methods may need to be considered by NMFS.

The safety, health, and well-being of observers while stationed aboard fishing vessels is of the utmost importance. If this proposed rule is implemented, observer health and safety provisions at 50 CFR 600.725 and 600.746 will apply. Should a vessel fail to meet the requirements at 50 CFR 600.746, the

vessel would not be permitted to fish until NMFS determined that the safety requirements were met and the required observer was aboard. The trip-limit management regime, currently used in most Pacific Coast groundfish fisheries, generally applies over one or 2-month periods. Therefore, lost catch opportunity is unlikely if the vessel is delayed. However, in derby style fisheries, such as the three-tiered sablefish fishery, lost catch opportunity may result if the vessel is delayed. Advance planning will allow vessels to correct minor problems without delaying the fishing trip.

CLASSIFICATION

MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT (MAGNUSON ACT). I have determined that this rule is necessary for conservation and management and is consistent with the Magnuson-Stevens Act.

ESSENTIAL FISH HABITAT (EFH). This action is not expected to disturb the ecological balance nor result in an identifiable increase in adverse impacts on EFH, including physical, chemical, or biological alterations of the substrate, and loss or injury to benthic organisms.

E.O. 12866 - As required by NEPA and E.O. 12866, an Environmental Assessment/Regulatory Impact Review describing the background, purpose and need for action, management action alternatives, biological and socio-economic characteristics of the affected environment and the biological and socio-economic impacts of the alternatives was prepared for this proposed rule. It has been

determined to be not significant for purposes of E.O. 12866.

REGULATORY FLEXIBILITY ANALYSIS (RFA) - Because this proposed rule may have requirements that would have a significant economic impact on a substantial number of small entities, an Initial Regulatory Flexibility Analysis (IRFA) has been prepared. The IRFA is intended to aid the agency in considering all reasonable regulatory alternatives that would minimize the economic impact on affected small entities.

The number of vessels affected by this proposed rule will depend on the coverage approach that is chosen. If 20 observers are deployed annually, the number of vessels that could potentially carry an observer is estimated to range between 60 (3% of all small entities), if each observer samples only one limited entry vessel over an entire cumulative trip limit period, and 967 (46% of all small entities), if observers sample all open access and limited entry vessel trips at random. The costs to the individual vessel are expected to range between $157 and $4444, depending on the coverage strategy and the number of days fished per year. The upper value is an extreme that would only occur for vessels that fished every day of the year and carried an observer at all times.

It is most likely that the open access and limited entry groundfish fleets will be divided into sectors based on criteria such as gear type, fishing period, geographical location, or fishing strategy. Each sector may be required to have a different level of observer coverage. Sectors with the greatest

annual catch of groundfish or those that most frequently interact with priority species, for which there is a serious need for information, could be required to have a substantially higher proportion of observer coverage than the other sectors.

The analysis assumes that only vessels that carry an observer would bear the burden. Among the 2,116 vessels in the open access and limited entry groundfish fisheries that could be selected to bear the cost to carry an observer, there are substantial differences in terms of the annual ex-vessel value of their catch.

PAPERWORK REDUCTION ACT (PRA) - This proposed rule contains a collection-of-information subject to the PRA. A description of information will be submitted to the OMB for review and approval. Under this rulemaking vessels would be required to submit information that would be used to coordinate and conduct effective and efficient deployment of observers. No new forms are proposed with this rulemaking. Notwithstanding any other provisions of law, no person is required to respond to nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the PRA unless that collection of information displays a currently valid OMB Control Number.

ENDANGERED SPECIES ACT (ESA) - NMFS issued Biological Opinions under the ESA on August 10, 1990, November 26, 1991, August 28, 1992, September 27, 1993, May 14, 1996, and December 15, 1999 pertaining to the impacts of the groundfish fishery on Sacramento

River winter chinook, Snake River fall chinook, Snake River spring/summer chinook, Central Valley spring chinook, California coastal chinook, Puget Sound chinook, lower Columbia River chinook, upper Willamette River chinook, upper Columbia River Spring chinook, Hood Canal summer run chum, Columbia River Chum, Central California coastal coho, Oregon coastal coho, Snake River sockeye, Ozette Lake sockeye, southern California steelhead, south-central California steelhead, central California coast steelhead, upper Columbia River steelhead, Snake River Basin steelhead, lower Columbia River steelhead, California Central Valley steelhead, upper Willamette River steelhead, middle Columbia River steelhead, Umpqua River cutthroat trout, and the southwest Washington/Columbia cutthroat trout. The biological opinions concluded that implementation of the FMP for the Pacific Coast Groundfish Fishery is not expected to jeopardize the continued existence of any endangered or threatened species under the jurisdiction of NMFS, or result in the destruction or adverse modification of critical habitat. This rule is within the scope of these consultations. Because the impacts of this action fall within the scope of the impacts considered in these Biological Opinions, additional consultations on these species are not required for this action.

The Assistant Administrator for Fisheries, NOAA, has initially determined that this action is consistent with the FMP, the National Standards and other provisions of the Magnuson-Stevens Act.

List of Subjects

50 CFR Part 600, Subpart G

Fisheries

Dated: _____

_____

[signature - type in title of person authorized to sign]

For the reasons set out in the preamble, 50 CFR Part 600, Subpart G, is amended as follows:

50 CFR Chapter VI

Part 600, Subpart G - Pacific Coast Groundfish Fisheries

1. The authority citation for Subpart G continues to read as follows:

Authority: 16 U.S.C. 1801 et seq.

2. In section 660.302 the following definitions are added.

660.302 Definitions

* * * * *

Active sampling unit means a portion of the groundfish fleet in which an observer coverage plan is being applied.

Vessel manager means a person or group of persons whom the vessel owner has given authority to oversee all or a portion of groundfish fishing activities aboard the vessel.

3. In section 660.306, subsection (y) is added as follows:

660.306 Prohibitions.

* * * * *

(y) Groundfish Observer Program.

(1) Forcibly assault, resist, oppose, impede, intimidate, harass, sexually harass, bribe, or interfere with an observer.

(2) Interfere with or bias the sampling procedure employed by an observer, including either mechanically or physically sorting or discarding catch before sampling.

(3) Tamper with, destroy, or discard an observer's collected samples, equipment, records, photographic film, papers,

or personal effects without the express consent of the observer.

(4) Harass an observer by conduct that: (i) has sexual connotations, (ii) has the purpose or effect of interfering with the observer's work performance, and/or (iii) otherwise creates an intimidating, hostile, or offensive environment. In determining whether conduct constitutes harassment, the totality of the circumstances, including the nature of the conduct and the context in which it occurred, will be considered. The determination of the legality of a particular action will be made from the facts on a case-by-case basis.

(5) Fish for, land, or process fish without observer coverage when a vessel is required to carry an observer under section 660.360(d)(ii).

(6) Require, pressure, coerce, or threaten an observer to perform duties normally performed by crew members, including, but not limited to, cooking, washing dishes, standing watch, vessel maintenance, assisting with the setting or retrieval of gear, or any duties associated with the processing of fish, from sorting the catch to the storage of the finished product.

(7) Fail to provide departure or cease fishing reports specified at 660.360(c)(2).

(8) Fail to meet the vessel responsibilities specified at 660.360(d).

4. Section 660.360 is added as follows:

660.360 Groundfish Observer Program.

(a) General. The owner of a vessel subject to this part

must ensure that the vessel operator and vessel manager comply with this section. The vessel owner, operator, and vessel manager are jointly and severally responsible for such compliance.

(b) Purpose. The purpose of the Groundfish Observer Program is to allow observers to collect fisheries data deemed by the Northwest Regional Administrator to be necessary and appropriate for management, compliance monitoring, and research in the groundfish fisheries and for the conservation of living marine resources and their habitat.

(c) Observer coverage requirements.

(1) At-sea processors. [reserved]

(2) Catcher vessels. For the purposes of this section catcher vessels include all vessels using open access and limited entry gear that take, retain, or land groundfish at a processor(s) as defined at 50 CFR 660.302. When NMFS notifies the vessel owner, operator, permit holder, or the vessel manager of any requirement to carry an observer, the vessel may not take, retain, possess or land any groundfish without carrying an observer.

(i) Departure report. Not less than 24 hours before departing on a fishing trip, the owner, operator, or vessel manager of each vessel that is required to carry an observer, or that is operating in a segment of the fleet that NMFS has identified as an active sampling unit, must provide NMFS or its designated agent with notification as specified by NMFS.

(ii) Cease fishing report. Not less than 24 hours after ceasing the taking and retaining of groundfish with limited entry or open access gear in order to leave the fishery management area or to fish for species not managed under the Pacific Coast Groundfish Fishery Management Plan, the owner, operator, or vessel manager of each vessel that is required to carry an observer or that is operating in a segment of the fleet that NMFS has identified as an active sampling unit must provide NMFS or its designated agent with notification as specified by NMFS.

(3) Waiver. The Northwest Regional Administrator may provide written notification to the vessel owner stating that a determination has been made to temporarily waive coverage requirements because of circumstances that are deemed to be beyond the vessel's control.

(d) Vessel Responsibilities. An operator of a vessel required to carry one or more observer(s) must:

(1) Accommodations and food.

(i) At-sea processors.[reserved]

(ii) Catcher vessels. Provide accommodations and food that are equivalent to those provided to the crew.

(2) Safe conditions. Maintain safe conditions on the vessel for the protection of observer(s) including adherence to all U.S. Coast Guard and other applicable rules, regulations, or statutes pertaining to safe operation of the vessel, and provisions at 600.725 and 600.746.

(3) Observer Communications. Facilitate observer

communications by:

(i) Observer use of equipment. Allow observer(s) to use the vessel's communication equipment and personnel, on request, for the entry, transmission, and receipt of work-related messages, at no cost to the observer(s) or the United States or designated agent.

(ii) Communication equipment requirements for at-sea processing vessels. [reserved]

(4) Vessel position. Allow observer(s) access to, and the use of, the vessel's navigation equipment and personnel, on request, to determine the vessel's position.

(5) Access. Allow observer(s) free and unobstructed access to the vessel's bridge, trawl or working decks, holding bins, processing areas, freezer spaces, weight scales, cargo holds, and any other space that may be used to hold, process, weigh, or store fish or fish products at any time.

(6) Prior notification. Notify observer(s) at least 15 minutes before fish are brought on board, or fish and fish products are transferred from the vessel, to allow sampling the catch or observing the transfer, unless the observer specifically requests not to be notified.

(7) Records. Allow observer(s) to inspect and copy any state or federal logbook maintained voluntarily or as required by regulation.

(8) Assistance. Provide all other reasonable assistance to enable observer(s) to carry out their duties, including, but not

limited to:

(i) Measuring decks, codends, and holding bins.

(ii) Providing the observer(s) with a safe work area.

(iii) Collecting bycatch when requested by the observer(s).

(iv) Collecting and carrying baskets of fish when requested by observer(s).

(v) Allowing observers to collect biological data and samples when the procedure will not decrease the value of a significant portion of the catch.

(vi) Providing adequate space for storage of biological samples.

(9) At-sea transfers to or from processing vessels. [reserved]

(e) Procurement of observers services by at-sea processing vessels. [reserved]

(f) Certification of observers in the at-sea processing vessels. [reserved]

(g) Certification of observer contractors for at-sea processing vessels. [reserved]

(h) Suspension and decertification process for observers and observer contractors in the at-sea processing vessels. [reserved]

(i) Release of observer data in the at-sea processing vessels. [reserved]

(j) Sample station and operational requirements.

(1) Observer sampling station. This subsection contains the requirements for observer sampling stations. The vessel owner must provide an observer sampling station that complies with this subsection so that the observer can carry out required duties.

(i) Accessibility. The observer sampling station must be available to the observer at all times.

(ii) Location. The observer sampling station must be located within 4 m of the location from which the observer samples unsorted catch. Unobstructed passage must be provided between the observer sampling station and the location where the observer collects sample catch.

(iii) Minimum work space aboard at-sea processing vessels.[reserved]

(iv) Table aboard at-sea processing vessels. [reserved]

(v) Scale hanger aboard at-sea processing vessels. [reserved]

(vi) Diverter board aboard at-sea processing vessels. [reserved]

(vii) Other requirement for at-sea processing vessels. [reserved]

(2) Requirements for bins used to make volumetric estimates on at-sea processing vessels. [reserved]

(3) Operational requirements for at-sea processing vessels. [reserved]

DRAFT

An Observer Program for Catcher Vessels in the Pacific Coast Groundfish Fishery

Environmental Assessment and Regulatory Impact Review and Regulatory Flexibility Analysis of the Anticipated Biological, Social, and Economic Impacts of a Proposed Amendment to Implement an Observer Program in the Pacific Coast Groundfish Fishery

Prepared by
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northwest Region

Drafted March 2000

TABLE OF CONTENTS

1.0 INTRODUCTION

The groundfish fisheries in the Exclusive Economic Zone (EEZ -- 3 to 200 miles off shore) off the Washington-Oregon-California (WOC) coast are managed pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and the Pacific Coast Groundfish Fishery Management Plan (FMP). Actions taken to amend FMPs or to implement other regulations governing the groundfish fishery must meet the requirements of federal laws and regulations. In addition to the Magnuson-Stevens Act, the most important of these are the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), Executive Order (E.O.) 12866, and the Regulatory Flexibility Act (RFA).

NEPA, E.O. 12866 and the RFA require a description of the purpose and need for the proposed action as well as a range of reasonable alternative actions which may address the problem. This information and general background materials are included in section 1 of this document. In accordance with NEPA requirements, section 2 contains a description of the biological, physical and socio-economic characteristics of the affected environment. The biological and physical impacts of the alternatives are assessed in section 3 and the economic impacts of the alternatives as required by NEPA, E.O. 12866 and the RFA are examined in section 4. The consistency of the proposed action the with the Pacific Coast Groundfish FMP and other applicable laws is addressed in section 5. The NEPA conclusions or Finding of No Significant Impact are found in section 6. Section 7 contains the Regulatory Flexibility Analysis which specifically addresses the impacts of the proposed actions on small entities. A list of preparers and a distribution list are included in the final section of this document.

1.1 Purpose and Need for Action

With the exception of the mid-water trawl fishery for Pacific whiting, most groundfish vessels sort their catch at sea and discard species that are: in excess of cumulative trip limits; unmarketable; in excess of annual allocations; or incidentally caught non-groundfish species, including marine mammals and protected species. Landed or retained catch is monitored by the individual state run fish ticket programs in Washington, Oregon, and California. However, because a portion of the catch is discarded at sea, there is no opportunity for NMFS or the states to monitor total catch (retained plus discarded catch) at onshore processing facilities. This lack of information on at-sea discards has resulted in very imprecise estimates of total catch and fishing mortality.

Reliable information on discarded catch in the present fishery is needed to assess and account for total fishing mortality and to evaluate the effectiveness of management measures, including rebuilding plans for overfished stocks. Discard rates based on limited studies conducted in the mid-1980's, and information on species compositions in landings, are available for some groundfish species and gear groups. For other species and gear groups, there is little or no discard information. During the past decade, since the discard studies were conducted, there have been substantial reductions in cumulative trip limits, and trip limits have been applied to increasing numbers of species. In light of these changes in the regulatory regime, doubt has been raised about the accuracy of discard rates based on data collected in the 1980's. Accurate estimates of discards are essential for computing total catch, and thus are an important component of any fishery conservation and management program. If the discard estimates are too high, harvest allocations may be set too low; if discard estimates are too low, then harvest allocations may be set too high, and the long-term health of the stock may be jeopardized.

On March 3, 1999, that portion of Amendment II to the Pacific Coast Groundfish FMP which was prepared in response to the Magnuson-Stevens Act bycatch provisions was not approved by NMFS. It was determined that the bycatch provisions in Amendment 11 failed to respond meaningfully to the bycatch requirements of the Magnuson-Stevens Act. Requirements at Section 303 (a) (11) of the Magnuson-Stevens Act state that an FMP must ``establish a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery, and include conservation and management measures that, to the extent practicable and in the following priority--(A) minimize bycatch; and (B) minimize

the mortality of bycatch which cannot be avoided." Establishing an observer program to collect total catch data, would bring the Pacific coast groundfish FMP closer to the Magnuson-Stevens Act bycatch requirements for a standardized reporting methodology on bycatch.

Observers are a uniformly trained group of scientists who are stationed aboard vessels to observe fishing activities. Observers gather independent conservation and management data that is too burdensome for vessel personnel to collect and which would otherwise not be available for managing the fisheries. Since the early 1990's the Pacific Fishery Management Council (Council) has regarded at-sea observers as a viable means to collect much-needed data on at-sea discards (also called bycatch). The Council's Groundfish Management Team has continually stressed the need for an on-board observer program to accurately assess total catch. Since 1991, Observers have been placed on a voluntary basis aboard offshore catcher/processors and processing vessels in the Pacific whiting fishery to gather total catch, bycatch, and biological data. Between 1995 and 1998, a small number of groundfish trawl vessels participating in the Oregon Enhanced Data Collection (EDC) research project voluntarily carried observers to monitor trip limit induced discards and the bycatch of prohibited species in the bottom trawl portion of the shore-based groundfish fleet.

To address deficiencies in total catch data, at its April 1999 meeting, the Council proposed development of an on-board observer program for all limited entry and open access groundfish vessels. The goal at that time was to have a program ready for implementation in 2000, should NMFS receive an appropriation of $2 million to fund an observer program. At this same meeting, the Council approved a proposed regulatory framework for an observer program, with mandatory coverage requirements, in the at-sea processing portion of the Pacific whiting fishery. Following the April 1999 Council meeting, an Observer Implementation Committee was created and directed to work on designing a statistically sound sampling program for the limited entry and open access harvest (catcher) vessels.

The program design was to be consistent with the Council's goals for a total catch data program. At the June 1999 Council meeting, a committee report which contained a synthesized list of the Council's total catch data goals, was made available to the Council members and the public. The Council's total catch data goals include: 1) estimate total annual groundfish catch for all west coast fisheries that take groundfish; 2) estimate discard rates by species (for all species, including prohibited species) by gear type, with priority to be given to depressed and primary groundfish species; 3) collect biological information on depressed and primary species necessary to define the harvest populations for stock assessments; 4) establish a system for efficient collection, storage, and utilization of information. The Observer Implementation Committee meet in June and again in September to discuss program design, coverage strategies, data priorities, program infrastructure, and the supporting regulatory package. Public comments provided to NMFS staff at committee and Council meetings were taken into consideration during the development of the proposed action. At the Council's September and November meetings, NMFS distributed an early draft of general regulations which would support the placement of observers in accordance with a statistically sound coverage plan, permit observers to collect data according to scientific sampling protocols, and promote observer safety.

Funding was not appropriated to NMFS for implementation of a Pacific coast groundfish observer program in 2000. Because the opportunity for funding is likely in the near future, NMFS and the Council are continuing to develop a statistically valid design for an observer sampling program and to establish general regulations necessary to support such an at-sea sampling program. The proposed regulations do not specify observer coverage requirements for individual vessels. However, the impacts of the proposed rulemaking in relation to a range of possible observer coverage approaches are addressed in the following analysis, should NMFS receive funding in the future.

1.2 Alternative Management Actions

Alternative management measures for obtaining total catch data are described and evaluated in this

section. The two alternatives considered in this document are: 1) no action (status quo) and 2) establish regulatory framework necessary to support an at-sea observer program. Other approaches for obtaining total catch data, which were not analyzed in this document, include full retention and data sampling by vessel personnel. Because verification methods for these approaches have not been adequately developed, NMFS believes that data collected under these approaches would not meet the defined management need. Further complicating the use of vessel personnel to collect the necessary data, are the specialized skills required. Observers are required to perform specialized duties and therefore they must have completed specific educational requirements, have relevant experience, and be trained so they are proficient in: using random sampling techniques and methods for sub-sample selection; using dichotomous keys for identifying invertebrates, fish, birds, and marine mammals; biological data collection procedures (including sexed age structures, stomach analysis, maturity, tissue samples, etc...); the operation of personal computers and data entry software, editing data collections, and in the preparation of written reports. When employing crew to collect observer data , conflicting objectives between crew responsibilities and observer duties may result in opportunistic data collections. Without adequate verification there are concerns about data integrity and whether or not such collections meet the identified management need.

The potential outcomes and environmental consequences of each alternative is presented in table 1.2.1 of this section. Detailed discussions of the potential biological, physical, and socio-economic impacts of the alternatives are found in sections 3 and 4 of this document.

Alternative 1: No Action (Status Quo)

Under this alternative, regulations pertaining specifically to observers would **not** be implemented. It is reasonable to assume that no comprehensive data collection program would be developed under this alternative. Discard information needed to assess and account for total fishing mortality and to evaluate management measures would most likely continue to be deficient under alternative 1. Groundfish management would likely require continued extrapolation of discard data collected in the 1980s. Unmeasured discard mortality could have a profound effect on the health of managed fish stocks. If discard mortality is higher than what the Council extrapolates from the 1980's studies, then overall fishing mortality rates (catch mortality + discard mortality) will likely be at higher than sustainable levels. Continued, unseen overfishing may lead to stock declines which may lead to stock collapses. When fish stocks are depleted, the fishing community suffers, because rebuilding depleted stocks requires the Council to lower directed harvest rates. Directed harvest rate reductions for 2000 were severe enough to warrant a Secretary of Commerce determination of a "commercial fishery failure due to a fishery resource disaster."

Under status quo, State run monitoring programs to collect information on incidental catch in the shore-based portion of the Pacific whiting fishery would likely continue. Under the terms and conditions of exempted fishing permits(EFPs), whiting trawl vessels are allowed to delay sorting and disposal of prohibited species and groundfish catch in excess of cumulative trip limits until the point of offloading. Delaying sorting until offloading allows state biologists to collect incidental catch data. Without an EFP, groundfish regulations at 50 CFR 660.306(b)would require vessels to sort their prohibited species and return them to the sea as soon as practicable with minimum injury.

Status quo does allow for implementation of an observer sampling program where vessels carry observers on a voluntary basis. If such a program were developed, it is likely that it would be similar to the EDC research project "class B" or "class C" permit options. Over the four years that the EDC project was carried out, vessels voluntarily operated under EFPs issued by the NMFS. A "class B" permit required the permit holder to collect discard data in an enhanced logbook, record landed catch, and carry an observer on board. Observers were carried aboard vessels to account for discards, estimate species composition, and collect biological data. The "class C" permit option required vessels to retain all catch to allow sampling to occur shoreside, and to carry observers to verify that all catch was retained. Throughout the duration of the EDC project, few vessels voluntarily participated under "class B" and no vessels participated under "class C".

If such a voluntary observer program were developed under this alternative, vessels would have no obligation to provide NMFS or its designated agent with logistical information necessary to place observers on vessels in accordance with the defined coverage strategy. In voluntary programs, observer placement tends to be opportunistic. This is because not all vessels in an observed fishery are willingly to carry an observer. Managers of observer programs with voluntary coverage requirements have been faced with serious obstacles when trying to selectively place observers in order to obtain data that is reliable and reasonably precise (NMFS 1993).

Similarly, there would be no regulations defining the sampling conditions necessary for an observer to follow scientific sampling protocols. If a voluntary program were developed under this alternative, it would be difficult to maintain the integrity of observer data collections and assure that scientific sampling protocols were followed.

When placing observers aboard vessels, the individual observer's health and safety is of utmost importance. This alternative would not promote the individual observers' health and well being, should they be voluntarily carried aboard vessels. If vessels in the observed portion of the fleet are deemed "unsafe", it is reasonable to expect that no observers would be placed aboard unsafe vessels, resulting in opportunistic placement of observer.

The likelihood that additional data on prohibited species, endangered/threatened species, marine mammals, seabirds, and protected species would be collected is low. It is reasonable to assume that some biological data would continue to be available from state run port sampling programs and resource surveys.

Alternative 2: Establish regulatory framework necessary to support an at-sea observer program (preferred alternative)

Under this alternative NMFS would go forward with regulations to support an at-sea observer program. Observers would be a reliable source of credible biological data and information needed to estimate total catch; estimate discard rates by species by gear type; and collect biological information necessary to define the harvest populations for stock assessments. If the program receives $2 million of funding annually, it is expected that 15-20 observers could be deployed each year. If an observer program is developed, it is NMFS's intention, providing funds are available, to provide for observer training and the direct costs of deploying observers including: salaries, payroll taxes, employment insurance, medical insurance, and travel costs. Observers would be employed directly by NMFS or through a procurement contract.

Alternative 2 would implement regulations to address the following: 1) logistical information needed to place observers aboard vessels; 2) food and accommodation requirements; 3) safe living and working conditions; 4) access to communication equipment, navigation equipment, the bridge, logbooks required by state law, working decks, holding bins, and any other space that may be used to hold, process, weigh, or store fish; 5) notification to the observer when fish are being brought on board; 6) reasonable assistance to enable observers to carry out their duties; 7) prohibited actions including: fish for or process fish without the required observer coverage; assault, resist, oppose, impede, intimidate, harass, bribe, or interfere with an observer; interfere with or bias the observers sampling procedures; tamper with, destroy, or discard samples, equipment, records, photographic film, papers, or personal effects; require, pressure, coerce, or threaten an observer to perform crew duties; and 8) access to catch and minimum work space area. These regulations would allow for the placement of observers in accordance with a statistically sound coverage plan and permit the observers to collect data according to scientific sampling protocols.

Regulations to support alternative 2 would allow for the placement of on-board observers, but would not contain coverage requirements for individual vessels. If alternative 2 were approved and implemented, a coverage plan could be developed by NMFS in consultation with the Council. A coverage plan would establish a statistically sound approach and define the levels and duration of coverage within specific sectors of the fleet.

Three identified coverage approaches which could be considered in developing a coverage plan are: random selection of trips from a large pool of vessels; complete sampling of all trips taken by a small number of vessels over a specific period; or sampling a portion of trips by an intermediate number of vessels over a specific period. Regardless of the coverage strategy, each vessel within the sector(s) of the groundfish fleet designated for coverage would be required to keep NMFS or its designated agent apprized of its fishing schedule, including anticipated departure dates and times. It is also expected that additional time would be required in port for vessels to arrange for observer coverage. Vessels that are chosen to carry an observer would be responsible for providing the observer with adequate living accommodations, and food equivalent to that which is provided to the crew. Some vessels may also choose to carry additional liability insurance.

Provisions pertaining to the observer's work space and living conditions would reduce the observer's risk of injury. In addition, observer health and safety standards at §600.725 and §600.746 would ensure that fishing vessels that are required to carry observers are safe and allow the observer to carry out their required duties. These regulations encourage observers to conduct a pre-trip safety checks for especially hazardous conditions that may jeopardize their personal safety. If a vessel is determined to be unsafe under §600.725 and §600.746, the observer cannot board the vessel until the identified deficiencies are corrected.

Table 1.2.1. Summary of the Environmental Consequences

Consequences	Alt. 1, Status Quo	Alt. 2, Adopt observer regs
Availability of data		
Total catch and discard data	* No expected change unless voluntary observer program is developed. * Most likely will continue to use outdated information on a few trip limit species and gear types -- increased risk of error when used to estimate total catch. * Some information on incidental catch in the shore-based whiting fleet available through use of EFPs	* If funding becomes available to place observers -- discard data could be provided for range of species and gear types and under current conditions - reduces error in total catch estimates.
Biological and interaction data on groundfish and non-groundfish species including prohibited species, endangered/ threatened species, marine mammals and protected species	* Biological data collections on harvested species is limited to landed catch * Limited amounts of biological data available from survey cruises and under EFPs. - may help to understand commercial interactions	* Biological data can be collected from representative portion of bycatch species. * Will provide much needed data on overfished species. * Provides additional opportunity to collect information on interactions with prohibited species, endangered/ threatened species, marine mammals and protected species.
Data integrity		
Ability to place observers according to statistically sound coverage plan	* If voluntary observer program is developed there is a high risk that observer placement would be opportunistic. *Opportunistic placement of observers likely to be associated with a high risk of data misrepresenting harvest fleet.	* Would allow for the placement of observers in accordance with statistically sound coverage plan.
Provide conditions that allow observers to follow scientific sampling protocols	* If voluntary observer program is developed and sampling protocols are not followed there is a high risk of sample error.	* Would establish requirements necessary for observers to follow scientific sampling protocols by : 1) requiring unobstructed access to catch and catch data 2) prohibiting sample interference

Observer Health and Well Being	* If voluntary observer program is developed there is a risk of personal safety to observers * If observers not placed on unsafe vessels coverage would likely be opportunistic.	* Would establish work space minimum requirements. * Observer health and safety standards at §600.725 and §600.746 would apply
Cost to industry	* No expected change * Lack of information poses the greatest risk of overfishing if management decisions are based on inaccurate total catch data.	* Reduced likelihood of overfishing. *Cost to individual likely to be between $157 and $4444 annually - depending on the coverage option chosen. * Number of individual vessels is likely to range between 60 and 967 - depending on the coverage option chosen. * Observer sampling could slightly increase handling time of catches. * Some vessel may too small to accommodate observer.

2.0 AFFECTED ENVIRONMENT

With the exception of the at-sea processing sector of the whiting fishery, this proposed rulemaking could potentially affect all sectors of the open access and limited entry groundfish fisheries. This regulatory proposal is intended to provide valuable information on all groundfish and on non-groundfish species.

2.1 Biological and Physical Environment.

Physical Environment

The groundfish fishery occurs in the U.S. EEZ from 3 to 200 miles off the coasts of Washington, Oregon, and California. The off shore ocean includes a diverse range of habitats including: rocky and non-rocky shelf regions, deep submarine canyons, and continental slopes and basins. A comprehensive description of the essential fish habitats in the WOC region can be found in the final Environmental Assessment/Regulatory Impact Review for Amendment 11 to the Pacific Coast Groundfish Fishery Management Plan which was prepared by the Council.

Groundfish Resources

The Pacific Coast groundfish FMP manages over 80 species, many which are caught in multi species fisheries. These species which include an array of flatfish, rockfish, and roundfish, occur throughout the EEZ and occupy diverse habitats at all stages in their life history. Information on the interactions between the various groundfish species and between groundfish and non-groundfish species varies in completeness, while a few species have been intensely studied, there is relatively little information on most. Fewer than 20 of the groundfish species have ever been comprehensively assessed. Only Pacific whiting, a semi-pelagic merlucciid species, has been assessed annually.

An Acceptable Biological Catch (ABC) is established for every stock (a species or species group) where enough information is available. However, numerical Optimum Yields (OYs) are not established for every stock, especially where harvest has been less than ABC. Species and species groups with OYs include lingcod, Pacific whiting, sablefish, POP, shortbelly rockfish, shortspine thornyhead, longspine thornyhead, widow rockfish, chilipepper rockfish, splitnose rockfish, the minor rockfish complexes (northern and southern for nearshore, continental shelf, and continental slope species,) bocaccio, canary rockfish, yellowtail rockfish, and Dover sole. Eight species are believed to be above their precautionary thresholds: Dover sole (increasing abundance trend), English sole (trend unknown), Petrale sole (trend unknown), shortbelly rockfish (trend unknown), longspine thornyhead (declining), black rockfish (declining), chilipepper rockfish (declining if recent recruitment is low), and blackgill rockfish (declining).

Species near target biomass levels include Pacific whiting, yellowtail rockfish (39% of unfished level,)

and sablefish (37%). There are seven species below their target biomass levels: widow rockfish (29%), shortspine thornyhead (32%), canary rockfish (7% in the south and 20% in the north), cowcod (less than 10%), bocaccio (about 2%), POP (13%), and lingcod (8.8%). Darkblotched rockfish is also thought to be below the target biomass level. Of these, POP, bocaccio, lingcod, canary rockfish, and cowcod have been declared overfished. The relative abundance and trends of Pacific cod, other flatfish, other rockfish, and other species categories are unknown; relative abundance of arrowtooth flounder is unknown but believed to be declining.

For further information on groundfish populations, see the 1999 Stock Assessment and Fishery Evaluation (SAFE) document and the Environmental Assessment for the Proposed 2000 Groundfish Acceptable Biological Catch and Optimum Yield Specifications for the Pacific Coast Groundfish Fishery and implementing management measures for 2000. These documents were prepared by Council staff.

Endangered Species

The following salmonids, which may be incidentally taken with groundfish gear, have been listed under the Endangered Species Act (ESA): Sacramento River winter chinook, Snake River fall chinook, Snake River spring/summer chinook, Central Valley spring chinook, California coastal chinook, Puget Sound chinook, lower Columbia River chinook, upper Willamette River chinook, upper Columbia River spring chinook, Hood Canal summer run chum, Columbia River chum, Central California coastal coho, Oregon coastal coho, Snake River sockeye, Ozette Lake sockeye, southern California steelhead, south-central California steelhead, central California coast steelhead, upper Columbia River steelhead, Snake River Basin steelhead, lower Columbia River steelhead, California Central Valley steelhead, upper Willamette River steelhead, middle Columbia River steelhead, Umpqua River cutthroat trout, and the southwest Washington/Columbia cutthroat trout. Review of the available information indicates that the steelhead, sockeye, and cutthroat are rarely, if ever, encountered in the groundfish fishery. Chum and coho are caught in relatively low numbers in the whiting and bottom trawl fisheries. Chinook salmon are caught incidentally to some of the groundfish net fisheries, and those fisheries may take chinook salmon (NMFS, December 15, 1999).

Since 1992, the shore-based whiting fishery has used Exempted Fishing Permits to allow vessel operators to land unsorted catch at shore-based processing facilities where state samplers monitor a portion of the landings. In 1998, 13.3% of the whiting landings were monitored by state samplers. In recent years this fishery has taken less than 5 chinook per metric ton of whiting and met the terms and conditions of the Biological Opinions. The bottom trawl fishery is not being monitored at this time. The incidental take statement permits an annual bycatch of 9,000 salmon, but assumes that the magnitude and character of the fishery will not increase substantially, particularly in those areas where the bycatch rates are assumed to be highest.

Marine Mammals

Under the Marine Mammal Protection Act (MMPA), marine mammals whose abundance falls below the optimum sustainable population level (usually regarded as 60% of carrying capacity or maximum population size) can be listed as "depleted". Populations listed as threatened or endangered under the ESA are automatically depleted under the terms of the MMPA. Currently the Stellar sea lion population in the WOC is listed as threatened under the ESA and the fur seal population is listed as depleted under the MMPA. Incidental takes of these species in the Pacific coast fisheries are well under the annual Potential Biological Removal (PBR).

Section 118 of the MMPA requires that NMFS publish, at least annually, a list of fisheries that places all U.S. commercial fisheries into 1 of 3 categories based on the level of incidental serious injury and mortality of marine mammals in each fishery. Definitions of the fishery classification criteria for Category I, II, and III fisheries are found in the implementing regulations for section 118 of the MMPA (50 CFR part 229). Under the MMPA, the WOC groundfish fisheries are considered a category III fisheries where the annual mortality and serious injury of a marine mammal stock by the fishery is less than or equal to 1 percent of the PBR level.

Seabirds

Impacts of human activities on seabirds occur through direct mortality from 1) collisions with vessels, 2) entanglement with fishing gear, 3) entanglement with discarded plastics and other debris, and 4) shooting. Indirect impacts include 1) competition with fisheries for food, 2) alteration of the food web dynamics due to commercial and recreational removals, 3) disruption of avian feeding habits resulting from dependency on fish wastes, 4) fish-waste related increases in gull populations that prey of other bird species, and marine pollution and changes in water quality (NMFS 1997).

Seabirds are caught incidentally to all types of fishing operations, but the vulnerability of bird species to gear types differ with feeding ecology. Fishing gear used in the groundfish fishery includes trawl, hook-and-line, pot, and setnet. Hook-and-line gear occasionally catches surface-feeding seabirds that are attempting

capture bait as the line is being set; some birds are caught on hooks and drown. Trawl gear appears to catch surface-feeding and diving birds that are feeding and scavenging while the net is being hauled. Pot gear does not commonly catch birds, though rare reports of dead diving and surface-feeding birds exist in pot gear. Setnet gear, which is legal only in certain California waters, has documented impacts on seabirds as well (NMFS 1997).

2.2 Socio-economic Environment

The Commercial Groundfish Fishery

The Pacific coast groundfish fishery is a year-round, multi-species fishery that takes place off the coasts of Washington, Oregon, and California. Most of the commercial groundfish harvest is taken by trawl, longline, and trap (or pot) vessels operating in the limited entry fisheries which were established in 1994. Several open access fisheries take groundfish incidentally or in small amounts; participants in those fisheries may use, with some restrictions, longline, vertical hook-and-line, pot, setnet, trammel net, shrimp and prawn trawl, California halibut trawl, and sea cucumber trawl. Besides these non-tribal commercial fisheries, members of the Makah, Quilleute, Hoh, and Quinault tribes participate in commercial, ceremonial and subsistence fisheries for groundfish off the Washington coast. Participants in the tribal commercial fisheries operate off Washington and use similar gear to non-tribal fishers. Groundfish caught in the tribal commercial fishery pass through the same markets as non-tribal commercial groundfish catch.

In 1999, excluding the at-sea processing vessels, there were 490 vessels with Pacific coast groundfish limited entry permits, of which approximately 53 percent were trawl vessels, 40 percent were longline vessels, 6 percent were trap vessels, and 2 percent were vessels that combine more than one gear type. Each permit is endorsed for a particular gear type and that gear endorsement cannot be changed, so the distribution of permits between gear types is fairly stable. In 1999, roughly 41 percent of the limited entry permits were assigned to vessels making landings in California, 37 percent to vessels making landings in Oregon, and 21 percent to vessels making landings in Washington. In 1998, 1,626 vessels participated in the open access groundfish fishery. Of these vessels, 1,077 landed their catch in California, 427 landed their catch in Oregon, and 122 landed their catch in Washington (PACFIN, October 1999).

Limited entry fishers focus their efforts on many different species, with the largest landings by volume (other than Pacific whiting) from the following species: Dover sole, sablefish, thornyheads, widow rockfish, and yellowtail rockfish. There are 55+ rockfish species managed by the Pacific coast groundfish FMP and, taken as a whole, rockfish landings represent the highest volume of non-whiting landings in the Pacific coast commercial groundfish fishery. In addition to these mixed-species fisheries, there is a distinct mid-water trawl fishery that targets Pacific whiting (*Merluccius productus*). Pacific whiting landings are substantially higher in volume than any other Pacific coast groundfish species. In 1998, by weight, whiting accounted for approximately 85 percent of all commercial shore-based groundfish landings.

With the exception of that portion of Pacific whiting catch that is processed at sea, virtually all other Pacific coast groundfish catch is processed at shore-based processing plants along the Pacific coast. By weight, 1998 commercial groundfish landings were distributed among the three states as follows: Washington, 13 percent; Oregon, 69 percent; California, 13 percent. By value, 1998 commercial groundfish landings were distributed among the three states as follows: Washington, 15 percent; Oregon, 43 percent; California, 42 percent. The discrepancies between the Oregon and California portions of the landings are expected because Oregon processors handle a relatively high percent of the shore-based whiting landings, a high volume, low value fishery. Conversely, California fishers land more of the low volume, high value species as a proportion of the total state-wide catch than Oregon fishers. Vessel owners and captains employ a variety of strategies to fill out a year of fishing. Fishers from the northern ports may fish in waters off of Alaska, as well as in the west coast groundfish fishery. Others may change their operations throughout the year, targeting on salmon, shrimp, crab, or albacore.

The major goal of management of the groundfish fishery throughout the 1990's was to prevent overfishing while achieving the OYs and providing year-round fisheries for the major species or species

groups. For 2000, lower OYs and growing awareness of reduced productivity of the groundfish resource made it apparent that the goal of a year-round fishery was no longer achievable for a number of species. In addition, new legislative mandates under the Magnuson-Stevens Act gave highest priority to preventing overfishing and rebuilding overfished stocks to their MSY levels. The National Standard Guidelines at 50 CFR 600.310 interpreted this as ``weak stock management," which means that harvest of healthier stocks must be curtailed to prevent overfishing or to rebuild overfished stocks. As a result a new management strategy, which diverts effort off the sea floor of the continental shelf, was chosen to rebuild these overfished species. The measures resulted in reduced seasons, trawl gear restrictions and more restrictive trip limits for shelf and nearshore species. For additional information on the Pacific coast groundfish fishery, see the 1999 Stock Assessment and Fishery Evaluation document prepared by the Council staff.

Observers

Observers are a uniformly trained group of scientists who's objectives are data gathering. Observers use standardized biological sampling procedures which are intended to provide statistically reliable data for fishery management and stock assessment purposes. They are independent data collectors who are employed directly by NMFS, by private companies that specialize in providing observers, or through a NMFS contract. Because observers are stationed aboard vessels to gather data about the fish that are taken by the vessel and are not direct employees of the vessel, Magnuson-Stevens Act regulations (50 CFR 600.725, 600.746, and 679.50) were developed to provide for the health and well being of observers. These regulations define measures to ensure the adequacy and safety of fishing vessels that carry observers. Owners and operators of fishing vessels that carry observers are required to comply with guidelines, regulations, and conditions in order to ensure that their vessels are adequate and safe for the purposes of carrying an observer and allow normal observer functions.

3.0 BIOLOGICAL AND PHYSICAL IMPACTS OF THE ALTERNATIVES

An EA is required by NEPA to determine whether the action considered will result in significant impact on the human environment. If the action is determined not to be significant based on an analysis of relevant considerations, the EA and resulting finding of no significant impact would be the final environmental documents required by NEPA. An environmental impact statement (EIS) need only be prepared for major federal actions significantly affecting the human environment. An EA must include a brief discussion of the need for the proposal, the alternatives considered, a list of document preparers, and the impacts of the alternatives on the human environment. The purpose and need for the proposed action was discussed in section 1.1 of this document, the management alternatives were discussed in section 1.3, and the list of preparers is provided in section 8. The following section addresses the biological and physical environmental impacts of the management alternatives. Socio-economic impacts of the management alternatives, which are required by NEPA, the Regulatory Flexibility Analysis and E.O. 12866, are presented in section 4.0 of this document.

3.1 Biological And Physical Impacts

Physical Environment

The proposed action is for a monitoring program and is not expected to change current fishing behavior. Therefore, it is not expected to have any adverse effects on the physical environment.

Groundfish Resources

Availability of data on total catch and discard -- Under alternative 1, it is reasonably to expect that very little total catch and discard data would be available for stock assessment and management decisions. Without new information, it is reasonable to expect that discard rates based on limited studies conducted in the mid-1980's will continue to be used, despite substantial reductions in cumulative trip limits and the increasing numbers of species to which trip limits apply. The lack of information may or may not threaten the long-term health of the stocks. However, unmeasured discard mortality poses the greatest risk to the stability of the groundfish stocks.

Under status quo, State run monitoring programs to collect information on incidental catch in the shore-based portion of the Pacific whiting fishery would likely continue. Under the terms and conditions of EFPs, whiting trawl vessels are allowed to delay sorting and disposal of prohibited species and groundfish catch in excess of cumulative trip limits until the point of offloading. Delaying sorting until offloading allows state biologists to collect incidental catch data. Without an EFP, groundfish regulations at 50 CFR 660.306(b)would require vessels to sort their prohibited species and return them to the sea as soon as practicable with minimum injury.

Implementation of an observer program, where vessels carry observers on a voluntary basis would be possible under alternative 1. It is likely that such a program would be similar to the EDC research project "class B" (observer samples discarded catch at sea) or "class C" (observer verifies full retention of bycatch) permits. Under the EDC program a small number of groundfish trawl vessels voluntarily used EFPs to carry observers to monitor at-sea discards and the bycatch of prohibited species. Voluntary vessel participation under the EDC "class B" was meager and there were no participants "class C". Based on participation levels under "class B" and "class C", it is reasonable to assume that a voluntary program based on voluntary participation would not adequately provide comprehensive data on total catch and discards.

The biological impacts of alternative 2 are expected to be positive. When funding becomes available, alternative 2 would provide NMFS with the authority to place observers on vessels to collect credible biological data and information needed to estimate total catch; estimate discard rates by species by gear type; and collect biological information necessary to define the harvest populations for stock assessments. Because the additional information provided by on-board observers, in the long-term, it is expected that this would result in better management of the stocks and reduce the likelihood of overfishing.

Availability of biological data on groundfish and non-groundfish species including prohibited species, endangered/threatened species, marine mammals, and protected and overfished species -- Because biological data collection occurs at the processing facility, alternative 1 limits the collection of biological data to animals in the landed catch. Under this alternative, it is reasonable to expect that biological data collections would continue to be obtained from landed catch, through the state port sampling programs. Small amounts data on animals that are commonly discarded at sea would continue to be collected during resource survey cruises or under special EFP permits. As landings occur under more restrictive trip limits and reduced seasons, the availability of animals for biological samples is further restricted. When data is lacking, changes in stock abundance and potential yield are more difficult to detect and the risk of error in estimates is increased.

If a voluntary at-sea observer program were developed under this alternative, there would be no provisions for the placement of observers. Under this option it is reasonable to expect that observers would have no or very limited opportunities to observer some fishing strategies, reducing the opportunity to collect biological information on some groundfish species. Alternative 2, would allow for the placement of observers in accordance with a statistically sound coverage plan and allow for the collection of biological data according to scientific sampling protocols and data priorities. Observers would be a reliable source of credible biological data on harvested catch which is needed to define the harvest populations for stock assessments. In the long-term, the outcome of this alternative is expected to be positive because it would reduce the likelihood of overfishing by providing credible information for monitoring stock abundance and potential yield. In addition, information that is otherwise no available on the groundfish fishery interactions with non-groundfish species, such as prohibited species, would be available.

None of the management alternatives is expected to have an adverse effect on the incidental mortality levels of listed salmon species. It is reasonable to expect that no additional information on endangered species bycatch will be provided under alternative 1. Alternative 2 provides for more comprehensive collection of biological and total catch data on endangered species discarded at sea. Because very little data is available on the groundfish fishery interactions with species listed under the ESA, alternative 2 is

expected to have a positive impact by providing much needed data that is otherwise not available.

None of the proposed management alternatives are likely to affect the incidental mortality levels of species protected under the MMPA. The WOC groundfish fisheries are considered a category III fisheries where the annual mortality and serious injury of a stock by the fishery is less than or equal to 1 percent of the Potential Biological Removal (PBR) level. Under alternative 1, it is likely that information regarding the incidental take of marine mammals in the groundfish fishery will continue to be limited. Implementation of alternative 2 is expected to benefit MMPA species by providing additional documentation of interactions and incidental takes.

Under alternative 1, it is likely that there will continue to be very little data available on the groundfish fishery interactions with seabirds. Alternative 2 is expected to have a positive impact by providing data on seabirds that is otherwise not available.

Ability to maintain data integrity by placing observers on vessels according to a statistically sound coverage plan -- If a voluntary observer program were developed under alternative 1, vessels would have no obligation to provide NMFS or its designated agent with the logistical information necessary to place observers on vessels in accordance with a statistically sound coverage plan. In voluntary programs, observer placement tends to be opportunistic. This is because not all vessels in an observed fishery are willingly to carry an observer. Observer program managers have been faced with serious obstacles when trying to selectively place observers in order to obtain data in a manner that is reliable and reasonably precise (NMFS 1993). If sample data misrepresents the activities of the observed fleet, those errors are likely to be further magnified when the data is expanded to larger portions of the fishery.

Provisions under alternative 2 would not permit a selected vessel to land groundfish catch unless the observer coverage requirements were waived due to conditions that are beyond the control of the vessel. Under alternatives 2, reporting requirements would be established for all or a designated portion of the vessels in the observed fishery. Requiring vessels to routinely provide logistical information would reduce the likelihood of not being able to contact a vessel at a time when it is selected to carry an observer. By allowing observers to be placed according to a statistically sound coverage plan the data collected by observers is most likely to be representative of the observed fleet. The outcome of this alternative is expected to be positive in the long-term.

Ability to maintain data integrity by providing conditions that allow observers to follow scientific sampling protocols -- Under alternative 1, there would be no regulations defining the sampling conditions necessary for an observer to follow scientific sampling protocols. Discard information needed to assess and account for total fishing mortality and to evaluate management measures would most likely continue to be deficient. If a voluntary program were developed under alternative 1, it would be difficult to maintain the integrity of observer data collections and assure that valid sampling protocols were followed. Using inadequate or poor quality observer data may misrepresent harvest levels on the monitored portion of the fleet. As stated above, when poor quality data is applied to a broader portion of the fleet the errors in the data may be further magnified.

Observer data must be collected under normal fishing conditions and according to a statistically sound sampling plan. To maintain the integrity of observer data collections, NMFS must require conditions that allow observers to carry out the required duties in a manner that is consistent with scientific sampling protocols. Alternative 2 would establish requirements for vessels to provide access to the catch, prohibit actions that interfere with or bias sampling procedures, prohibit crew from tampering with samples, and require that vessels provide access to work areas, navigational equipment, and logbooks. Such provisions are necessary for observers to effectively carry out their duties. Defining the necessary sampling conditions establishes clear standards for vessels preparing for an observer and provides NMFS with the authority to address inadequacies that may exist on some vessels.

3.2 Summary of the Biological Impacts

Under alternative 1, status quo, there is no expected change in the level of information available to manage the fishery. Information needed to assess and account for total fishing mortality and to evaluate management measures, and biological data on harvested groundfish and non-groundfish species including prohibited species, endangered/threatened species, marine mammals, seabirds, and protected species would most likely continue to be deficient.

Under this alternative, it would be possible to implement an observer sampling program like the EDC research project class "B" or "C" permits, in which a small number of groundfish trawl vessels carry observers on a voluntary basis. If such a voluntary program were developed vessels would have no obligation to provide NMFS or its designated agent with the logistical information necessary to place observers on vessels in accordance with the defined coverage strategy and it is unlikely that all vessels would be willing to carry an observer. In voluntary programs, observer placement tends to be opportunistic. Managers of observer programs with voluntary coverage requirements have been faced serious obstacles when trying to selectively place observers in order to obtain data in a manner that is reliable and reasonably precise (NMFS 1993). If a voluntary program were developed under alternative 1, it would be difficult to assure that scientific sampling protocols were followed and thereby maintain the integrity of observer data collections.

Promulgation of the regulations under alternative 2, would establish the regulatory framework necessary to support an on-board observer program. Adopting such a framework is expected to allow for the deployment of observers in accordance with a statistically sound coverage plan and permit the observers to work under conditions that would allow them to sample according to NMFS protocols. Data collected by observers would improve the quantity and quality of data available for stock assessments and provide fisheries managers with information needed to develop effective rebuilding plans for depleted stocks. Improved information is expected to minimize the risk of overfishing other groundfish and non-groundfish species. In the long-term, positive biological impact is expected from alternative 2.

4.0 SOCIO-ECONOMIC IMPACTS OF THE ALTERNATIVES

This section provides information about economic and socio-economic impacts of the management alternatives including identification of the individuals or groups that may be affected by the action, the nature of these impacts, quantification of the economic impacts if possible, and discussion of the tradeoffs between qualitative and quantitative benefits and costs.

The requirements for all regulatory actions specified in E.O. 12866 are summarized in the followings statement from the order:

> "In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of cost and benefits that are difficult to quantify, but nevertheless essential to consider. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach."

4.1 Socio-economic Impacts

Cost to industry

Under alternative 1, status quo, there would be no provisions established to collect information from species that are discarded at sea. It is reasonable to assume that no comprehensive data collection program would be developed under this option. The lack of information may or may not threaten the health of the fishery. However, managing a fishery without accurate and timely total catch data poses the greatest risks to the economic stability in the fishery.

Implementation of an observer sampling program where vessels carry observers on a voluntary basis, would be possible under alternative 1. If a voluntary observer program were developed it is expected that vessels carrying observers would represent a much smaller portion of the fleet than that seen under alternative 2, but individual vessels would incur similar costs relating to additional time required to arrange for observer coverage, food and accommodations, and additional liability insurance.

Alternative 2 creates the regulatory structure needed to deploy observers. It is NMFS's intention, providing funds are available, to provide for observer training and the direct costs of deploying observers including: salaries, payroll taxes, employment insurance, medical insurance, and travel costs. Observers would be employed directly by NMFS or through a procurement contract. The observer's employer would provide protection and indemnity insurance to cover property damage claims that may result from actions of the observer.

The costs to industry to deploy observers under alternative 2, consists of several components that would vary depending on the coverage strategy that was selected. For the purposes of this analysis, staff assumes
observers would be stationed on vessels in accordance with a statistically sound coverage plan based on random sampling. Three approaches could be taken in developing a coverage plan include: random selection of trips from a large pool of vessels; complete sampling of all trips taken by a small number of vessels over a specific period; or sampling a portion of trips by an intermediate number of vessels over a specific period. Of the 2,116 vessels in the open access and limited entry fisheries, the number of vessels that could be required to carry an observer annually ranges from 60 (if each observer samples one LE vessel over an entire cumulative trip limit period) to 967 (if observers sample vessel trips at random and no vessel is sampled more than once and each vessel require two observers to have all days sampled), depending on the coverage strategy that is employed (Table 4.1.1).

Table 4.1.1. Potential number of vessels sampled by 20 observers

Annual working days per observer ([365 days x 5 day/7 day]- 10 holidays-10 vacation days).....241 days
Annual at-sea working days per observer (Providing 60% of time the observer's time is at sea).....145 days
Estimated annual days at-sea for 20 observers.....2,900 days

Maximum number of vessels sampled annually:
If observers sample vessel trips at random and no vessel is sampled more than once (Providing each vessel requires 3 at-sea observer days).....967 vessels

Minimum number of vessels sampled annually:
If each observer samples one LE vessel over an entire cumulative trip limit period ..... 60 vessels
(providing each vessel requires two observers to have all at-sea days covered)

Under alternative 2, each vessel within the sector(s) of the groundfish fleet designated for coverage would be required to keep NMFS or its designated agent apprized of its fishing schedule, including anticipated departure dates and times. This is expected to be a 5 minute phone call to and individual or a messaging service. The cost to the industry to provide this information increases as the number of vessels in the pool of potentially observed vessels increases. The maximum cost to the fleet to provide logistical information would occur if the coverage strategy were to randomly sample trips from the entire open access and limited entry fleet.

The estimated annual burden for an individual vessel to provide logistical information needed to place observers is expected to be 2.9 hours or $69.6 for the average limited entry vessel and 1.8 hours or $43.2 for the average open access vessel (Table 4.1.2). The estimated annual time burden to the fleet depending on the coverage alternative that is selected could range from 1025 hours or $11,880 if only limited entry vessels are required to provide logistical information to 3,451 hours or $82,824 if all open access and limited entry vessels are considered to be in the pool and are required to provide logistical information. It is also expected that additional time would be required in port for vessels to arrange for observer coverage.

Table 4.1.2 Estimated Annual Time Needed for Vessels to Provide Fishing Logistical information and for Pre-cruise Meeting.

FISHING TRIP DEPARTURE NOTICE:

Cost to individual vessel:

Limited Entry Trawl (25 trips/yr x 5 min/notice)..... 2.1 hour/year

Non-trawl (25 trips/yr x 5 min/notice)..... 2.1 hour/year

Cost for the individual vessel (2.1 hours x $24[1]/hour)..... $50.4

Open Access (12 trips/yr x 5 min/notice)..... 1.0 hour/year

Cost for the individual vessel (1.0 hours x $24[1]/hour)..... $24.0

If all open access and limited entry vessels are required to provide notice:

Annual time burden to the fleet (2,116 vessels x 15 trips/yr x 5 min/notice)..... 2,645 hours/year

Annual costs to fleet (2,645 x $24[1]/hour)..... $63,480

If only limited entry vessels are required to provide notice:

Annual time burden to the fleet(490 vessels x 25/trips/yr x 5/min/notice) ..... 1,020 hours/year

Annual costs to fleet (490 x $24[1]/hour)..... $11,760

FISHERY DEPARTURE NOTICE:

Cost to individual vessel: (10 trips/yr x 5 min/notice)..... 0.8 hour/year

Cost for the individual vessel (0.8 hours x $24[1]/hour)..... $ 19.2

If observers sample all OA and LE vessel trips at random and no vessel is sampled more than once:

Annual time burden to the fleet (967 vessels x 10 departures/yr x 5 min/notice)..... 806 hours/year

Annual costs to fleet (806 hours x $24[1])..... $19,344

If observers sample only one LE vessel over an entire cumulative trip limit period:

Annual time burden to the fleet (60 vessel x 5 min/notice) ..... 5 hours/year

Annual costs to fleet (5 hours x $24[1]/hour)..... $120

ANNUAL COST TO THE INDIVIDUAL VESSEL

Limited entry (2.9 hours)..... $69.6 annually/vessel

Open Access (1.8 hours)..... $43.2 annually/vessel

COST TO FLEET FOR PROVIDING LOGISTICAL INFORMATION

Minimum cost (1,025 hours)..... $11,880 annually

Maximum cost (3,451 hours)..... $82,824 annually

[1] Washington State Office of Employment Services (www.wa.gov) -- 1997 Mean hourly wage for first-line supervisor in agricultural, forestry, fishing, and related work

Under alternatives 2, vessels that are chosen to carry an observer would be responsible for providing the observer's living accommodations and food equivalent to that which is provided to the crew. Providing food for an observer is expected to increase costs to the vessel by as much as $30/observer day. Again the cost to an individual vessel would depend on the coverage option that was selected and could range from $90, if individual trips were selected at random from a large pool of vessels, to $3240 if a small number of vessels carried observers on every groundfish trip throughout the entire year (Table 4.1.3). This upper limit is unlikely, since no vessels currently fishes everyday of the year. If a vessel were to carry an observer everyday of the year, the cost to the individual vessel could be as high $4,350. The information is not available to estimate costs such as those associated with a possible reduction in crew size if crew members are displaced because of limited bunk space. Vessels may also incur costs if they choose to carry additiona'

liability insurance. These costs would vary between individual vessels depending on the insurance carriers minimum allowed coverage period, and the coverage approach that is taken. Adequate information to estimate the costs to the vessel was not available for this analysis.

Table 4.1.3. Estimated food and accommodation costs to vessels

Alternative 1 - Status quo
No at-sea observer coverage.....$0/day

Alternative 2 - Establish regulatory framework to support an at-sea observer sampling program

MAXIMUM NUMBER OF VESSELS AFFECTED, MINIMUM COST PER VESSEL

Estimated number of vessels affected.....967 vessels
Annual at- sea observer days at sea.....2,900 days
Annual costs to the fleet for food and accommodations ($30[1]/day x 3 days x 967 vessels).....$87,030/year

If observers sample open access and limits entry vessel trips at random and no vessel is sampled more than once
Estimated at-sea observer days per vessel trip.....3 days
Annual cost for food and accommodations per vessel ($30[1]/day x 3 days).....$90/year
Annual costs to the fleet for food and accommodations
($30[1]/day x 3 days x 967 vessels).....$87,030/year

MINIMUM NUMBER OF VESSELS AFFECTED, MAXIMUM COST PER VESSEL

Estimated number of vessels affected.....120 vessels
Annual at- sea observer days at sea.....2,900 days
Annual costs to the fleet for food and accommodations (2900 days x $30/day)..... $87,000/year

If each observer samples only one limited entry vessel over an entire cumulative trip limit period
Estimated at-sea fishing days per period for groundfish:
1 mo period.....9 days
2 mo period.....18 days
3 mo period..... 27 days

Estimate annual cost for food and accommodations per vessel for groundfish trips
1 mo period (9 days x $30[1]).....$270/year
2 mo period (18 days x $30[1]).....$540/year
3 mo period.(27 days x $30[1]).....$810/year

Estimated fishing days possible in a year (108 days x $30[1]).....$3,240/year

Maximum possible cost for food and accommodations per vessel if all days in a cumulative tri limit period are monitored
1 mo period (30 days x $30[1]).....$900/year
2 mo period (60 days x $30[1]).....$1,800/year
3 mo period.(90 days x $30[1]).....$2,700/year

Maximum fishing days possible in a year (365 days x $30[1]).....$4,350/year

[1]1999 Government Services Administration standard (CONUS) per diem rates for meals and incidentals....$30/day

Prior to placing an observer on board a vessel for the first time, officers and crew may be requested to voluntarily participate in a pre-trip meeting with an observer and supervisory program staff. This would be a brief meeting, less than one hour, in which the roles and responsibilities of the operator, crew, and observer would be discussed. The estimated annual time burden for an individual vessel to participate in a pre-trip meeting is expected to be .5 hours (Table 4.1.4), or $24. The estimated annual cost burden to the fleet depending on the coverage option that is selected could range from 30 hour to 484 hour or $1,440 to $23,232.

Table 4.1.4. Estimated Burden for Vessels to Provide for Pre-cruise Meeting

OBSERVER PLACEMENT MEETINGS:	
Hours for individual vessel:	0.5 hours/year
Cost for the individual vessel (0.5 hours x $48[1]/hour for captain and 2 crew)	$24/year
If observers sample all OA and LE vessel trips at random and no vessel is sampled more than once:	
(967 vessels x 0.5 meetings/yr x 1 hour/meeting)	484 hours/year
Cost to the fleet (484 hours x $48[1]/hour for captain and 2 crew on each vessel)	$23,232/year
If observers sample only one limited entry vessel over an entire cumulative trip limit period:	
(60 vessels x 1 meetings/yr x 0.5 hour/meeting)	30 hours/year
Cost to the fleet (30 hours x $48[1]/hour for captain and 2 crew on each vessel)	$1,440/year

[1] Washington State Office of Employment Services (www.wa.gov) -- 1997 Mean hourly wage for first line supervisors and all other agricultural, forestry, fishing, and related workers

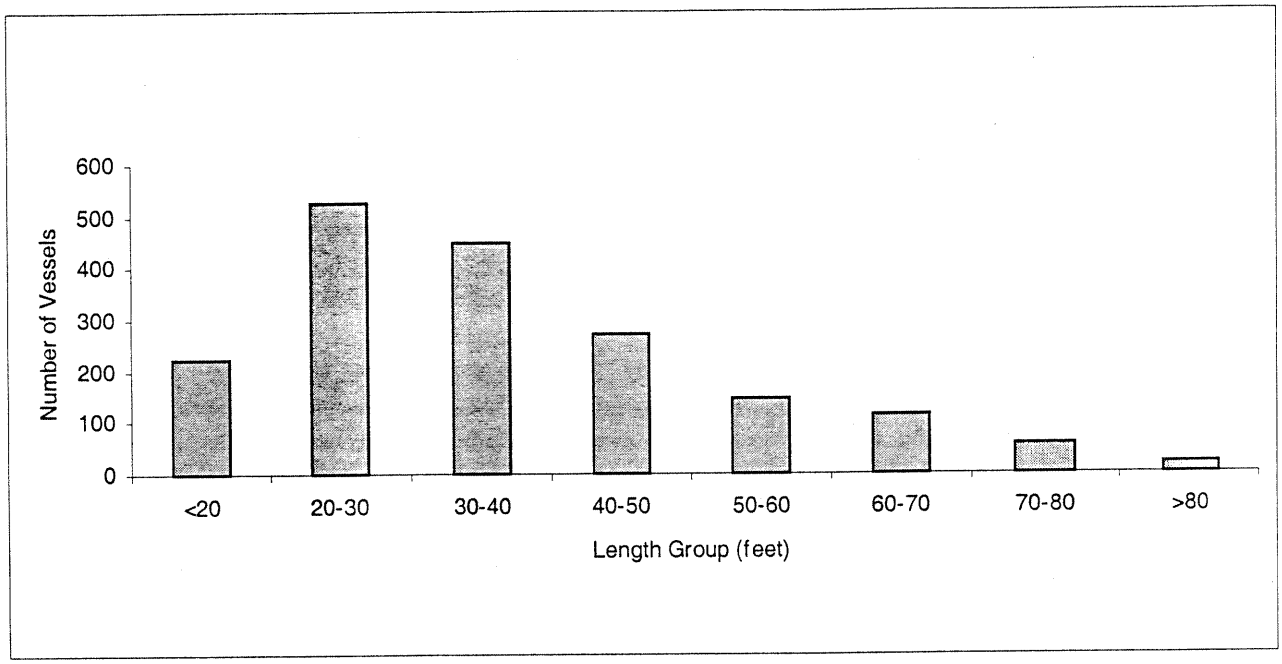
Observer Health and Well Being

The safety, health, and well-being of observers while stationed aboard fishing vessels is of great priority. Magnuson-Steven Act, Observer Health and Safety provisions at 50 CFR part 600 (FR 27213 May 18, 1998) adopted U.S. Coast Guard (USCG) safety inspection standards as minimum requirements a vessel must meet to be deemed safe and adequate for the purposes of carrying observers. Vessels that carry observers are required to undergo USCG safety inspections or examinations; display valid USCG inspection decals or certificates; and maintain safe conditions at all times when an observer is aboard as well as during an observer's boarding and disembarking. Vessels carrying observers are also required to comply with any applicable regional requirements to assure that the vessels are adequate and safe and allow normal observer functions to be carried out. In an observer program with mandatory coverage requirements, a vessel that failed to meet the requirements at § 600.725 and § 600.746 would not be permitted to fish until the safety requirements were met and the required observer was aboard.

The USCG safety inspections or examinations, which take approximately 4 hours, are performed at the dock at no cost to the vessel owner. Because the vessel owner/operator would be able to schedule the inspection or examination at a time that is convenient for the owner/operator, such as when the vessel is not fishing, the requirement for and inspection or examination is not likely to result in any economic loss associated with lost fishing days.

U.S. Coast Guard dock-side safety inspections are generally two years apart. Because of the time between inspections, it is possible for a vessel to pass an inspection yet be out of compliance at the time an observer boards. Therefore the regulations at § 600.725 and § 600.746 encourage observers to use objective criteria to conduct a pre-trip safety check for especially hazardous conditions that may jeopardize their personal safety. This is not to be confused with an assessment of hull integrity or the seaworthiness. The intent of the rule is not to empower an observer as a USCG enforcement official. Its purpose is to encourage an observer to check major safety items identified in sec. 600.746 § (3); if these items are absent or unserviceable, the rule empowers the observer not to sail with the vessel until those deficiencies are corrected." If an observer refuses to board an unsafe vessel in a fishery that requires mandatory coverage, a vessel may be delayed resulting in lost fishing time. NMFS took this issue into consideration in the Final Regulatory Flexibility Analysis for this rule. Several alternatives were assessed, and the potential damages caused by a vindictive observer were weighed against the potential risks to an individual who was coerced into boarding an unsafe vessel. To reduce the risks of potential delays, NMFS recommended that the vessel owners/operators arrange for the observer to arrive early and make a pre-trip safety check. Because of the trip-limit management regime, which currently is used in most Pacific coast groundfish fisheries, lost catch opportunity if a vessel is delayed is unlikely. However, in derby style fisheries, such as the three-tiered sablefish fishery, lost catch opportunity may result if the vessel is delayed. Advanced planning would allow time to correct minor problems without delaying the fishing trip.

Under alternative 2, observers could be expected to perform multiple duties at-sea including; estimating total catch, sampling for catch and discard composition, collecting biological data and specimens, and collecting data on the operational characteristics of the vessel and fishing effort. For an observer to effectively follow sampling protocols vessels need to provide adequate sampling facilities, such as access to sorted and/or unsorted catch, as are proposed under alternative 2. This may result in increased handling time if sorting of the catch needs to be slowed or centralized to allow an observer to collect samples. The sample station requirement may reduce work and storage space for vessel activities. Within the groundfish fleet there are many vessels under 40 feet in length (Figure 1). It is likely that the smallest groundfish vessels would be most affect by time and space requirements, however, without minimal sample space and adequate time to collect samples data quality cannot be assured. If it is determined that a vessel is simply



too small to accommodate an observer, alternative methods of sampling may need to be considered. A profile of groundfish vessel lengths can be seen in Figure 4.1.1.

Figure 4.1.1 All Groundfish Vessels by length Category, Participants From 1994 to 1998 (PACFIN)

Among the vessels in the open access and limited entry groundfish fisheries that could be selected to carry an observer, there are substantial differences in terms of the annual ex-vessel value of their groundfish and WOC catch. Tables 4.1.4. and 4.1.5. illustrates these revenue differences by state and sector of the fleet.

As a result of funding limitations and the need to collect data in accordance with a static\statistically reliable coverage plan, it may only be possible to provide coverage for one sector of the fleet or one geographical area during a given year. Coastwide in 1998, approximately 9% of the limited entry trawl fleet, which includes the shore-based whiting vessels, had annual ex-vessel revenues less than $25,000 and 4% had annual gross fishery revenues that were less than $25,000. This is compared to the limited entry fixed gear fleet in which 44% had annual ex-vessel revenues less than $25,000 and 22% had annual gross fishery revenues that were less than $25,000. The open access fleet, which is comprised of many small vessels that have fewer and shorter trips, in which 96% had annual ex-vessel revenues less than $25,000 and 71% had annual gross fishery revenues that were less than $25,000. It is expected that catch reduction in 2000 will lead to a large portion of the fleet having revenues less than $25,000 annually.

Table 4.1.4. Percentage of Limited entry and Open Access Vessel Annual Groundfish Ex-vessel Revenue Category and State, 1998 (thousands of dollars)

	<$5	$5-$25	$25-50	$50-$100	$100-$200	>200
	Percent	Percent	Percent	Percent	Percent	Percent
WASHINGTON:						
Limited Entry						
Trawl	0	0	4	17	30	48
Non-trawl	5	31	47	16	0	0
Open Access	87	13	0	0	0	0
OREGON:						
Limited Entry						
Trawl	3	5	5	9	34	45
Non-trawl	6	29	29	35	0	0
Open Access	88	11	1	0	0	0
CALIFORNIA:						
Limited Entry						
Trawl	7	7	7	23	36	21
Non-trawl	25	31	24	14	6	0
Open Access	80	15	3	1	0	0
COASTWIDE:						
Limited Entry						
Trawl	4	5	6	16	34	34
Non-trawl	14	30	32	21	2	0
Open Access	82	14	3	1	0	0

Note: A vessel having a permit at any time during the year was treated as LE for the year. Any permitted vessel with a trawl endorsement was assigned to the LE trawl group. Only vessels that earned groundfish revenue during 1998 were included. Catch from vessels landed in multiple states was attributed to the state in which the groundfish revenue was greatest.

Table 4.1.5. Percentage of Limited entry and Open Access Vessel by Gross Annual Ex-vessel Revenue Category and State, 1998 (thousands of dollars)

	<$5	$5-$25	$25-50	$50-$100	$100-$200	>200
	Percent	Percent	Percent	Percent	Percent	Percent
WASHINGTON:						
Limited Entry						
Trawl	0	0	0	9	36	55
Non-trawl	5	22	48	22	2	0
Open Access	44	16	8	14	15	3
OREGON:						
Limited Entry						
Trawl	1	0	2	9	33	55
Non-trawl	0	8	15	35	42	0
Open Access	36	34	14	9	5	1
CALIFORNIA:						
Limited Entry						
Trawl	2	6	5	12	34	42
Non-trawl	5	22	31	28	13	2
Open Access	42	29	14	9	4	1
COASTWIDE:						
Limited Entry						
Trawl	1	3	3	10	33	49
Non-trawl	4	18	32	28	17	1
Open Access	41	30	14	9	5	1

Note: A vessel having a permit at any time during the year was treated as LE for the year. Any permitted vessel with a trawl endorsement was assigned to the LE trawl group. Only vessels that earned groundfish revenue during 1998 were included. Catch from vessels landed in multiple states was attributed to the state in which the groundfish revenue was greatest.

If additional federal resources are not available for enforcing the requirements proposed under alternative 2. Given that supporting an at-sea observer program would be high among conservation and management priorities, enforcement resources may be directed away from existing regulations.

4.2 Summary of Socio-economic Impacts

It is unknown how the lack of information under status quo (alternative 1) is affecting the long-term health of the fishery. The lack of discard data used to estimate total catch poses the greatest risks to the economic stability in the fishery. If discard estimates are too high then harvest allocations may be set too low, resulting in the industry foregoing some short-term yield, and if the discard estimates are too low the long term yield and stability of the fishery may be affected.

The costs to deploy observers under alternative 2, consists of seven components: 1) logistical information, 2) liability insurance, 3) food and living accommodations, 4) safety requirements, 5) a pre-trip meeting, and 6) adequate sample space and time, 7) liability insurance. The total costs to the individual vessel and to the fleet would vary depending on the coverage strategy that was used, as would the number of vessels affected. The sum of these costs is estimated to range between $157 and $4444 for the individual vessel and $100,320 and $193,086 for the fleet. The lowest costs to the individual vessel occurs when each observer samples only one limited entry vessel over an entire cumulative trip limit period and the highest cost to the individual vessel occurs when observers samples vessel trips at random and no vessel is sampled more than once. However, the highest and lowest costs to the fleet are in reverse order.

In 1998, Approximately, 66% (4% of the LE trawl, 14% of the LE fixed gear, and 82% of the Open Access vessels) percent of the groundfish fleet have annual revenues from groundfish at or below $5000,and 32% (1% of the LE trawl, 4% of the LE fixed gear, and 41% of the Open Access vessels) has gross annual revenues at or below $5000. It is expected that the benefits of an on-board observer program would outweigh the increased the federal costs and workload. Given recent trip limit reductions for many rockfish species and lingcod, it is reasonable to expect that a larger portion of the fleet will be earning less than $5000 in 2000.

5.0 CONSISTENCY WITH THE FMP AND OTHER APPLICABLE LAWS

5.1 Consistency with the FMP

The socio-economic framework in the Pacific Coast Groundfish FMP requires that proposed management measures and viable alternatives be reviewed and consideration given to the following criteria: a) how the action is expected to promote achievement of the goals and objectives of the FMP, b) likely impacts on other management measures, c) biological impacts, d) and economic impacts, particularly on the cost to the fishing industry, and e) accomplishment of one of a list of factors.

GOALS AND OBJECTIVES OF THE FMP

The Council is committed to developing long-range plans for managing the Pacific Coast groundfish fisheries that prevent overfishing and loss of habitat, yet provide the maximum net value of the resource, and achieve maximum biological yield. Alternatives 2 is consistent with FMP goal 1-objective 1, and goal 3-objective 10.

> Goal 1- Conservation: Objective 1 -- maintain an information flow on the status of the fishery and the fishery resource which allows for informed management decisions as the fishery occurs."
>
> Goal 3- Utilization: Objective 10 -- strive to reduce the economic incentives and regulatory measures that lead to wastage of fish. Also, develop management measures that minimize bycatch to the extent practicable and, to the extent that bycatch cannot be avoided, minimize the mortality of such bycatch. In

addition, promote and support monitoring programs to improve estimates of total fishing-related mortality and bycatch, as well as those to improve information necessary to determine the extent to which it is practicable to reduce bycatch and bycatch mortality.

LIKELY IMPACTS ON OTHER MANAGEMENT MEASURES AND OTHER FISHERIES

Data collected by observers would improve the ability to monitor some fisheries or sectors of the fleet, and is likely to provide information that can be used to assess the effectiveness of some management measures. As a means to address resource conservation issues, section 6.3.1 of the FMP authorizes the use of at-sea observers to collect data that is not available and would otherwise be too onerous for some fishermen to collect.

ECONOMIC IMPACTS, PARTICULARLY ON THE COST TO THE FISHING INDUSTRY

The economic impacts and costs to the industry have been addressed in sections 4.1 and 4.2.

ACCOMPLISHMENT OF ONE OF THE FACTORS LISTED IN FMP SECTION 6.2.3.

Under the socio-economic framework, the proposed action must accomplish at least 1 of the criteria defined in section 6.2.3 of the FMP. Alternative 2 is likely to accomplish objective 2) provide information to avoid exceeding a quota, harvest guideline or allocation, and objective 13) maintain data collection and means for verification.

5.2 Magnuson-Stevens Fishery Conservation and Management

The Magnuson-Stevens Act at 16 U.S.C. 1853(b)(8) provides that an FMP may require that one or more observers be carried on board a vessel of the United States engaged in fishing for species that are subject to the plan, for the purpose of collecting data necessary for the conservation and management of the fishery. Under the Magnuson-Stevens Act at 16 U.S.C. 1855(d), the Secretary of Commerce, acting through NMFS, has general responsibility to carry out any fishery management plan, and may promulgate such regulations as may be necessary to discharge this responsibility.

On March 3, 1999 those portions of Amendment 11 to the Pacific Coast Groundfish FMP concerning the reduction of bycatch and bycatch mortality were not approved by NMFS. Amendment 11 addresses bycatch through the FMP's framework mechanism, by revising one of the objectives of the FMP to read, ``Strive to reduce the economic incentives and regulatory measures that lead to wastage of fish. Also, develop management measures that minimize bycatch to the extent practicable and, to the extent that bycatch cannot be avoided, minimize the mortality of such bycatch. In addition, promote and support monitoring programs to improve estimates of total fishing-related mortality and bycatch, as well as those to improve information necessary to determine the extent to which it is practicable to reduce bycatch and bycatch mortality." Although NMFS supports the Council's continued use of framework provisions in the FMP's regulatory structure, the bycatch provisions in Amendment 11 fail to respond meaningfully to the bycatch requirements of the Magnuson-Stevens Act. Requirements at Section 303(a)(11) of the Magnuson-Stevens Act clearly state that an FMP must ``establish a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery, and include conservation and management measures that, to the extent practicable and in the following priority-- (A) minimize bycatch; and (B) minimize the mortality of bycatch which cannot be avoided." Efforts to establish provisions for an observer program aimed at collecting total catch data including at-sea discards, would address a portion of the Magnuson-Stevens Act bycatch requirements.

Essential Fish Habitat (EFH)

The Magnuson-Stevens Act requires that "each Federal agency shall consult with the Secretary of Commerce with respect to any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency that may adversely affect any essential fish habitat identified under this Act." EFH is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." EFH for WOC groundfish is further defined in Amendment 11 to the Pacific Coast

FMP as "the entire EEZ and marine coastal waters inshore of the EEZ." NMFS guidelines (62 FR 66553, December 19, 1997) state that "adverse effects from fishing may include physical, chemical, or biological alterations of the substrate, and loss of, or injury to, benthic organisms, prey species and their habitat, and other components of the ecosystem..." The proposed action under alternative 2 is to allow implementation of a sampling program to monitor approved fishing activities. Because the action is not expected to change fishing behavior from the existing circumstances, no adverse impacts on EFH are expected.

5.3 Paperwork Reduction Act

Alternatives 2 contain a collection-of-information subject to the PRA. A description of information will be submitted to the OMB for review and approval. Under this rulemaking vessels would be required to submit information that would be used to coordinate and conduct effective and efficient deployment of observers. No new forms are proposed with this rulemaking. Notwithstanding any other provision of law, no person is required to respond to nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the PRA unless that collection of information displays a currently valid OMB Control Number.

5.4 Endangered Species Act

NMFS issued Biological Opinions under the ESA on August 10, 1990, November 26, 1991, August 28, 1992, September 27, 1993, May 14, 1996, and December 15, 1999 pertaining to the impacts of the groundfish fishery on Sacramento River winter chinook, Snake River fall chinook, Snake River spring/summer chinook, Central Valley spring chinook, California coastal chinook, Puget Sound chinook, lower Columbia River chinook, upper Willamette River chinook, Upper Columbia River Spring chinook, Hood Canal summer run chum, Columbia River Chum, Central California coastal coho, Oregon coastal coho, Snake River sockeye, Ozette Lake sockeye, southern California steelhead, south-central California steelhead, central California coast steelhead, upper Columbia River steelhead, Snake River Basin steelhead, lower Columbia River steelhead, California Central Valley steelhead, upper Willamette River steelhead, middle Columbia River steelhead, Umpqua river cutthroat trout, and the southwest Washington/Columbia cutthroat trout. The opinions concluded that implementation of the FMP for the Pacific Coast Groundfish Fishery is not expected to jeopardize the continued existence of any endangered or threatened species under the jurisdiction of NMFS, or result in the destruction or adverse modification of critical habitat. This rule is within the scope of these consultations. Because the impacts of this action fall within the scope of the impacts considered in these Biological Opinions, additional consultations on these species are not required for this action.

None of the management alternatives is expected to have an effect on the incidental mortality levels of listed salmon species. It is reasonable to expect that no additional information on endangered species bycatch will be provided under option one. Alternative 2 provides for more comprehensive collection of biological and total catch data on endangered species discarded at sea. Because very little data is available on the groundfish fishery interactions with species listed under the ESA, alternative 2 is expected to have a positive

impact by providing much needed data that is otherwise not available. Discussion on Steller sea lions, which are listed as threatened in the WOC, can be found in section 3.4.

5.5 Marine Mammal Protection Act

Under the MMPA, marine mammals whose abundance falls below the optimum sustainable population level (usually regarded as 60% of carrying capacity or maximum population size) can be listed as "depleted". Populations listed as threatened or endangered under the ESA are automatically depleted under the terms of the MMPA. Currently the Stellar sea lion population in the WOC is listed as threatened under the ESA and the fur seal population is listed as depleted under the MMPA. Incidental takes of these species in the

Pacific coast fisheries are well under the annual PBR. None of the proposed management alternatives are likely to affect the incidental mortality levels of species protected under the MMPA.

The WOC groundfish fisheries are considered a category III fisheries where the annual mortality and serious injury of a stock by the fishery is less than or equal to 1 percent of the PBR level. Under alternative 1, it is likely that information regarding the incidental take of marine mammals in the groundfish fishery will continue to be limited. Implementation of alternative 2 is expected to benefit MMPA species by providing additional documentation of interactions and incidental takes.

5.6 Summary of Potential Impacts

Table 5.6.1 Summary of Potential Impacts from Alternative Management Actions

	Alternative 1, Status Quo	Alternative 2, Adopt Observer Regulations
	Potential Impacts	Potential Impacts
Coastal Zone	No substantial impacts expected	No substantial impacts expected
Public Health and Safety	No substantial impacts expected	No substantial impacts expected
Unique Geographical Characteristics	No substantial impacts expected	No substantial impacts expected
Historical/Cultural Impacts	No substantial impacts expected	No substantial impacts expected
Endangered/Threatened Species	No substantial impacts expected	No substantial impacts expected
Uncertainty or Unique/Unknown Risks	No substantial impacts expected	No substantial impacts expected
Existing Habitat Protection Laws	No substantial impacts expected	No substantial impacts expected
Essential Fish Habitat	No substantial impacts expected	No substantial impacts expected
Marine Mammals	No substantial impacts expected	No substantial impacts expected
Seabirds	No substantial impacts expected	No substantial impacts expected

6.0 Conclusions or Findings of no Significant Impact

Most groundfish vessels sort their catch at sea and discard species that are: in excess of cumulative trip limits; unmarketable; in excess of annual allocations; or incidentally caught non-groundfish species, including marine mammals and protected species. Because a portion of the catch is discarded at sea, there is no opportunity for NMFS or the states to monitor total catch (retained plus discarded catch) at onshore processing facilities. This lack of information on at-sea discards has resulted in very imprecise estimates of total catch and fishing mortality.

Discard information needed to assess and account for total fishing mortality and to evaluate management measures would most likely continue to be deficient under alternative 1, status quo. NMFS believes that observers would be a reliable source of credible biological data and information needed to estimate total catch; estimate discard rates by species by gear type; and collect biological information on depressed and primary species necessary to define the harvest populations for stock assessments. Alternative 2 allows NMFS to go forward with regulations to support an at-sea observer program.

Based on the biological, physical and socio-economic impacts of the alternatives that have been assessed in this document, it has been determined that implementation of the management alternative 2 would not significantly affect the quality of the human environment. Therefore, the preparation of an environmental impact statement for the proposed action is not required by Section 102 (2) (C) of the National Environmental Policy Act or its implementing regulations.

Assistant Administrator for Fisheries, NOAA

Date

7.0 Literature Cited

NMFS. July 1994. NMFS Observer Programs, Minutes and recommendations from a Workshop held in Galveston, Texas November 10-11, 1993. NOAA Tech. Mem NMFS-OPR-94-1

NMFS 1997

NMFS. December 15, 1999. Endangered Species Act - Reinitiated section 7 consultation , Biological Opinion for fishing conducted under the Pacific Coast Groundfish Fishery Management Plan for California, Oregon, and Washington groundfish fishery. National Marine Fisheries Service, Northwest and Southwest Regional Sustainable Fisheries Divisions.

PFMC. October 1999. Status of the Pacific coast groundfish fishery through 1998 and recommended acceptable biological catches for 1999. Pacific Fisheries Management Council, Portland Oregon.

8.0 LIST OF PREPARES

This document was prepared by NMFS Sustainable Fisheries Division staff Northwest Region 7600 Sand Point Way NE, Seattle, WA 98115-0070, and incorporates information provided by: Jim Hastie, Northwest Fisheries Science Center, Jim Seger, Pacific Fishery Management Council Staff; Will Daspit, Dave Colpo, and Al Didier, Pacific States Marine Fisheries Commission; NOAA General Council Northwest Region.

9.0 REGULATORY FLEXIBILITY ANALYSIS

The RIR is designed to determine whether the proposed rule has a "significant economic impact on a substantial number of small entities" under the RFA. NMFS has defined all fish harvesting or hatchery businesses that are independently owned and operated, not dominant in their field of operation, with annual receipts not in excess of $2,000,000 as small businesses. In addition, seafood processors with 500 employees or fewer, wholesale industry members with 100 employees or fewer, not-for-profit enterprises, and government jurisdictions with a population of 50,000 or less are considered small entities. A "substantial number" of small entities would be 20 percent of the total universe of small entities affected by the regulation. Economic impacts on small business entities are considered to be "significant" if the proposed action would result in any of the following: (a) reduction in annual gross revenues by more than 5 percent; (b) increase in total costs of production by more than 5 percent as a result of an increase in compliance costs; (c) compliance costs as a percent of sales for small entities are at least 10 percent higher than compliance costs as a percent of sales for large entities; (d) capital cost of compliance represent a significant portion of capital available to small entities, considering internal cash flow and external financing capabilities; or, (e) as a rule of thumb, 2 percent of small business entities being forced to cease business operations. The purpose of the RFA is to relieve small business, small organizations, and small governmental entities from some burdensome regulations and recordkeeping requirements.

9.1 Economic Impact on Small Entities - Initial Regulatory Flexibility Analysis

When an agency proposes regulations, the RFA requires the agency to prepare and make available for public comment an Initial Regulatory Flexibility Analysis (IRFA) that describes the impact on small businesses, non-profit enterprises, local governments, and other small entities. The IRFA is to aid the agency in considering all reasonable regulatory alternatives that would minimize the economic impact on affected small entities (attachment 1). To ensure a broad consideration of impacts on small entities, NMFS has prepared this IRFA without first making the threshold determination whether this proposed action could be certified as not having a significant economic impact on a substantial number of small entities. NMFS, must determine such certification to be appropriate if established by information received in the public comment period.

1) A description of the reasons why the action by the agency is being considered.

Total landed catch is monitored by the individual state run fish ticket programs, because a portion of the catch is discarded at sea there is no opportunity to comprehensively monitor total catch or collect biological data from discarded catch at the shore-based processing facilities. Accurate reporting of total fishing mortality is an important aspect of fishery management. At-sea discard information is needed to assess and account for total fishing mortality and to evaluate management measures, including rebuilding plans for overfished stocks. Discard estimates based on limited studies conducted in the mid-1980's, and information on species compositions in landings, are available for some groundfish species. For other species there is little or no discard information. During the past decade there have been substantial reductions in cumulative trip limits, and trip limits have been applied to increasing numbers of species. In light of these changes in the regulatory regime, doubt has been raised about using old discard estimates, which were based on data collected in the 1980's. Accurate estimates of discards are essential to computing total catch, and thus are an important component of any fishery conservation and management program. If the discard estimates are too high, harvest allocations may be set too low; if discard estimates are too low, then harvest allocations may be set too high, and the long-term health of the stock may be jeopardized.

2) A succinct statement of the objectives of, and legal basis for, the proposed rule.

The Magnuson-Stevens Act at 16 U.S.C. 1853 (b) (8) provides that an FMP may require that one or more observers be carried on board a vessel of the United States engaged in fishing for species that are subject to the plan, for the purpose of collecting data necessary for the conservation and management of the fishery. The Pacific Coast Groundfish FMP provides that all fishing vessels operating in the groundfish fishery may be required to accommodate NMFS-certified on-board observers for purposes of collecting

scientific data. Under the Magnuson-Stevens Act at 16 U.S.C. 1855 (d), the Secretary of Commerce, acting through NMFS, has general responsibility to carry out any fishery management plan, and may promulgate such regulations as may be necessary to discharge this responsibility.

Requirements at Section 303 (a) (11) of the Magnuson-Stevens Act state that an FMP must ``establish a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery, and include conservation and management measures that, to the extent practicable and in the following priority--(A) minimize bycatch; and (B) minimize the mortality of bycatch which cannot be avoided.'' Efforts to establish provisions for an observer program aimed at collecting total catch data including at-sea discards, would address a portion of the Magnuson-Stevens Act bycatch requirements.

The primary objective is to create the regulatory structure necessary to support an at-sea observer program. This proposed rule is to establish the obligations of vessels that may be required to carry observers; to safeguard the observers' well-being; and to provide for sampling conditions necessary for an observer to follow scientific sampling protocols and thereby maintain the integrity of observer data collections. Observers would be used to collect much need information that is otherwise not available for managing the fishery.

3) A description of and, where feasible, and estimate of the number of small entities to which the proposed rule will apply;

For the purposes of this analysis all catcher vessels are considered small entities. It is possible that all vessels within a sector of the fleet designated for coverage could be required to provide logistical information necessary to place observers on vessels. If observed vessels were randomly selected from all open access and limited entry vessels it is possible that all 2,116 (100%) vessels would be required to provide logistical information.

The number of vessels or small entities affected by this proposed rule will depend on the coverage approach that is chosen. If 20 observers are deployed annually, the number of vessels that could potentially carry an observer is estimated to range between 967 (46% of all small entities) if observers sample vessel trips at random, and 60 (3% of all small entities) if each observer samples only one vessel over an entire cumulative trip limit period.

It is most likely that a coverage strategy would divide the open access and limited entry groundfish fleets into sectors by gear type and possibly divide the fishery further by geographical location and/or fishing strategy. Sectors with the greatest annual catch of groundfish or those that most frequently interact with species in which there is the greatest informational need, could be required to have a higher proportion of observer coverage than the other sectors. Because of the limited number of observers, some sectors may have very little or no coverage during a given year. In general, there is increased accuracy of estimates based on observer data with increasing levels of observer coverage. Depending on the events that are being measured, it is possible that more than 20% of the vessels in a given sector would be required to carry an observer and thereby be affected by this rulemaking.

4) A description of the projected reporting, recordkeeping and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for preparation of the report or record.

Vessels would be required to maintain logbooks as currently required by appropriate state law. In addition, each vessel within the sector(s) of the groundfish fleet that is designated for coverage, would be required to keep NMFS or its designated agent apprized of its fishing schedule, including anticipated departure dates and times, and when it is leaving the groundfish fishery. Vessels that are selected to carry observers would require additional time in port to coordinate observer coverage. In addition, a vessel would be asked to voluntarily participate in pre-trip meeting prior to their first observed trip.

5) An identification, to the extent practicable, of all relevant Federal rules which may duplicate, overlap, or

conflict with the proposed rule.

NMFS believes that are no Federal rules will be duplicated, overlap, or conflict by the proposed action.

6) A description of any alternatives to the proposed rule which accomplish the stated objectives of applicable statutes and which minimizes and significant economic impacts of the proposed rule on small entities.

There are two alternatives under consideration in this proposed rulemaking. The status quo alternative, in which catcher vessels would have no obligation to provide NMFS or its designated agent with logistical information necessary to place observers on vessels, to safeguard the observers' well-being; or to provide for sampling conditions necessary for an observer to follow scientific sampling protocols. Under his alternative, a program could be designed where vessels carry observers on a voluntary basis. However, there would be no way to assure that a specific coverage plan could be followed or the integrity of the data collections maintained. Discard information needed to assess and account for total fishing mortality and to evaluate management measures would likely continue to be deficient under status quo. Under the second alternative, NMFS would go forward with regulations to support an at-sea observer. These regulations would allow for the placement of observers in accordance with a statistically sound coverage plan, provide for their safety, and permit them to collect data according to scientific sampling protocols.

It is unknown how the lack of information under status quo (alternative 1) is affecting the long-term health of the fishery. The lack of discard data used to estimate total catch poses the greatest risks to the economic stability in the fishery. If discard estimates are too high then harvest allocations may be set too low, resulting in the industry foregoing some short-term yield, and if the discard estimates are too low the long term yield and stability of the fishery may be affected.

The costs to deploy observers under alternative 2, consists of seven components: 1) logistical information, 2) liability insurance, 3) food and living accommodations, 4) safety requirements, 5) a pre-trip meeting, and 6) adequate sample space and time, 7) liability insurance. The total costs to the individual vessel and to the fleet would vary depending on the coverage strategy that was used, as would the number of vessels affected. The sum of these costs is estimated to range between $157 and $4444 for the individual vessel and $100,320 and $193,086 for the fleet. The lowest costs to the individual vessel occurs when each observer samples only one limited entry vessel over an entire cumulative trip limit period and the highest cost to the individual vessel occurs when observers sample vessel trips at random and no vessel is sampled more than once. However, the highest and lowest costs to the fleet are in reverse order.

Among the vessels in the open access and limited entry groundfish fisheries that could be selected to carry an observer, there are substantial differences in terms of the annual ex-vessel value of their groundfish and WOC catch. Coastwide in 1998, approximately 9% of the limited entry trawl fleet, which includes the shore-based whiting vessels, had annual ex-vessel revenues less than $25,000 and 4% had annual gross fishery revenues that were less than $25,000. This is compared to the limited entry fixed gear fleet in which 44% had annual ex-vessel revenues less than $25,000 and 22% had annual gross fishery revenues that were less than $25,000. The open access fleet, which is comprised of many small vessels that have fewer and shorter trips, in which 96% had annual ex-vessel revenues less than $25,000 and 71% had annual gross fishery revenues that were less than $25,000. It is expected that the benefits of an on-board observer program would outweigh the increased the federal costs and workload. It is expected that catch reduction in 2000 will lead to a large portion of the fleet having revenues less than $25,000 annually.

NMFS Draft

ATTACHMENT 1

Requirements of an IRFA

The Regulatory Flexibility Act (5 U.S.C. 603) states that:
(b) Each initial regulatory flexibility analysis required under this section shall contain--
(1) a description of the reasons why action by the agency is being considered:
(2) a succinct statement of the objectives of, and legal basis for, the proposed rule;
(3) a description of and, where feasible, and estimate of the number of small entities to which the proposed rule will apply;
(4) a description of the projected reporting, recordkeeping and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for preparation of the report or record;
(5) an identification, to the extent practicable, of all relevant Federal rules which may duplicate, overlap, or conflict with the proposed rule.

(c) Each initial regulatory flexibility analysis shall also contain a description of any significant alternatives to the prosed rule which accomplish the stated objectives of applicable statutes and which minimize any significant economic impact of the proposed rule on small entities. Consistent with the stated objectives of applicable statutes, the analysis shall discuss significant alternatives such as--
(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities;
(2) the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities;
(3) the use of performance rather than design standards; and
(4) an exemption from coverage of the rule, or any part thereof, for such small entities.

NMFS Guidance on RFA

NMFS has provided guidance as to how the regulatory flexibility analysis relates to other analyses and other applicable law. (source: "Operational Guidelines, Fishery Management Plan Process" National Marine Fisheries Service, Silver Spring MD, March 1, 1995, Appendix I.2.d.)

> "The RFA requires that the agency identify and consider alternatives that minimize the impacts of a regulation on small entities, but it does not require that the agency select the alternative with the least net cost. Section 606 of the RFA clearly states that the requirements of a regulatory flexibility analysis do not alter standards otherwise applicable by law. Executive Order 12866 requires that agencies provide an assessment of the potential costs and benefits of a "significant" action, including an explanation of the manner in which the regulatory action is consistent with a statutory mandate and, to the extent permitted by law, promotes the President's priorities and avoids undue interference with State, local, and tribal governments in the exercise of their governmental function (section 6(a)(3)(B)(ii)). However, the Executive Order also requires agencies to adhere to the requirements of the RFA and other applicable law (section 6(a)(3)). In short, when either the regulatory flexibility analysis or the RIR conflict with a statutory mandate (e.g., the Magnuson Act), the resulting decision must conform to the statute."

PLAN AMENDMENT TO ADDRESS BYCATCH AND MANAGEMENT MEASURE ISSUES

Situation: Proposed *Amendment 13 to the Pacific Coast Groundfish Fishery Management Plan* is intended to accomplish three primary objectives: (1) bring the FMP into conformance with the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) bycatch provisions; (2) authorize the Council to continue using the types of management measures implemented in the emergency rule; and (3) clean up outdated provisions relating to limited entry permits. At the March 2000 meeting, the Council received a progress report and briefly reviewed the initial draft of the proposed amendment. At this meeting, the Council has scheduled a more in-depth review, and if appropriate, will release the amendment package for public review and comment. The amendment will be distributed at the Council meeting as Supplemental Attachment B.13.a. Final action on the amendment is scheduled for the June meeting.

The Magnuson-Stevens Act requires every FMP "establish a standardized reporting methodology to assess the amount of bycatch occurring in the fishery, and include conservation and management measures that, to the extent practicable and in the following priority, minimize bycatch and minimize the mortality of bycatch which cannot be avoided." The Council submitted Amendment 11 to the groundfish FMP to bring the FMP into conformance, but in March 1999, the National Marine Fisheries Service (NMFS) disapproved the bycatch provisions of the FMP amendment. NMFS suggests the amendment package should (1) fully analyze the bycatch implications of the FMP's management measures; (2) describe the Council's past efforts and planned future efforts to reduce bycatch and to establish a standardized reporting methodology to assess the amount and type of bycatch occurring in the groundfish fishery; (3) analyze existing and possible future efforts to reduce bycatch in the groundfish fisheries; (4) discuss how bycatch is reduced to the maximum extent practicable under current management measures; (5) evaluate standardized reporting methodologies that might be used to assess bycatch rates in the groundfish fishery; and (6) analyze all practicable alternatives to the current year-round trip limit management system that could be expected to result in a reduction of bycatch rates.

In addition to the bycatch provisions, the amendment will address the provisions of the emergency rule the Council recommended at its November 1999 meeting. In order to immediately implement rebuilding measures for the five overfished species, the Council had to develop management measures that were consistent with the FMP, but outside the scope of the current regulatory authority. In order to make the necessary changes, NMFS used its emergency authority and incorporated the emergency regulatory changes into the 2000 annual specifications and management measures; however, those emergency regulations are only effective for six months. Emergency regulations may be renewed for a second six-month period, but only if the Council begins the necessary FMP and/or regulatory amendment to resolve the issues for the long term. We need to build flexibility into the FMP and regulations to manage both overfished and healthy groundfish stocks in 2001 and beyond. Part of this is revising the FMP language concerning routine management measures, so the Council may meet some of the overfishing and bycatch requirements of its FMP during the annual specifications and management measures process.

This amendment would also update the FMP to remove provisions for limited entry permits with provisional "A", "B", and "designated species B" endorsements. These gear endorsements were used to smooth the transition from an open access system to the limited entry program, but all current limited entry permit holders now have "A" endorsements, and the three lesser endorsements have either expired or are no longer useful. Removing these gear endorsements from the FMP's limited entry provisions would be a "housekeeping" measure.

Council Action:

1. Release draft for public review or provide comments to drafters.

Reference Materials:

1. Draft bycatch amendment package (Supplemental Attachment B.13.a.).

PFMC
03/20/00

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON
PLAN AMENDMENT TO ADDRESS BYCATCH AND MANAGEMENT MEASURE ISSUES -
REVIEW FIRST DRAFT

The Groundfish Advisory Subpanel (GAP) reviewed the draft environmental assessment for *Amendment 13 to the Pacific Coast Groundfish Fishery Management Plan* and offers the following comments:

- Issue 1 - Definition of Bycatch
  The GAP supports Alternative 1 (status quo).

- Issue 2 - Standardized Reporting Methodologies
  The GAP supports Alternative 3, but believes it should be expanded to allow the Council to make use of future new technologies and techniques that might be appropriate.

- Issue 3 - Bycatch Reduction
  The GAP supports Alternative 4, but believes it should be expanded to include appropriately monitored landing of trip limit overages, a proposal strongly supported by the GAP on several previous occasions.

- Issue 4 - Management Measures Frameworking
  The GAP supports Alternative 3, because it provides the greatest flexibility to the Council while allowing for greater public participation.

- Issue 5 - Housekeeping Measures
  The GAP supports Alternative 2.

PFMC
04/05/00

SCIENTIFIC AND STATISTICAL COMMITTEE STATEMENT ON PLAN AMENDMENT TO ADDRESS BYCATCH AND MANAGEMENT MEASURE ISSUES - REVIEW FIRST DRAFT

Ms. Yvonne de Reynier presented a review of highlights of the draft amendment 13 to the groundfish fishery management plan (FMP).

There is little scientific confirmation of the effectiveness of current measures which have been implemented to reduce bycatch. In the future, bycatch reduction provisions should be accompanied by appropriate monitoring activities to determine their effectiveness. The alternatives chosen under issue 3 (Bycatch Reduction Provisions) should reference which reporting methodologies under issue 2 (Standardized Reporting Methodologies) would be appropriate.

The Scientific and Statistical Committee questioned the potential efficacy of certain alternatives listed in the draft FMP amendment. Specifically, Alternative 2 under issue 2, a stand-alone mandatory logbook program, is unlikely to be an acceptable reporting methodology, because it would not provide verifiable estimates of bycatch. Alternatives 3 and 4 include provisions for verifying bycatch through onboard observation. Under issue 3, it is unclear how alternative 2 would provide adequate bycatch reduction, because it relies on a groundfish strategic plan which has not yet been completed.

PFMC
04/05/00

DRAFT ENVIRONMENTAL ASSESSMENT AMENDMENT 13

PACIFIC COAST GROUNDFISH FISHERY MANAGEMENT PLAN

Draft Environmental Assessment for Compliance with Magnuson-Stevens Act Bycatch Requirements, for amending the FMP to incorporate management provisions implemented on an emergency basis for 2000 and to implement overfished species rebuilding plans, and to remove designated species "B" permits and others.

Prepared by
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northwest Region

Drafted March 2000

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Draft Environmental Assessment for Compliance with Magnuson-Stevens Act Bycatch Requirements, for amending the FMP to incorporate management provisions implemented on an emergency basis for 2000 and to implement overfished species rebuilding plans, and to remove designated species "B" permits and others.

1.0 INTRODUCTION -- PURPOSE AND NEED FOR ACTION

On October 11, 1996, the Sustainable Fisheries Act went into effect, significantly amending the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). Following the passage of the Sustainable Fisheries Act, fishery management councils were required to amend their fishery management plans to comply with the 1996 changes to the Magnuson-Stevens Act. Amendments to FMPs addressed several large areas of concern in fishery management: overfishing and the rebuilding of overfished stocks; bycatch and bycatch mortality; essential fish habitat, and; the effects of fishery management actions on fishing communities.

The Pacific Fishery Management Council (Council) amended its Pacific Coast Groundfish Fishery Management Plan (FMP) with Amendment 11 to bring the FMP into compliance with the Magnuson-Stevens Act. Amendment 11 included provisions to: amend the FMP framework that defines "optimum yield" for setting annual groundfish harvest limits; define rates of "overfishing" and levels at which managed stocks are considered "overfished;" define Pacific Coast groundfish essential fish habitat; set a bycatch management objective and a framework for bycatch reduction measures; establish a management objective to take the importance of fisheries to fishing communities into account when setting groundfish management measures; provide authority within the FMP for the Council to require groundfish use permits for all groundfish users; authorize the use of fish for compensation for private vessels conducting NMFS-approved research, and; other, lesser updates to the FMP. Once the Council had adopted Amendment 11, NMFS made the amendment and its implementing regulations available for public review and comment. Following the public review period for Amendment 11, NMFS approved all of the FMP amendment except for those provisions addressing bycatch. The bycatch provisions of Amendment 11 were sent back to the Council for new development and more thorough analysis. This draft amendment would bring the FMP into compliance with the bycatch-related requirements of the Magnuson-Stevens Act, as well as analysis supporting the proposed changes and discussing alternatives to those changes.

When, on March 3, 1999, NMFS notified the Council that it had approved most of Amendment 11 to the FMP, it also notified the Council that three species (lingcod, bocaccio, and Pacific ocean perch (POP)) managed under the FMP were considered overfished, in accordance with the definition of an overfished species given in Amendment 11. The Council was then required to provide rebuilding plans for the three overfished species within one year of that notification, in accordance with the Magnuson-Stevens Act. The Council developed draft rebuilding plans for lingcod, bocaccio, and POP, during its September and November 1999 meetings, and adopted rebuilding plans for all three species at its November meeting. Measures necessary to implement the Council-adopted rebuilding plans were incorporated into the 2000 annual specifications and management measures for Pacific Coast groundfish. Council staff submitted finalized rebuilding plans to NMFS on March 2, 2000. An FMP amendment to provide a framework process for developing future rebuilding plans is expected to be finalized by the Council at its April 2000 meeting.

In January 2000, NMFS notified the Council that two additional species, canary rockfish and cowcod, were also considered overfished. While protective measures for these two species were incorporated into the 2000 management measures (January 4, 2000, 65 FR 221,) the formal rebuilding plans will be developed over the coming year and completed for the 2001 annual specifications.

To incorporate effective rebuilding measures for the five overfished species into the 2000 annual specifications and management measures, the Council had to create management measures that were consistent with, but outside of the scope of the FMP. Therefore, the Council asked NMFS to make emergency regulatory changes concurrent with the publication of the 2000 annual specifications, so that the rebuilding measures could begin in the 2000 fishing season. NMFS incorporated the emergency

regulatory changes into the 2000 annual specifications and management measures; however, those emergency regulations are only effective for six months. Emergency regulations can be renewed for a second six-month period, but the long-term flexibility needed to manage both overfished and healthy groundfish stocks in 2001 and beyond need to be included in the FMP. This draft amendment could also broaden the scope of the FMP's framework management measures so that the Council may be better equipped to meet some of the overfishing and bycatch requirements of its FMP during the annual specifications and management measures process.

In addition to proposing amendatory language to make the FMP consistent with Magnuson-Stevens Act bycatch provisions, and updating the framework language of the FMP to allow more flexibility in meeting rebuilding goals for overfished stocks, this document proposes updating the FMP to remove provisions for limited entry permits with provisional "A" endorsements, "B" endorsements, and designated species "B" endorsements. These endorsements were used to smooth the transition from an open access system to the limited entry program, but all current limited entry permit holders now have "A" endorsements and the three lesser endorsements have either expired or are no longer useful. Removing these endorsements from the FMP's limited entry provisions is essentially a "housekeeping" measure.

2.0 ALTERNATIVES

2.1 Issue 1 -- Definition of the term "bycatch" in the FMP

Alternative 1 (status quo - no action). The FMP defines "bycatch" as follows: "Bycatch means fish which are harvested in a fishery, but which are not sold or kept for personal use and includes economic discards and regulatory discards."

Alternative 2 (Magnuson-Stevens Act definition). The Magnuson-Stevens Act defines "bycatch" as follows: "The term 'bycatch' means fish which are harvested in a fishery, but which are not sold or kept for personal use, and includes economic discards and regulatory discards. Such term does not include fish released alive under a recreational catch and release fishery management program."

2.2 Issue 2 -- Standardized Reporting Methodologies

Alternative 1 (status quo - no action). Under this alternative, the current standardized reporting methodologies would remain in place: a voluntary observer program and a voluntary logbook in the at-sea whiting fisheries; incidental groundfish landings reported in a marine mammal directed observer program for the California halibut setnet fishery, and; minimal dockside observer coverage in the at-sea whiting fishery, as associated with EFPs. The regulatory framework approved by the Council to require at least one observer per vessel in the at-sea whiting fishery would still be implemented for future whiting seasons.

Alternative 2 (Mandatory logbook reporting of discarded catch). Under this alternative, the Council would either: (a) ask the three states (Washington, Oregon, California) to revise their logbooks to allow for reporting of total catch, instead of just retained catch, or (b) bring logbooks under federal authority, with required bycatch and discard reporting.

Alternative 3 (Implement observer program as soon as funding becomes available). Under this alternative, the Council would endorse a provision for a regulatory framework for a catcher vessel observer program in the groundfish fisheries (4/00, agenda item G.12.) Implementation of an observer program under this alternative would require federal and/or state funding to pay observer costs, while program and infrastructure costs would be borne by NMFS. As supplements to this program, the following options would also be available:

- Electronic/paper logbooks with bycatch reporting
- Catch monitoring by camera

- VMS monitoring

Alternative 4 (Implement observer program, with requirement that vessels pay for observers). Similar to Alternative 3, the Council would endorse a provision for a regulatory framework for a catcher vessel observer program in the groundfish fisheries (4/00, agenda item G.12.) However, under this alternative, vessels would pay observer costs, while program and infrastructure costs would be borne by NMFS. As supplements to this program, the following options would also be available:

- Electronic/paper logbooks with bycatch reporting
- Catch monitoring by camera
- VMS monitoring

2.3 Issue 3 -- Bycatch Reduction Provisions

Alternative 1 (status quo - no action). Under this alternative, the Council would neither amend the FMP, nor take any actions to reduce bycatch rates in the groundfish fisheries. In all likelihood, excess capacity in the groundfish fishery would continue to increase and consequent bycatch rates would also rise.

Alternative 2 (framework bycatch reduction goals). Under this alternative, the Council would amend the FMP to indicate its intent to deal with overfishing and overcapacity issues through its strategic plan, and when taking measures to deal with those issues, choose management options likely to reduce bycatch. As an overall goal, the Council would craft measures designed to achieve the rebuilding plans, reduce bycatch, prevent overfishing, allow harvest of healthy stocks as much as possible while protecting and rebuilding overfished and depleted stocks, and equitably distribute the burdens of rebuilding among the fishing sectors.

Alternative 3 (framework bycatch reduction goals, plus add full retention allowance for at-sea whiting fishery). This alternative would include all of Alternative 2, plus it would allow full retention of incidental catch in the at-sea whiting fleet for those processing vessels that carry more than one observer.

Alternative 4 (implement currently practicable changes to management measures). This alternative could include all of either Alternative 2 or 3, plus it would require implementation of management measure changes to reduce bycatch in the shore-based groundfish fisheries. Management measures that are not now practicable are described below at 4.3b. The list of management measures that could be implemented reasonably soon might include:

- Shorter fishing season and higher cumulative landings limits
- Allow permit stacking in the limited entry fleet
- Gear modification requirements
- Catch allocation to, or gear flexibility for, gear types with lower bycatch rates
- Re-examine/improve species-to-species landings limit ratios
- Time/area closures (closed "hot spots")

2.4 Issue 4 -- Annual Management Measures Framework Provisions

Alternative 1 (status quo - no action). Under this alternative, the current list of frameworked "routine" management measures would not change. The Council asked NMFS to use its emergency management authority to take management actions outside of the current routine framework for 2000. Emergency measures are viable for six months, and may be renewed for the second half of 2000. However, emergency regulatory measures may not be renewed more than once, which would mean that, for 2001 and beyond, the status quo option would leave the Council with only the frameworked routine management measures that were available for the 1999 fishery.

Alternative 2 (amend federal groundfish regulations and the FMP to incorporate the emergency measures taken in 2000 as "routine" management measures -- listed at 6.2.1 in the FMP, and at §660.323(b) in the federal groundfish regulations.)

- List of frameworked "routine" management measures for the commercial fisheries would include: limited entry cumulative landings limits that may be different based on type of gear used, and closed seasons for lingcod and rockfish.

- List of frameworked "routine" management measures for the recreational fisheries would include: size limits for canary rockfish, bocaccio, cabezon, kelp greenling, sculpin; closures for rockfish and lingcod; boat limits for cowcod; a requirement to keep the skin on rockfish; a prohibition on filleting cabezon; and hook limits.

Alternative 3 (frameworking variation) Under this option, commercial and recreational management measures would become part of a framework for routine management measures.

- List of frameworked "routine" management measures for the commercial fisheries would include: limited entry cumulative landings limits that may be different based on type of gear used, and closed seasons for any groundfish species in cases where protection of an overfished or depleted stock is required.

- List of frameworked "routine" management measures for the recreational fisheries would model the more broad framework for open access fisheries, so that all recreational fisheries for groundfish could be managed with bag limits, size limits, time/area closures, boat limits, hook limits, and dressing requirements.

Further, this option would amend Section 6.2 of the FMP so that the first time any new measure were used (first time for a size limit, for limits on a particular species, first time for a closed season, etc.,) it could only be implemented during the two-meeting preseason process. Once adopted under an annual management measures cycle, the new measure could be adjusted as routine during the year. All routine management measures would contine to be established annually through the two-meeting preseason process, with adjustments to those measures allowable through the Council's meetings during the year.

** The purposes of either of the Alternatives 2 or 3 would include: achieving the rebuilding plans, reducing bycatch, preventing overfishing, allowing the harvest of healthy stocks as much as possible while protecting and rebuilding overfished and depleted stocks, and equitably distributing the burdens of rebuilding among the sectors.

2.5 Issue 5 -- Removing Limited Entry Permit Gear Endorsements Other than "A" Endorsement (Housekeeping Measure)

Alternative 1 (status quo - no action). The FMP provides for four different gear endorsements, the "A" endorsement, the provisional "A" endorsement, the "B" endorsement, and the designated species "B" endorsement. Of those, only the "A" endorsement is currently in use.

Alternative 2 (remove all of the limited entry permit endorsements other than the "A" endorsement from FMP). Under this alternative, the three unused gear endorsements (provisional "A," "B," and designated species "B") would be removed from the FMP.

Alternative 3 (remove "B" and designated species "B" endorsements, update provisional "A" endorsement.) Under this alternative, the provisional "A" endorsement would be updated so that it is only available in the future to vessels that used gear during the window period that is now prohibited by

either a state or the federal government and with that gear, made sufficient landings to meet the minimum landing requirements for legal gears.

** None of the above alternatives would preclude the design of future gear or other permit endorsements, or of other access limitation programs.

3.0 AFFECTED ENVIRONMENT

3.1 Physical and Biological Characteristics of the Pacific Coast Groundfish Environment

The Pacific Coast Groundfish FMP manages 82 species over a large and ecologically diverse area, from the U.S.-Canada border to the U.S.-Mexico border, and extending westward from the coast out to the 200 nautical mile limit of the Exclusive Economic Zone (EEZ). Marine habitat for Pacific coast groundfish includes estuaries, rocky sub-surface pinnacles, sandy plains of the continental shelf, deep ocean canyons, and other habitat types. A thorough description of the habitat used by Pacific coast groundfish is provided in the 1998 Essential Fish Habitat appendix to the FMP (available on-line at http://www.nwr.noaa.gov/1sustfsh/efhappendix/page1.html.)

In the FMP, the 82 managed species are divided as follows: sharks (3 spp.), skates (3 spp.), ratfish (1 sp.), morids (1 sp.), grenadiers (1 sp.), roundfish (6 spp.), rockfish (55 spp.), and flatfish (12 spp.) Of these, fewer than 20 species have ever had comprehensive stock assessments. Each year, assessments are conducted on 5-10 species, typically as part of a three-year rotation. Most of the available information about life histories and distribution of groundfish species is included or referenced in the 1998 Essential Fish Habitat appendix.

Stock assessments for Pacific Coast groundfish are conducted by staff scientists of the California Department of Fish and Game (CDFG), Oregon Department of Fish and Wildlife (ODFW), Washington Department of Fish and Wildlife (WDFW), Oregon State University (OSU), and the Southwest, Northwest, and Alaska Fisheries Science Centers of NMFS. These stock assessments are published annually as appendices to the Council's Stock Assessment and Fishery Evaluation (SAFE) document.

An Acceptable Biological Catch (ABC) is established for every stock (a species or species group) where enough information is available. However, numerical Optimum Yields (OYs) are not established for every stock, especially where harvest has been less than ABC. Species and species groups with OYs include lingcod, Pacific whiting, sablefish, POP, shortbelly rockfish, shortspine thornyhead, longspine thornyhead, widow rockfish, chilipepper rockfish, splitnose rockfish, the minor rockfish complexes (northern and southern for nearshore, continental shelf, and continental slope species,) bocaccio, canary rockfish, yellowtail rockfish, and Dover sole.

Eight species are believed to be above their precautionary thresholds of stock size at least 40% of its unfished biomass level: Dover sole (increasing abundance trend), English sole (trend unknown), Petrale sole (trend unknown), shortbelly rockfish (trend unknown), longspine thornyhead (declining), black rockfish (declining), chilipepper rockfish (declining if recent recruitment is low), and blackgill rockfish (declining).

Species near target biomass levels include Pacific whiting, yellowtail rockfish (39% of unfished level,) and sablefish (37%). There are seven species below their target biomass levels: widow rockfish (29%), shortspine thornyhead (32%), canary rockfish (7% in the south and 20% in the north), cowcod (less than 10%), bocaccio (about 2%), POP (13%), and lingcod (8.8%). Darkblotched rockfish is also thought to be below the target biomass level. Of these, POP, bocaccio, lingcod, canary rockfish, and cowcod have been declared overfished. The relative abundance and trends of Pacific cod, other flatfish, other rockfish, and other species categories are unknown; relative abundance of arrowtooth flounder is unknown but believed to be declining.

More detailed information on the stock status of each of these species is available in the stock assessments associated with the annual SAFE document process, as well as in the Environmental Assessment and Regulatory Impact Review for the 2000 groundfish ABC and OY specifications and implementing management measures for the Pacific coast groundfish fishery, which are available from the Council staff. Rebuilding plans for the three species that were designated as overfished in March 1999 (POP, bocaccio, lingcod) are also available from the Council staff.

3.2 Characteristics of the Groundfish Industry and Fishery

Commercial Fishery

The Pacific coast groundfish fishery is a year-round, multi-species fishery that takes place off the coasts of Washington, Oregon, and California. Most of the Pacific coast non-tribal, commercial groundfish harvest is taken by the limited entry fleet. The groundfish limited entry program was established in 1994 for trawl, longline, and trap (or pot) gears. There are also several open access fisheries that take groundfish incidentally or in small amounts; participants in those fisheries may use, but are not limited to longline, vertical hook-and-line, pot, setnet, trammel net, shrimp and prawn trawl, California halibut trawl, and sea cucumber trawl. In addition to these non-tribal commercial fisheries, members of the Makah, Quileute, Hoh, and Quinault tribes participate in commercial, and ceremonial and subsistence fisheries for groundfish off the Washington coast. Participants in the tribal commercial fishery use similar gear to non-tribal fishers who operate off Washington, and groundfish caught in the tribal commercial fishery is sold through the same markets as non-tribal commercial groundfish catch.

One of the primary goals of the Pacific coast groundfish FMP is to keep the fishery open throughout the entire year for most segments of the fishery (See FMP goals and objectives at section 2.0). Harvest rates in the limited entry fishery are constrained by annual harvest guidelines, two-month or one-month cumulative period landings limits, individual trip limits, size limits, species-to-species ratio restrictions, and other measures, all designed to control effort so that the allowable catch is taken at a slow rate that will stretch the season out to a full year. Cumulative period catch limits are set by comparing current or previous landings rates with the year's total available catch. Landing limits have been used to slow the pace of the fishery and stretch the fishing season out over as many months as possible, so that the overall harvest target is not reached until the end of the year. Open access fisheries that land groundfish are more commonly targeting on non-groundfish species with some incidental groundfish landings, although there is a significant open access hook-and-line fleet that targets and lands groundfish.

There are about 500 vessels with Pacific coast groundfish limited entry permits, of which approximately 55% are trawl vessels, 40% are longline vessels, and 5% are trap vessels. Each permit is endorsed for a particular gear type and that gear endorsement cannot be changed, so the distribution of permits between gear types is fairly stable. The number of total permits will only change if multiple permits are combined to create a new permit with a longer length endorsement, or if a permit is not renewed. Limited entry permits can be sold and leased out by their owners, so the distribution of permits between the three states often shifts. At the beginning of 2000, roughly 39% of the limited entry permits were assigned to vessels making landings in California, 37% to vessels making landings in Oregon, and 23% to vessels making landings in Washington.

Because open access groundfish landings vary according to which non-groundfish fisheries are landing groundfish as bycatch, the number of open access boats that land groundfish accordingly varies with the changes in those non-groundfish fisheries. In recent years, however, there have been approximately 1,500 vessels per year that have been making small groundfish landings against open access allocations. Of these vessels, about 1,000 land their catch in California, about 400 land their catch in Oregon, and about 100 land their catch in Washington.

Limited entry fishers who use bottom trawl, longline, and pot gears target on many different species, with the largest landings by volume (other than Pacific whiting) from these species: Dover sole, sablefish,

thornyheads, widow rockfish, and yellowtail rockfish. There are 55 rockfish species managed by the Pacific coast groundfish FMP and, taken as a whole, rockfish landings represent the highest volume of non-whiting landings in the Pacific coast commercial groundfish fishery.

In addition to these mixed-species fisheries, there is a distinct mid-water trawl fishery that targets Pacific whiting (*Merluccius productus*). Pacific whiting landings are significantly higher in volume than any other Pacific coast groundfish species. In 1998, whiting accounted for approximately 66% of all Pacific coast commercial groundfish shoreside landings by weight. The Pacific whiting fleet includes catcher boats that deliver to shore-based processing plants and to at-sea processor ships, as well as catcher-processor ships. Whiting is a high volume species, but it commands a relatively low price per pound, so it accounts for only about 9% of all Pacific coast commercial groundfish shoreside landings by value. [For more specific information on distribution of groundfish catch by volume and by value see 1999 SAFE.]

With the exception of the portion of Pacific whiting catch that is processed at sea, all other Pacific coast groundfish catch is processed in shore-based processing plants along the Pacific coast. By weight, 1998 commercial groundfish landings were distributed among the three states as follows: Washington, 13%; Oregon, 69%; California, 18%. By value, commercial groundfish landings are distributed among the three states as follows: Washington, 15%; Oregon, 43%; California, 41%. The discrepancies between the Oregon and California portions of the landings are expected because Oregon processors handle a relatively high percent of the shore-based whiting landings, a high volume, low value fishery. Conversely, California fishers land more of the low volume, high value species as a proportion of the total state-wide catch than Oregon fishers.

Catcher vessel owners and captains employ a variety of strategies to fill out a year of fishing. Fishers from the northern ports may fish in waters off of Alaska, as well as in the West Coast groundfish fishery. Others may change their operations throughout the year, targeting on salmon, shrimp, crab, or albacore, in addition to various high-value groundfish species, so as to spend more time in waters close to their communities. Factory trawlers and motherships fishing for or processing Pacific whiting off of the West Coast usually also participate in the Alaska pollock seasons, allowing the vessels and crews to spend a greater percentage of the year at work on the ocean. Commercial fisheries landings for species other than groundfish vary along the length of the coast. Dungeness crab landings are particularly high in Washington state, squid, anchovies, and other coastal pelagics figure heavily in California commercial landings, with salmon, shrimp, and highly migratory species like albacore more widely distributed, and varying from year to year.

Whiting has been processed into surimi, sold in headed and gutted form, filleted, and converted to meal and oil. Other, higher quality fish like Petrale sole are dressed and rushed to fresh, local markets as quickly as possible, while most sablefish is frozen and sent to foreign markets. The quantity of groundfish caught off of the West Coast is just a small percent of the amount of groundfish caught in federal waters off Alaska, so West Coast groundfish moves through many of the same markets as Alaska groundfish, taking prices set by the northern fleet.

Recreational Fishery

All three states and NMFS collect data on marine recreational fisheries for groundfish, but information from those four sources has not yet been calibrated into a unified database that will allow accurate comparison of recreational landings and fishery participation levels. The available information provides some characterization of the recreational groundfish fishery off the Pacific Coast. NMFS data collection on Pacific Coast marine recreational fishing surveys four separate modes of marine recreational fishing: (1) fishing from piers, docks, and jetties; (2) fishing from beaches and banks; (3) fishing from party and charter boats; and (4) fishing from private and rental boats. According to NMFS data from 1998, California recreational groundfish catch is moderately higher than in Oregon, and Washington recreational groundfish catch is significantly lower than in either of the other two states. Rockfish are caught in higher numbers than any other type of fish, with the strongest catch levels in nearshore

species such as black rockfish and blue rockfish. Marine recreational fisheries also have relatively strong landings of lingcod and cabezon. Recreational fishing is generally managed by the states, although federal regulations are implemented for lingcod and rockfish, including species-specific bag limits, boat limits, and size limits.

3.3 Background on Pacific Coast Groundfish Fishery Management to Account for and Minimize Bycatch (Issue 3)

When the FMP went into effect in 1982, winter weather was the only obstacle to a year-round groundfish fishery, and the FMP set the fishing year at January 1 through December 31. One of the original objectives of the FMP was to, "Provide a favorable climate for existing domestic commercial and recreational groundfish fisheries within the limitations of other objectives and guidelines. When change is necessary, institute the regulation which accomplishes the change while minimizing disruption of current domestic fishing practices, marketing procedures and environment." This objective of "minimizing disruption of current domestic fishing practices" has remained a management objective through various iterations of the FMP, and has been combined with current objectives to ". . . promote year round availability of quality seafood to the consumer," and ". . . promote year round marketing opportunities and establish management policies that extend those sectors (for which year round marketing is beneficial) fishing and marketing opportunities as long as practicable during the fishing year". Taken together, these objectives have resulted in the Council's enduring policy of year-round trip limit management for most groundfish fisheries.

Active groundfish management essentially began in 1983, when the Council introduced the first numerical OYs for several managed species, and trip limits for widow rockfish, the *Sebastes* complex, and sablefish. The first landings limits the Council used were "per trip" limits, which were intended to slow landings somewhat so that the fleet would not achieve species' annual harvest guidelines early in the year. Almost all domestic discards in the early years of groundfish management were market-induced discards, where fishers were throwing away unmarketable species or unmarketable sizes of targeted species. Domestic fisheries management did not account for these discards; targets for landed catch were set equal to ABC. For the foreign and joint venture fisheries, the Council set incidental catch allowances for non-target species.

Incidental catch allowances for foreign and joint venture fisheries, as percentages of target species harvested, through 1993					
Sablefish	POP	rockfish excluding POP	flatfish	jack mackerel	other
0.173%	0.062%	0.738%	0.1%	3.0%	0.5%

Over time, foreign and joint venture fisheries dwindled, and the Council introduced trip limits for a greater number of species taken in the domestic fisheries. Effort increased in the domestic fishery, and trip limits became more restrictive to control harvest rates. The Council realized that managing a variety of species under trip limits could lead to increased rates of discards for some species. Bycatch and discards can result from a regime of multiple trip limits because a fisher might target gear on a complex of species, and then find that in order to catch the full limit on one species, he has to exceed the limit on other species, and then discard that excess. To address this issue, the Council shifted away from per trip limits for most species and towards monthly cumulative limits. Cumulative limits were preferable to per trip limits because a fisher could accumulate species at different rates over different trips, without having to discard fish each trip because of exceeding per trip limits. Once the Council had seen that monthly landings limits would continue to allow a year-round fishery, it introduced two-month cumulative limits to again decrease the likelihood that fishermen would have to discard overages of particular species within a multi-species complex fishery.

In addition to these efforts to craft the cumulative landings limit regime to reduce discards, the Council used several regulatory measures to reduce bycatch of juvenile fish that would be discarded as unmarketable, and to reduce bycatch of protected salmon species. In the early 1990s, the Council experimented with different combinations of gear regulations, first requiring larger trawl mesh sizes in

net codends, and then moving to requirements for larger mesh sizes throughout trawl nets. By 1995, bottom trawl nets were required to have a minimum of 4.5 inch mesh, double-walled (lined) codends were prohibited, and the use of chafing gear was restricted. All of these measures were intended to give smaller-size fish the opportunity to escape from the trawl net, reducing the likelihood that those fish would be caught and then discarded unused.

Beyond measures to protect small and juvenile groundfish, the Council brought salmon and whiting fishers together to address salmon bycatch in the whiting fishery. Reducing bycatch of threatened and endangered salmon species was particularly important to the Council as it looked for ways to reduce at sea catch and interception of protected salmon stocks that could soften management restrictions for the directed salmon fisheries. In 1993, the Council established Klamath River and Columbia River salmon conservation zones and Eureka area trip limit restrictions to prohibit or reduce whiting fishing in areas of high salmon interception rates. The whiting fleets now also work to keep their chinook salmon interception below a voluntary threshold of 0.05 chinook salmon per metric ton of whiting.

At the same time that the Council was experimenting with more flexible cumulative landings limit regimes, gear restrictions, and closed areas to reduce bycatch, domestic fishing capacity in the groundfish fleet was growing and outstripping resource productivity. We now also know that stock assessment information in the 1980s and early 1990s was not adequate to draw a clear picture of west coast rockfish productivity. Harvest rates that had seemed reasonable given then-current scientific information are now proving to have been too aggressive for sustainable harvest on the very low productivity west coast rockfish stocks. The combination of increasing fishing capacity and decreasing OYs led to ever more restrictive cumulative landings limits. The Council's Groundfish Management Team (GMT) became concerned about the effects of a restrictive cumulative landings limit regime on rates of bycatch and discard, and announced in April 1990 its plans to begin to factor discards into setting Acceptable Biological Catches (ABCs) for the 1991 fishing year. In August 1990, the Council finalized Amendment 4 to the FMP, which introduced the practice of distinguishing between ABCs and harvest guidelines to, among other things, account for fishing mortality beyond landed catch numbers.

In 1991 and 1992, the Council's bycatch accounting policies took shape. For 1991, the Council recommended ABCs that accounted for discards for sablefish, Dover sole, and widow rockfish. The widow rockfish coastwide ABC of 7,000 mt was set equal to the landed catch OY, but in setting the ABC, 1,000-1,200 mt discard was assumed above the 7,000 mt landed catch. The sablefish coastwide ABC was reduced by 12.7% to account for discards, and the OY was set equal to landed catch. Although Dover sole was managed under a coastwide ABC in 1991, only the contributing ABCs for the Eureka and Columbia areas were reduced for discards, with Eureka's ABC reduced by 5.7% and Columbia's ABC reduced by 13%.

In 1992, the Council expanded its list of species with ABCs set to account for discard to include yellowtail rockfish. Widow rockfish again had a coastwide ABC/landed catch of 7,000 mt, with a 1,000-1,200 mt discard assumed above the ABC (14-17%). Similarly, the 1991 sablefish landed catch was the same amount that it had been in 1991 (8,900 mt), with no change to the 12.7% reduction for discards. Dover sole in the Eureka area was reassessed in 1991, resulting in a change in the Eureka area ABC, and a change in the discard reduction for Eureka area Dover sole from 5.7% in 1991 to 9.6% in 1992. Dover sole ABCs for other statistical areas were unchanged. Yellowtail rockfish discards were assumed to be 16% of the ABC, and were factored inseason, as the fisheries progressed. The assumption that yellowtail rockfish was discarded at a rate of 16% of the ABC was based on a 1988 study (Pikitch, et al, "An evaluation of the effectiveness of trip limits as a management tool,") which had estimated the widow rockfish discard rate at 16%.

Discard rates for the years 1993-2000 are described in a table, below. In addition to the discard reductions described in the table, discarded bycatch in the at-sea Pacific whiting fishery is measured by observers and is counted towards the harvest guidelines of the incidentally-caught species inseason. Inseason accounting for groundfish discards in the whiting fishery began in 1994.

	2000	1999	1998	1997	1996	1995	1994	1993
Widow rockfish	300 mt subtracted from LE allocation for bycatch in whiting fishery, then 16% subtracted from what remains	16% of LE allocation	16% of total catch HG	16% of ABC	16% of ABC	16% of ABC	Discards factored into setting ABC, ABC=landed catch	Discards factored into setting ABC, ABC=landed catch
Yellowtail rockfish	600 mt subtracted from LE allocation for bycatch in whiting fishery, then 16% subtracted from what remains	600 mt subtracted from LE allocation for bycatch in whiting fishery, then 16% subtracted from what remains	16% of total catch HG	16% factored inseason	16% of ABC from north of Cape Lookout	HG = TC, discards factored inseason, 16% assumed	HG = TC, discards factored inseason, 16% assumed	HG = TC, discards factored inseason, 16% assumed
Canary rockfish	**Entire ABC/ OY lowered to rebuild depleted stock.**	16% of LE allocation	16% of total catch HG	220 mt subtracted from Van/Col ABC (~18%)	150 mt subtracted from Van/Col ABC (~15%)	150 mt subtracted from Van/Col ABC (~15%)	HG = TC, discards factored inseason, 16% assumed	N/A
Bocaccio rockfish	**Entire ABC/ OY lowered to rebuild overfished stock.**	N/A -- After 1994, the policy of assuming discards of bocaccio was discontinued.					Discards factored into setting ABC, ABC=landed catch, 16% assumed	Discards factored into setting ABC, ABC=landed catch, 16% assumed
Pacific ocean perch	16% of total catch OY	16% of total catch OY	ABC = 0, LC=TC-16% LC=650 mt	ABC = 0, LC=TC-16% LC=750 mt	ABC = 0, LC=TC-16% LC=750 mt	ABC = 0, LC=TC-16% LC=1300 mt	ABC = 0, LC=TC-16% LC=1300 mt	ABC = 0 LC = 1,550 mt, discards factored inseason
Splitnose rockfish	**Entire ABC/ OY lowered to account for less rigorous stock assessment.**	16% of total catch OY	N/A -- Before 1999, the splitnose rockfish ABC and HG/OY were included in the overall *Sebastes* ABC and HG/OY					

	2000	1999	1998	1997	1996	1995	1994	1993
Longspine thorny-heads	9% of OY	9% of total catch HG	9% of total catch HG	HG(LC) = ABC -1000 mt, to reduce SSTH bycatch	HG(LC) = ABC -1000 mt, to reduce SSTH bycatch	HG(LC) = ABC -1000 mt, to reduce SSTH bycatch	Both thornyhead spp. in one LC HG, 1994 HG derived by subtracting 8% from 1993 HG for discards	Both thornyhead spp. in one LC HG, expecting that SSTH landings will exceed ABC and that LSTH landings will fall short of ABC
Shortspine thorny-heads	30% of LE allocation	30% of LE allocation	30% of total catch HG	8% of total catch HG, but landed catch HG exceeded ABC by 38%	HG(LC) exceeds ABC by 50%, to allow greater harvest of LSTH	HG(LC) exceeds ABC by 50%, to allow greater harvest of LSTH		
Dover sole	5% of total catch OY	5% of total catch OY	5% of total catch HG	5% of total catch HG	5% of ABC	5% of Col. ABC	Discards factored into setting ABC, ABC=landed catch	Discards factored into setting ABC, ABC=landed catch
Sablefish	10% of ABC, north of 36°	10% of ABC, north of 36°	10% of ABC, north of 36°	10% of ABC, north of 36°	10% of ABC, north of 36°	10% of ABC, north of 36°	Discards factored into setting ABC, ABC=landed catch	Discards factored into setting ABC, ABC=landed catch
Lingcod	**Entire ABC/ OY lowered to rebuild overfished stock.**	19% of LE allocation	25% of assumed trawl catch, applied inseason	N/A -- Discard reduction not applied for lingcod before 1998				

In addition to measures taken to account for bycatch and discards in the setting of ABCs and OYs, annual management measures have incorporated a variety of strategies to reduce bycatch in the groundfish fishery. For trawl vessels, cumulative landings limits for the "DTS complex" have been based on catch ratios between the four species in the complex -- Dover sole, thornyheads (shortspine and longspine), and sablefish. Often, harvest of the more abundant species in the DTS complex (longspine thornyhead, Dover sole) is curtailed to prevent overharvest of the less abundant species (shortspine thornyhead.) Similar species complex management was used for *Sebastes* complex species prior to 2000, with some particular *Sebastes* species managed by harvest and trip limits within the overall *Sebastes* complex harvest and trip limits. As described above, the Council also set two-month cumulative landings limit periods for some species, which reduces the number of cumulative limit periods in the year as well as the number of opportunities for meeting and exceeding limits.

Management measures for 2000 include new and creative ways of particularly reducing the interception of overfished species. The Council has acknowledged that simply lowering the overall harvest limits of overfished and depleted species is not adequate to protect and rebuild those species. Landings of lingcod, are prohibited for the months of January through April and November through December. These closures are expected to incorporate the spawning and nesting period for lingcod. When lingcod are caught by hook-and-line methods, they can often be released alive. Complete prohibition of landings is a reasonable management measure for lingcod, because it discourages directed targeting and requires release of fish that may still be viable after having been caught.

Other overfished and depleted species are rockfish, which generally cannot be released alive, regardless of the method of catch. Thus, the Council's challenge with these species has been to reduce fisher incentives to target depleted species and to reduce opportunities where fishers might incidentally catch large amounts of depleted species, while still allowing small landings of these species when they are caught incidentally. Rockfish landings limits were set to minimize discards by distributing species cumulative landings limits at levels that encourage fishers to direct fishing effort on healthy species when those species are most concentrated, or when bycatch of other species is expected to be relatively low. In particular, cumulative landings limits are set to move fishing effort away from the continental shelf, which is the primary habitat of several of the overfished species. Rockfish cumulative landings limits have also been set higher in the summer months, when directed targeting on healthy stocks is less likely to result in incidental harvest of depleted and overfished stocks.

The 2000 management measures also introduce differential landings limits for limited entry trawlers operating with different trawl gear configurations (bottom trawling with footropes greater than 8 inches in diameter, bottom trawling with footropes smaller than 8 inches in diameter, and midwater or pelagic trawling.) Trawling with footropes that have roller gear or other devices designed to bounce over rough rockpiles tends to allow those vessels greater access to prime rockfish and lingcod habitat. Therefore, landings of shelf rockfish have been prohibited if large footrope trawls (roller gear) are used; small amounts of shelf rockfish bycatch are allowed to be landed if small footrope trawls are used, and; targeting healthy shelf rockfish stocks is encouraged only if midwater trawls are used. These gear requirements have not been tested for whether they will reduce directed and incidental harvest of overfished species. There are no discard records for historic fishing practices, and the current management regime has not been tested through scientific observation.

Finally, at the GMT's recommendation, the Council revised its historical practice of managing the *Sebastes* complex as simply northern and southern units. In recent years, rockfish species without assessments and those with less rigorous assessments were managed under generic *Sebastes* complex landings limits. The GMT had been concerned that this approach provided opportunity to harvest lower-abundance, higher-valued species at unsustainable rates. In response to these concerns, the Council separated the ABCs/OYs for chilipepper and splitnose rockfishes from the Southern *Sebastes* complex for the 1999 fishery. Conversely, concerns also developed that rebuilding plans for overfished species could result in unnecessarily severe restrictions for the entire complex than would be the case if sub-groups of these species could be developed. For 2000, the GMT developed species lists for three sub-groups of rockfish -- Nearshore, Shelf, and Slope--for the Northern (U.S. Vancouver, Columbia and Eureka subareas combined) and Southern (Monterey and Conception subareas

combined) areas. Organizing *Sebastes* species into groups based on the most common catch associations is expected to equalize the harvest rates for most rockfish stocks, and to reduce the likelihood of overharvesting both overfished and depleted species, and species for which there is relatively little stock assessment information.

All of the new measures taken in 2000, and measures taken in prior years to manage for multi-species interactions, illustrate that regulatory efforts to reduce bycatch tend to have multiple management goals -- from protecting overfished and depleted species, to preventing overharvest of species of unknown abundance, to acknowledging that vessels using different gear types require different harvest strategies, to matching within-year harvest rates to within-year abundance and congregation habits of managed species. For a multi-species fishery, the catching of species other than the particularly targeted species is not necessarily a problem. Discard of non-targeted species, whether for economic or regulatory reasons, is a problem, and one that the Council has worked to reduce in its ongoing efforts to address a wide range of management issues. There is, however, no scientific confirmation for the effectiveness of these management activities in meeting the Council's policy goals.

3.4 Background on Annual Management Measures Process and Changes for 2000 Fisheries (Issue 4)

The FMP specifies how changes to groundfish management policies and regulations are to be made in Section 6.0, "Management Measures." Policy-making processes are tiered, with some policy and regulatory changes requiring at least two Council meetings and a regulatory amendment, and other regulatory changes requiring discussion at just a single meeting followed by notification in the Federal Register. Major policy changes usually require FMP amendments, while the shortest rulemaking process is generally only available for inseason changes to cumulative landings limits. In between the two extremes of the FMP amendment and the single meeting and notice action, lies the full rulemaking and the abbreviated rulemaking process. The abbreviated rulemaking process allows the Council to take certain actions needing swift implementation by discussing those actions with the public and with their advisory entities over two Council meetings, with the results recommended for publication by NMFS in the Federal Register.

Each year at its September and November meetings, the Council uses the abbreviated rulemaking process to develop its recommendations for groundfish specifications and management measures. Once the Council has formalized its recommendations, NMFS evaluates and publishes the recommendations as the "annual specifications and management measures." These measures are published in a single Federal Register notice at the beginning of every January. Annual specifications provide ABCs, OYs, and harvest guidelines for managed species, and management measures are the specific landings limits, size limits, and time/area closures that are set in place for one calendar year. As the fishing year progresses, the Council tracks harvest rates for each sector of the fishery, and may recommend adjusting management measures to either allow more access to, or to restrict harvest of, a particular species or species group.

While a framework allows the Council to publish annual specifications and management measures through a two-meeting process and a single Federal Register notice, adding to the list of measures that are considered "routine" requires a longer process of consideration and development. Management measures are designated as routine in the federal groundfish regulations through the federal rulemaking process, which requires two or more Council meetings, and generally requires publication of proposed and final rules.

In the federal regulations, routine management measures are divided into those affecting the commercial fisheries (both limited entry and open access) and those affecting the recreational fisheries. For both commercial and recreational fisheries, routine management measures are intended to keep groundfish landings within annual harvest levels. In the commercial fisheries, trip landing and frequency limits may also be applied as routine management measures for the following reasons: to extend the fishing season; to minimize disruption of traditional fishing and marketing patterns; to reduce discards; to discourage target fishing while allowing small incidental catches to be landed; to allow small fisheries to

operate outside the normal season; and, for the open access fishery only, to keep landings at the historical proportions of the 1984-88 window period. Size limits may also be applied as routine management measures in the commercial fisheries, either to protect juvenile fish or to extend the fishing season.

Routine management measures for commercial fisheries include (by species and gear):

(A) Widow rockfish--all gear--trip landing and frequency limits.
(B) Sebastes complex--all gear--trip landing and frequency limits.
(C) Yellowtail rockfish--all gear--trip landing and frequency limits.
(D) Pacific ocean perch--all gear--trip landing and frequency limits.
(E) Sablefish--all gear--trip landing, frequency, and size limits.
(F) Dover sole--all gear--trip landing and frequency limits.
(G) Thornyheads (shortspine thornyheads or longspine thornyheads, separately or combined) --all gear--trip landing and frequency limits.
(H) Bocaccio--all gear--trip landing and frequency limits.
(I) Pacific whiting--all gear--trip landing and frequency limits.
(J) Lingcod--all gear--trip landing and frequency limits; size limits.
(K) Canary rockfish--all gear--trip landing and frequency limits.
(L) All groundfish, separately or in any combination--any legal open access gear (including non-groundfish trawl gear used to harvest pink shrimp, spot or ridgeback prawns, California halibut or sea cucumbers in accordance with the regulations in this subpart)--trip landing and frequency limits.

For the recreational fisheries, bag limits may be applied as routine management measures to spread the available catch over a large number of anglers, to avoid waste, or for consistency with state regulations. Size limits may also be applied as routine management measures in the recreational fisheries, either to protect juvenile fish, to enhance the quality of the recreational fishing experience, or for consistency with state regulations.

Routine management measures for recreational fisheries (by species and gear):

(A) Lingcod -- all gear -- bag and size limits.
(B) Rockfish -- all gear -- bag limits.

In September and November 1999, the Council faced the challenge of crafting the 2000 management measures to incorporate protective regulations for harvest activities affecting overfished and depleted fish stocks. While the Council does not usually need to work outside of the management measures already designated as "routine" in federal groundfish regulations, protecting overfished and depleted stocks spurred some creative thinking on the parts of the Council, its advisory entities, and the public. To protect overfished and depleted stocks, the Council recommended several measures for 2000 that were not part of the established list of "routine" management measures, and asked NMFS to use its emergency rulemaking authority to implement those recommendations. Because the new measures were in keeping with the goals and objectives of the FMP, NMFS agreed to the emergency use of these new measures for six months from the date of the publication of the Federal Register notice of 2000 specifications and management measures (January 4 through July 3, 2000.) Measures set in place under emergency authority for the commercial fisheries include limited entry cumulative landings limits that may be different based on type of gear used and closed seasons for lingcod and rockfish. Measures set in place under emergency authority for the recreational fisheries include: size limits for canary rockfish, bocaccio, cabezon, kelp greenling, sculpin; closures for rockfish and lingcod; boat limits for cowcod; a requirement to keep the skin on rockfish; and a prohibition on filleting cabezon; and hook limits. Regulatory measures implemented through emergency authority may be used for a single six-month period, and reauthorized for a second six-month period if it is understood that the Council will be working on an FMP or regulatory amendment to formalize the emergency measures during that time. Federal agencies may not indefinitely renew actions taken on an "emergency" basis.

In addition to the three species that have been designated as overfished, and for which the Council has prepared rebuilding plans (lingcod, POP, bocaccio,) NMFS has notified the Council that canary rockfish

and cowcod also meet the FMP definition of overfished species. Given the need to protect these five species, and the further possibility of other groundfish species being designated as overfished, the Council may wish to adjust the process to allow additional flexibility in the annual management measures process. If the list of routine management measures were so amended, the reasons for using those measures would include: for the purposes of achieving the rebuilding plans, reducing bycatch, preventing overfishing, allowing the harvest of healthy stocks as much as possible while protecting and rebuilding overfished and depleted stocks, and equitably distributing the burdens of rebuilding among the sectors.

4.0 Environmental Consequences of Proposed Action and Alternatives

4.1 Issue 1 -- Definition of the term "bycatch" in the FMP

Alternative 1 (status quo - no action). The FMP defines "bycatch" as follows: "Bycatch means fish which are harvested in a fishery, but which are not sold or kept for personal use and includes economic discards and regulatory discards."

Alternative 2 (Magnuson-Stevens Act definition). The Magnuson-Stevens Act defines "bycatch" as follows: "The term 'bycatch' means fish which are harvested in a fishery, but which are not sold or kept for personal use, and includes economic discards and regulatory discards. Such term does not include fish released alive under a recreational catch and release fishery management program."

DISCUSSION. When the Council first addressed the 1996 Sustainable Fisheries Act requirements, the Council recommended amending the FMP's definition of bycatch to read as follows: "Bycatch means fish which are harvested in a fishery, but which are not sold or kept for personal use *or donated to a charitable organization* and includes economic discards and regulatory discards." NMFS rejected this definition because it went beyond the scope of the Magnuson-Stevens definition of "bycatch" to include fish donated to a charitable organization.

The status quo FMP definition conforms with but does not exactly match the definition of "bycatch" in the Magnuson-Stevens Act, as it does not include the reference to a recreational catch and release fishery management program. It is however, reasonable for the Pacific Coast groundfish fishery because the FMP does not include a recreational catch and release fishery management program. Maintaining the status quo definition would keep the FMP in compliance with the Magnuson-Stevens Act without adding text that would be confusing in its reference to a program not used by the FMP.

The effects on the environment and on the fishing community of choosing either of these definitions for the FMP is the same. Only the status quo definition is relevant to Pacific coast groundfish fisheries, so the effect of choosing Alternative 2 would be neither greater nor lesser than the effect of retaining the status quo definition. It is interesting to note that the Magnuson-Stevens Act's definition of bycatch emphasizes *use* of harvested resources, which means that if particular species are caught in a fishery incidentally to the catch of target species, the incidentally caught species are only considered "bycatch" if they are not retained and used. With this emphasis, the Magnuson-Stevens Act must rely on proper catch and bycatch accounting to ensure that activities that follow out of the Act do not have a negative effect on the environment.

4.2 Issue 2 -- Standardized Reporting Methodologies for Catch and Bycatch Accounting

Alternative 1 (status quo - no action). Under this alternative, the current standardized reporting methodologies would remain in place: a voluntary observer program and a voluntary logbook in the at-sea whiting fisheries; incidental groundfish landings reported in a marine mammal directed observer program for the California halibut setnet fishery, and; minimal dockside observer coverage in the at-sea whiting fishery, as associated with EFPs. The regulatory framework approved by the Council to require at least one observer per vessel in the at-sea whiting fishery would still be implemented for future whiting seasons.

This alternative would have a positive effect on the environment affected by the at-sea whiting fisheries, but an otherwise negative effect on the environment, and could have a consequent negative effect on the fishing community. Under this alternative, observer coverage in the at-sea whiting fleet would still become mandatory and dockside observer coverage would continue. However, this alternative would not provide any bycatch or discard reporting for the non-whiting groundfish fleets. Because the whiting fleets have been under fairly consistent observation for several years, observer programs have measured catch and bycatch rates in these fisheries. Bycatch and discard rates in the non-whiting fleets are unknown, and the groundfish management would likely require continued extrapolation of discard data from the 1988 Pikitch study mentioned above in Section 3.3. Unmeasured discard mortality could have a profound effect on the health of managed fish stocks. If discard mortality is higher than what the Council extrapolates from the Pikitch study, then overall fishing mortality rates (catch mortality + discard mortality) will likely be at higher than sustainable levels. Continued, unseen overfishing will lead to stock declines, and may lead to stock collapses. When fish stocks are depleted, the fishing community suffers, because rebuilding depleted stocks requires the Council to lower directed harvest rates. Directed harvest rate reductions for 2000 were severe enough to warrant a Secretary of Commerce determination of a "commercial fishery failure due to a fishery resource disaster."

Under this alternative, the standardized reporting methodologies used in the whiting fisheries would include the following programs:

At-Sea Whiting Fishery Observer Program. Since 1991, the domestic at-sea whiting processors have voluntarily carried NMFS-trained observers to provide data for estimating total landed catch and discards; monitoring the attainment of annual groundfish allocations; estimating catch rates of prohibited species; and assessing stock conditions. Under this voluntary system, vessel owners work directly with an observer contracting company of their choice that is certified for federal fisheries off Alaska and enter into private negotiations for observer services. In 1999, each processing vessel voluntarily carried at least one NMFS-trained observer while participating in the whiting fishery. Observer data is used by NMFS and the industry for inseason catch monitoring, by scientists for stock assessments of whiting and other groundfish, and by the industry to monitor and avoid areas of high bycatch while fishing, particularly to avoid salmon stocks. This program provides observer monitoring of 43% of the whiting hauls delivered to mothership processors, and 98% of the hauls of catcher-processors.

Maintaining voluntary observer coverage in the domestic at-sea whiting fishery has been the result of shared efforts between the NMFS Northwest Region, the North Pacific Groundfish Observer Program (NPGOP), a division of the NMFS Alaska Fisheries Science Center, independent observer contractors, and the fishing industry. The Northwest Region monitors the fishery and interacts with the industry; the NPGOP provides for the pre-hire screening, field training, debriefing interviews, at-sea support, sampling equipment, and data management services; companies that are certified as observer contractors for the Alaskan program provide hiring and support services; and individual processing vessels pay the direct costs associated with carrying the observers.

For the most part, the at-sea whiting fishery has been satisfactorily managed as a voluntary program. However, NMFS's ability to ensure the integrity and availability of observer data in the future is constrained by the lack of regulatory requirements defining the needs of an observer program and mandatory coverage levels. Under the current voluntary observer system, there are no regulatory requirements defining the roles and responsibilities of observers, of observer contracting companies, or of industry vessels participating in an observer-covered fleet. Participants in the voluntary program use regulations pertaining to observer-covered fisheries in Alaska as guidelines for behavior, but the voluntary program hampers the agency's ability to respond to actions taken in the West Coast fleet that may be contrary to Alaska-based policies. The voluntary nature of the program also risks loss of data essential to a variety of scientific and management efforts, from inseason fishery monitoring to stock assessments of whiting and other species. For these reasons, NMFS presented a draft proposed rule to the Council in April 1999, in which the agency planned to propose making observer coverage of the at-sea whiting fleet mandatory. The Council took action to express its support for mandatory observer coverage of the at-sea whiting fleet, requiring at least one observer per vessel.

The proposed regulations drafted by NMFS and supported by the Council are moving forward and should be published in 2000. NMFS will continue to work toward mandatory observer coverage for the at-sea whiting fleet, and regulatory standards for all parties participating in the observer-covered fishery. During the process of proposing and eventually codifying these observer regulations, the at-sea whiting industry has indicated its intent to continue with the voluntary observer program. NMFS anticipates that this program will continue to support the fishery's inseason management efforts, as well as the inseason and post-season bycatch monitoring efforts.

At-Sea Whiting Fishery Logbook Program. This logbook program is also a voluntary program used in the at-sea whiting fleet to monitor catch rates inseason. Logbooks are used in conjunction with observers and provide real-time information to NMFS and to fleet participants for starting and ending the seasons for each sector of the at-sea fleet. Logbooks primarily serve to verify information collected by observers, and to fill in data gaps where observers were unable to collect information.

Under this voluntary program, catcher/processors maintain a Daily Fishing and Cumulative Production Log (DFCPL,) and motherships maintain a Daily Report of Fish Received and Cumulative Production Log (DRCPL.) These logs are identical, except that the DFCPL combines the production log with a fishing log, and the DRCPL combines the production log with a record of fish received from other vessels. Harvesting vessels delivering to processing vessels maintain the fishing log section of the DFCPL.

The daily fishing portion of the logbooks include: 1) vessel and gear specifications; 2) haul-by-haul information; 3) daily information on discards; and 4) information on daily vessel activity. Haul-by-haul information includes the date, time, location, sea depth, trawl depth, hail weight, duration of haul. Discard information logs Pacific whiting, other groundfish, and prohibited species (salmon, halibut, Dungeness crab) discards, with estimated daily discards of prohibited species recorded in numbers of individuals. All other species discard estimates are recorded by weight. Catch and effort information is used for inseason monitoring and for biological and economic evaluations of existing and proposed fishery management measures. Fishing log information is available to observers as it is recorded, and observers collect effort data and use other information in the logs to meet their data collection responsibilities.

Monterey Bay Halibut Set Gillnet Observer Program. This observer program covers the setnet fishery for California halibut and angel shark in Monterey Bay. Although the program is supported by Marine Mammal Protection Act (MMPA) funds and is designed to monitor marine mammal bycatch and bycatch mortality in this fishery, incidental groundfish bycatch and discard is also monitored. The objectives of this project are to: (1) observe a sufficient level of fishing effort to provide statistically reliable estimates of harbor porpoise mortality and serious injury; (2) record other target and non-target catch information (e.g., sea otter and seabird bycatch); (3) collect biological samples when possible. This program was first implemented in 1999, with observation of 30% of the fishing days of all participating vessels.

Scientists at the Southwest Fisheries Science Center (SWFSC) will use data collected in this study, along with an estimate of annual set gillnet fishing effort provided through a cooperative agreement with CDFG, to estimate the annual incidental mortality and serious injury of harbor porpoise in the fishery. The results from this study will be used to determine whether the incidental take of central California harbor porpoise exceeds the stock's potential biological removal (PBR) level. If the new take estimates indicate PBR levels are being exceeded, NMFS may require the fishery to institute strategies to reduce the incidental take of harbor porpoise and may convene a take reduction team to help prepare a plan to reduce taking. This type of marine mammal bycatch monitoring is not required for the Pacific coast groundfish fisheries, because those fisheries are listed as Category III fisheries under the MMPA, meaning that annual mortality and serious injury to marine mammals in those fisheries is less than or equal to 1 percent of the PBRI level of regional marine mammal stocks.

Shoreside Whiting Fishery Exempted Fishing Permits. For each year since 1992, NMFS has issued Experimental/Exempted Fishing Permits (EFPs) to whiting catcher vessels delivering to shorebased processing plants during the regular whiting season. The intent of the 1992 pilot EFPs was to allow

catcher vessels to bring their whiting catch to shore without having to sort and discard incidentally-caught salmon. A percentage of the participating vessels carried observers to monitor bycatch rates at sea, with catch offloading monitored by a separate contingent of shorebased observers. This EFP program was formalized in 1993 as an ongoing salmon bycatch monitoring program. Also in 1993, NMFS implemented regulations to prohibit or restrict fishing for whiting in times and areas where the whiting fleet was most likely to incidentally catch depleted salmon stocks.

In addition to allowing landings of incidentally-caught salmon, the 1993 EFP program introduced provisions to allow whiting catcher boats to land incidentally-caught groundfish in excess of groundfish landings limits. As with salmon bycatch, the bycatch of non-whiting groundfish was monitored when participating catcher vessels offloaded their whiting catch to shorebased processing plants. Results from the 1992 through 1994 EFP programs indicated that salmon bycatch rates on observed and unobserved vessels were the same, and that those rates had been reduced through the time/area salmon conservation closures. The program was revised for 1995, shifting the monitoring focus from monitoring at-sea salmon bycatch to monitoring shoreside groundfish overages. Bycatch of salmon and other prohibited species continues to be monitored through the EFP program, but sampling efforts on incidentally caught groundfish have increased. In this program, 13% of the whiting shoreside landings are monitored by observers. This EFP program has continued, with occasional refinements, until today.

	1992	1993	1994	1995	1996	1997	1998	1999
Catcher vessels that actually delivered whiting to shoreside processing plants	29	25	33	34	39	40	38	36
Catcher vessels issued EFPs to deliver whiting to shoreside processing plants	18	21	31	35	40	45	38	50

In the early years of the EFP program, not all vessels delivering whiting to shoreside processing plants took advantage of the EFPs. By 1995, however, the number of EFPs issued was exceeding the number of vessels participating in the fishery. Vessel owners might apply for and receive EFPs in anticipation of participating in the whiting fishery, but then might decide to forego the whiting season for other opportunities and leave the issued EFP unused.

ODFW manages and monitors the shoreside observation program for the three states because the majority of whiting delivered to shoreside processing plants is landed in Oregon. During and after the season, ODFW tracks rates and quantities of prohibited species and non-whiting groundfish bycatch by vessel. In 1999, dockside observers monitored whiting deliveries in 7 ports, observing 10-30% of deliveries in those ports.

Alternative 2 (Mandatory logbook reporting of discarded catch). Under this alternative, the Council would either (a) ask the three states (Washington, Oregon, California) to revise their logbooks to allow for reporting of total catch, instead of just retained catch, or (b) bring logbooks under federal authority, with required bycatch and discard reporting.

This alternative may not provide changes from the effect of Alternative 1, and would likely have an increased negative effect on the fishing community. As in Alternative 1, observer coverage in the at-sea whiting fleet would still become mandatory and dockside observer coverage would continue. Logbook reporting is controversial for two primary reasons: (1) without verification systems, fisheries scientists are generally skeptical about the accuracy of logbook reports, and (2) fishers are generally skeptical about whether and to what purpose the information they provide is used. Logbook reporting programs that are not compared with observer data for the same fishery cannot be tested for logbook verity, which means that information collected in such logbook programs may be unusable for bycatch and discard estimates. Historically, the most effective comparison agent for mandatory logbook requirements has been a

simultaneous observer program. A combined logbook/observer program relies on the observer program to provide a point of comparison for information collected on unobserved trips, and uses the logbook program to fill in observer program data gaps. Alternative 2 could result in the same stock depletions as those envisioned under Alternative 1, but it would have the added irritation for fishers of having to comply with a reporting burden that does not result in improved fishery information.

In the current state logbook reporting program, Washington, Oregon, and California require trawl vessels to maintain logbooks to record estimates of retained catch, catch location, and other basic information. Logbook records may be checked against fish tickets, which provide a more accurate accounting of landed catch. There are no state requirements to record discarded catch. Alternative 2 would require all vessels landing groundfish to report total catch, separated into retained and discarded categories. Under such a program, fish tickets could still provide a useful comparison for retained catch records. A major shortcoming of the current logbook program is that it depends on paper, rather than electronic reporting. Under a paper reporting system, the vessel operator fills out the paper logbook, which is then collected by the state of landing. The state of landing must then employ data entry personnel to enter logbook information into a computerized database before that information can be used and compared with landings receipts or information from other vessels. An electronic logbook program would bring fishing data directly from the vessel to users in the scientific community, improving the efficiency and useability of gathered data. As with any logbook system, an electronic logbook system should be coupled with observer coverage for comparison of data gathered on observed and unobserved fishing trips.

During the 1995 through 1998 fishing years, ODFW experimented with an enhanced logbook program that was designed to test supplementing information already collected in the state logbook programs. This Enhanced Data Collection Program (EDCP) was conducted in cooperation with the Washington Department of Fish and Wildlife, California Department of Fish and Game, and others to combine a collection of expanded logbook information with an observer program for West Coast groundfish non-whiting trawl fisheries.

EDCP goals included:

- Estimate trip limit induced discard rates for primary groundfish species
- Estimate discard rates for other groundfish species
- Estimate bycatch rates of prohibited species (salmon, Pacific halibut)
- Estimate Pacific halibut survival rate
- Allow salmon to be distributed to hunger-relief agencies
- Allow utilization of fish otherwise discarded

Trawl catcher vessels participated in this program on a voluntary basis, carrying observers and/or logbooks, as well as NMFS EFPs. Two types of EFPs were used in this program. A "Class A" EFP required the permit holder to collect discard information in an enhanced logbook while continuing to record landed catch, and allowed the vessel to retain prohibited salmon species for distribution to hunger relief agencies. A "Class B" EFP imposed the same responsibilities as the "Class A" permit, but included a requirement to carry an observer. EDCP observers monitored quantities and rates of discards, species composition of discards, halibut viability information, and conducted some biological sampling. A third class of permits planned for the EDCP would have required permit holders to retain all of the groundfish taken above groundfish cumulative landings limits (overages,) but no vessels volunteered for this permit class. The EDCP was a limited-duration project and data gathered has not been made available for Council or public use. NMFS is now assessing whether information collected under the EDCP could be useful to groundfish management.

Alternative 3 (Implement observer program as soon as funding becomes available). Under this alternative, the Council would endorse a provision for a regulatory framework for a catcher vessel observer program in the groundfish fisheries (4/00, agenda item G.12.) Implementation of an observer program under this alternative would require a source of funding to pay observer costs, while program and infrastructure costs would be borne by NMFS. As supplements to this program, the following options would also be available:

- *Electronic/paper logbooks with bycatch reporting*
- *Catch monitoring by camera*
- *VMS monitoring*

This alternative could have positive effects on the environment, and positive as well as negative effects on the fishing community. Under Alternative 3, the Council would acknowledge the financial condition of the fishery and ask NMFS to move forward with a regulatory framework for a future observer program for the shore-based groundfish fisheries. Given the current economic health of the fishing community, the Council would not require observer coverage unless funding became available from sources outside of the fishing community. Depending on the funding mechanism, the cost of this alternative to participating vessels might be limited to providing food and bunk space to the observer. Although the Council's ultimate goal should be a healthy, appropriate-capitalized fishery where the average participant can afford full observer costs, that scenario does not apply to the current state of groundfish fisheries. If funding is secured and observers are deployed, this alternative would have the positive effect of finally providing real information about bycatch and discard rates in the non-whiting groundfish fisheries. This desperately needed information could be used in stock assessments and in setting harvest rates, to ensure that total fishing mortality is appropriate to stock abundance. Ultimately, improved fishing mortality information will have a cascade effect of giving fishery scientists and managers the tools they need to allow sustainable future groundfish harvests. Healthy fish stocks with sustainable harvest levels benefit fishing communities. Some fishers, however, believe that observers are an undesirable intrusion and might resent having to carry observers even if they are not paying for those observers.

Observer Program, Draft Observer Rules Framework, and Observer-Supplementing Technologies. Observers are a uniformly trained group of scientists who gather independent data necessary for conservation and management of fisheries. They are stationed aboard vessels to observe fishing activities to gather data that is too burdensome for vessel personnel to collect, and which would otherwise not be available to fishery managers and scientists. Since the early 1990s, the Council has regarded at-sea observers as a viable means to collect much-needed data on at-sea discards. The GMT has continually stressed the need for an on-board observer program to accurately assess total catch.

To address deficiencies in total catch data for catcher vessels, the Council proposed development of an on-board observer program at its April 1999 meeting. The Council created an Observer Program Implementation Committee to design a statistically sound sampling program, to be consistent with the Council's goals for a total catch data gathering program. The committee's June 1999 report to the Council included the following goals for an observer program:

- estimate total annual groundfish catch for all west coast fisheries that take groundfish
- estimate discard rates by species (for all species, including prohibited species)
- collect biological information on depressed species and on the primary species needed to define harvest populations for stock assessments
- establish a system for efficient collection, storage, and use of information

This committee met again in June and September 1999 to discuss program design, coverage strategies, data priorities, program infrastructure, and the supporting regulatory package. At the Council's September and November 1999 meetings, NMFS distributed early draft regulations designed to support observer placement in accordance with a statistically sound coverage plan, to permit observers to collect data according to scientific sampling protocols, and to promote observer safety. These regulations would not specify observer coverage requirements for individual vessels, but instead provide the regulatory support necessary to start up an observer program. The Council will be considering this regulatory package again for final approval at its April 2000 meeting. If the Council adopts that regulatory package, Alternative 3 would allow the Council to specify its priorities for crafting future observer programs.

To supplement an observer program, the Council might consider a simultaneous paper or electronic logbook program Used with observer programs, logbooks can fill information gaps and confirm observer data. Logbooks are discussed above under Alternative 2. In addition to or as a substitute for logbooks, the Council might combine an observer program with camera catch monitoring or a vessel monitoring system (VMS.)

In the seamount sablefish fishery off British Columbia, Canadian fishers have been working with new video technology to test the use of cameras in lieu of human observers. Observer coverage is required in groundfish fisheries of British Columbia, and fishers are investigating ways to reduce the cost of carrying observers. The video-surveillance system tested in the sablefish longline fishery consists of a Global Positioning System (GPS) indicator, a camera positioned to view the fishing deck, and a battery/back-up power source to provide power to the camera system in case the vessel's electric system fails. An independent contractor (Archipelago Marine Research) provides the cameras, sets up the video surveillance systems on contracting vessels, collects the tape recordings of retrieved longline sets, and monitors the tapes once the vessel has returned to shore.

Video surveillance systems connected to GPS indicators are useful in tracking catch by area fished, and new digital camera technology is improving resolution to provide some species-specific catch information. These systems may be more useful in fisheries that target particular species (like fixed gear sablefish fisheries), rather than in multi-species fisheries. Video observation is generally considered supplemental to an observer program, so that a fishery with less than 100% human observer coverage may be monitored by cameras when direct human observation is not available.

VMS use GPS technology to track vessel locations for a variety of fishing fleets around the world. In the U.S., VMS is used in U.S. fisheries that are managed in part by areal restrictions. For example, in the Hawaiian pelagic longline fishery, VMS is used to monitor vessel locations to ensure that pelagic longliners are not fishing in areas that have been closed to longlining to protect Hawaiian monk seals and to prevent gear conflicts with nearshore fisheries. While VMS cannot by itself provide bycatch monitoring, it can allow fishery managers to enforce closed area regulations designed to reduce bycatch rates, and can provide information about where and when individual vessels fish for groundfish.

Alternative 4 (Implement observer program, with requirement that vessels pay for observers). Similar to Alternative 3, the Council would endorse a provision for a regulatory framework for a catcher vessel observer program in the groundfish fisheries (4/00, agenda item G.12.) However, under this alternative, vessels would pay observer costs, while program and infrastructure costs would be borne by NMFS. As supplements to this program, the following options would also be available:

- *Electronic/paper logbooks with bycatch reporting*
- *Catch monitoring by camera*
- *VMS monitoring*

This alternative would have positive effects on the environment and negative effects on the fishing community that would probably outweigh expected long-term benefits for the fishing community. As described above at Alternative 3, an observer program can provide invaluable information on catch and discard rates in the groundfish fisheries. In spite of the expected benefits to the environment, the Council has been reluctant to implement an observer program due to the cost of such a program to participating vessels. Groundfish harvest rates and trip limits have declined in recent years, with a particularly steep drop in 2000. Depending on method of estimation, revenues for the 2000 commercial groundfish fishery are expected to be $9 million to $11 million lower than in 1999. With this precipitous change, many vessel owners and captains are not able to hire a full complement of crew. Given an approximate observer cost of $300 per observed fishing day, the cost of a fisher-pays observer program might drive some fishery participants out of business.

4.3a Issue 3 -- Management Measures to Reduce Bycatch and Bycatch Mortality

Alternative 1 (status quo - no action). Under this alternative, the Council would neither amend the FMP, nor take any further actions to reduce bycatch rates in the groundfish fisheries. In all likelihood, excess capacity in the groundfish fishery would continue to increase and consequent bycatch rates would also rise.

This alternative would have negative effects on the environment and on the fishing community. The current management regime of trip and cumulative landings limits is based on the Council's desire to maintain a year round groundfish fishery. The priority of managing for a year round fishery is described in one of the overall goals of the FMP, and in one of the FMP's economic objectives:

> Goal -- Utilization. Achieve the maximum biological yield of the overall groundfish fishery, promote year-round availability of quality seafood to the consumer, and promote recreational fishing opportunities.
>
> Economic Objective. Identify those sectors of the groundfish fishery for which it is beneficial to promote year-round marketing opportunities and establish management policies that extend those sectors fishing and marketing opportunities as long as practicable during the fishing year.

Fishers and processors have historically used groundfish operations during times when fisheries for other species are closed. Alternatives to groundfish, such as salmon, crab, shrimp, and tuna, are shorter seasonal fisheries. Fishing vessel owners rely on year round fishing opportunities to keep their vessels staffed with experienced captains and crew, and to keep markets open for their catch. Processing plants rely on receiving year round fish landings to keep their trained staff employed, and to keep marketing opportunities open for their products. If the vessels or plants must cease operation for a significant period, they will lose their trained workers and then need to hire and train new workers when the fishery reopens.

This management practice of using landings limits to maintain a year round fishery was reasonable and prudent when it was first used in 1983. However, since that time, the coastal fleet's fishing capacity has increased, stock viability for many managed species has decreased, and there are "too many boats chasing after too few fish." With overcapacity and lower overall harvest levels, cumulative period limits have also dropped. While low landings limits are needed to ensure both a year round fishery and sustainable harvest rates, they may also induce regulatory discards.

Alternative 1 is not expected to lead to a more biologically and economically stable fishery. The Council has enough experience with status quo management to predict where a continuation of current policies would lead in the future. Over time, these policies have resulted in unknown and possibly not sustainable discard rates, an overcapitalized fishery, ever-decreasing landings limits, and an economic "death by a thousand cuts" for many participating fishers and fishing communities. Bycatch is only one of several major and conjoining issues of concern before the Council. Council efforts to move beyond the status quo to address problems of bycatch will only complement its efforts in addressing other concerns in management of this fishery.

Alternative 2 (framework bycatch reduction goals). Under this alternative, the Council would amend the FMP to indicate its intent to deal with overfishing and overcapacity issues through its adoption and implementation of its strategic plan, and when taking measures to deal with those isssues, choose management options likely to reduce bycatch. Capacity reduction appears to be the most promising avenue for rationalizing the fishery. However, implementing such a program would require a longer process than this plan amendment process. The Council will examine capacity reduction measures through its developing strategic plan. As an overall goal, the Council would craft measures designed to achieve the rebuilding plans, reduce bycatch, prevent overfishing, allow harvest of healthy stocks as much as possible while protecting and rebuilding overfished and depleted stocks, and equitably distribute the burdens of rebuilding among the fishing sectors.

This alternative could have positive effects on both the environment and on the fishing community, if the strategic plan results in changes to status quo management. As discussed above for Alternative 1, the major problems of the groundfish fishery are interwoven. Solutions to overfishing and overcapacity will also likely reduce bycatch and bycatch mortality. Under Alternative 2, the Council would specify in the FMP its intent to particularly address bycatch as it crafts management changes to deal with overfishing and overcapacity. These efforts should lead to more stable stock health and harvest rates, and to more economic stability for participating fishers. However, if Alternative 2 is chosen and measures are not taken to address overfishing and overcapacity, the effects of this alternative would be the same as those for Alternative 1.

Alternative 3 (framework bycatch reduction goals, plus add full retention allowance for at-sea whiting fishery). This alternative would include all of Alternative 2, plus it would allow full retention of incidental catch in the at-sea whiting fleet for those processing vessels that carry more than one observer.

This alternative would have the same effects as Alternative 2 for the shore-based fleet. It would additionally have positive effects for the environment and for the fishing communities associated with the at-sea whiting fishery. Alternative 3 could be expected to reduce bycatch in the at-sea whiting fishery, increase utilization of incidentally harvested species, and improve species-specific incidental catch information for that fishery.

The at-sea processing component of the Pacific whiting fishery consists of catcher/processors, motherships (vessels that receive and process fish at sea but do not catch fish), and catcher vessels that deliver to motherships. Each at-sea processing vessel in the whiting fishery has carried at least one NMFS-trained observer since the beginning of operations in the whiting fishery in the early 1990's. In recent years, the catcher/processors and one of the motherships have carried two observers. Catcher/processors and catcher vessels delivering to motherships are subject to the same groundfish landings limits as the rest of the limited entry fleet. For species with landings limits, motherships are allowed to retain no more than the trip limit amount from each catcher vessel delivering to it.

Incidental catch rates in the offshore whiting fishery are generally low (less than 5 percent of total catch,) but the magnitude of the whiting fishery is so large that the tonnage of incidental catch may be considerable, particularly of yellowtail and widow rockfish. In order to comply with landings limit regulations, at-sea processors may need to discard substantial amounts of incidental species after a trip limit amount is reached.

At-sea whiting processors do not offload their catch as frequently as shore-based vessels. A catcher/processor or mothership may operate during a period that spans several cumulative trip limit periods, without offloading. These at-sea processors are not allowed to exceed the cumulative limit that applies for the period in which offloading occurs, which means that the vessel may not combine the cumulative landings limit amounts for more than one period. This puts the at-sea processors and catcher vessels delivering to motherships at greater risk of exceeding the cumulative limits, and can result in greater discards at sea than a shore-based vessel subject to the same limits. The offshore whiting fishery is not prohibited from retaining incidentally caught species within landings limit levels, but they generally neither target nor desire these species. Rockfish are spiny, get tangled in the nets, and damage the whiting. The offshore whiting fleet does not routinely process or sell incidentally-caught species, and those that are retained generally are made into fish meal. These conditions and the desire of industry to minimize regulatory discards, along with food bank interest in collecting bycatch for use in hunger programs, make the at-sea whiting fleet a viable candidate for a full-retention management option.

Full-retention option for offshore whiting processors: If a catcher/processor or mothership in the whiting fishery carries more than one NMFS-approved observer for 90 percent of the days on the grounds during a cumulative trip limit period, then groundfish trip limits could be exceeded without penalty for that cumulative trip limit period. All species would be made available for sampling by the observers before sorting. Any trip limit overage could not enter or otherwise compete in normal markets for that species, and overages would either be: (1) converted to meal, mince, or oil products, which could then be sold,

or (2) donated to an approved food bank distributor. This option would not apply to prohibited species (salmon, Pacific halibut, Dungeness crab.) If a vessel were to choose to deliver to a food bank distributor, provisions would be made such that state or federal enforcement representatives would have the opportunity to monitor any such offloading. The vessel could not receive compensation or otherwise benefit from any overage amounts unless the overage were converted to meal, mince or oil products.

The number of observers required for a vessel to participate in the overage program would be evaluated periodically, and changes generally would be announced concurrent with the annual specifications and management measures, and at least prior to the start of the fishery. In its first year, this provision would apply to an at-sea processor that carries at least 2 observers. In the future, a higher level of observer coverage might be needed on some high-capacity vessels. The number of days on the grounds would be determined from information routinely submitted by the observer onboard the vessel.

A vessel would not be obligated to operate under this program. Some at-sea processing vessels could choose to continue to carry only one observer, the minimum amount recommended by the Pacific Fishery Management Council, in which case current trip limits would continue to apply as for the rest of the limited entry fleet.

To the extent that vessels choose to participate in this program, this full-retention option would eliminate regulatory discards in the offshore whiting fishery, give offshore fishery participants an incentive to carry more than one observer, and improve catch data without changing the rates of incidental catch in this fishery. Further, this program could provide fish for food banks, and the processed incidental catch would not compete in or affect pricing in traditional markets for food fish. Weaknesses of this option include: unprocessed fish may not be suitable for human consumption and processing costs for donated fish could be burdensome; the incentive to avoid incidental species would not change from incentives under status quo management; the program may require additional monitoring and enforcement at offloading. An additional concern is that competition with Alaska fisheries for qualified observers is increasing and may mean that few observers would be available for this fishery.

The Magnuson-Stevens Act defines "bycatch" as, "fish that are harvested in a fishery, but which are not sold or kept for personal use, and includes economic and regulatory discards." Full retention programs can reduce bycatch and can be enforceable when they require observer coverage for participants and prohibit at-sea discards. Without such precautions, allowing the retention of trip limit overages could not provide accurate information about the interception and retention of incidentally-caught species. Large and persistent overages by some fleet participants could also have allocative effects on the whole fleet by reducing fleet-wide opportunities for compensated landings. Conversely, observer data from a monitored full-retention program could provide much-needed information on species-to-species distribution ratios within species complexes, and of the catch ratios between marketable and unmarketable fish species and sizes.

Alternative 4 (implement currently practicable changes to management measures). This alternative could include all of either Alternative 2 or 3, plus it would require implementation of management measure changes to reduce bycatch in the shore-based groundfish fisheries. Management measures that are not now practicable are described below at 4.3b. The list of management measures that could be implemented reasonably soon might include:

- *Shorter fishing season and higher cumulative landings limits*
- *Allow permit stacking in the limited entry fleet*
- *Gear modification requirements*
- *Catch allocation to, or gear flexibility for, gear types with lower bycatch rates*
- *Re-examine/improve species-to-species landings limit ratios*
- *Time/area closures (closed "hot spots")*

The effects that Alternative 4 would have on the environment and fishing community beyond those described above for Alternatives 2 and 3 would depend up on the additional management measures chosen. Those effects are described below within the discussion for each management measure strategy.

Shorter fishing season and higher trip limits. This management alternative could have a positive effect on the environment, and could have both positive and negative effects on the fishing community. Under this alternative to a year round groundfish fishery, the fishing season would be shortened in duration, perhaps to 6-8 months, and cumulative landings limits would increase. To the extent that higher landings limits and fewer cumulative limit periods would reduce opportunities to exceed landings limits, this alternative should reduce bycatch and discard mortality. For fishers who need to make groundfish landings during every month of the year, this alternative would be undesirable. For fishers who prefer access to higher limits as a trade-off for a year-round season, this alternative might be preferable to the current management strategy. The fish processing sector, often proponents of the year-round fishery, could benefit most from this alternative if there were flexibility for fishers in choosing their own open and closed periods. Under this alternative, higher trip limits could more closely match individual vessel capacity within the fleet, possibly reducing regulatory discards.

Over the past few years, the GMT has recommended on several occasions that the Council shorten the fishing season to allow for higher trip limits. The Council could arrange for a shorter fishing season in a variety of ways:

- Mandatory groundfish closure for all vessels during a specified period, applicable coastwide.
- Time/area closures, with groundfish landings prohibited for certain parts of the coast at differing times of the year (similar to the 2000 rockfish/lingcod closure for southern hook-and-line fisheries.)
- Divide the fishing year into quarters (or thirds, sixths, etc.) and require vessel owners to choose which 3 out of 4 fishing quarters they will participate in the groundfish fishery.

Under any of these options, the Council could set higher trip limits than are now available to groundfish fishery participants, which theoretically should reduce discards compared to those associated with the current low landings limits. The first two options would require that the Council work with the fishing industry to reach agreement on optimal times and/or areas for closure. Flexibility for closing times and areas could be built into the annual specifications and management measures process, as detailed under Issue 4 of this draft amendment. Alternatively, the Council could revise their management priorities and amend the FMP to shorten the year-round groundfish fishery.

The third option for a shorter fishing season, where participants would choose their times of operation would require amending the FMP and/or regulations to allow an annual season choice process. This process could be modeled on the current platoon choice system used by limited entry trawlers. Each autumn, when limited entry trawlers renew their permits for the coming year, they choose whether the renewed permit will be used in the "A" or "B" platoon. Once the permit owner has made his choice of platoon and NMFS has issued a renewed permit with platoon choice, that choice is fixed for the year. Using a similar once-per-year designation of season choice would ensure that each permit would only be used for the appropriate fraction of the year. Alternatively, the choice could be based on when landings are made, meaning that a vessel would declare its intent to fish in one of its allowed 3 out of 4 periods by simply making landings during that period.

Although higher trip limits combined with fishing closures could be expected to reduce bycatch and bycatch mortality, it might also become a "placeholder" regime that would itself eventually lead back to lower trip limits and increasing discard rates. A shortened fishing season with higher trip limits might not be a viable long-term management alternative without concurrent reduction in fleet capacity.

Permit Stacking. This management alternative has the potential for both positive and negative effects on the environment and fishing community. As discussed above, a management measure that allows vessels access to higher landings limits may reduce individual vessel opportunities to exceed those limits. Depending on how a permit stacking program is structured, however, such a program could achieve only absorption of latent capacity with no resultant reduction in bycatch and discard levels. Permit stacking unaccompanied by an access limitation for the open access fleet could also squeeze capacity from the limited entry fleet into the open access fleet. Moving capacity from one fleet to another would fail to reduce the total number of vessels fishing toward, and potentially exceeding, cumulative landings limits. For limited entry fishers who want a way to receive compensation for moving out of the fishery, and for fishers with the capital to invest in permit stacking, this program would be a positive opportunity. For others without the ability to purchase another permit for stacking, this program would put them at a disadvantage relative to their wealthier counterparts. In permit stacking programs, the first permits purchased for stacking are generally unused or less-used permits, which means that accommodating the effects of fully-capitalized vessels buying up this latent capacity would likely require lower per permit landings limit levels than under the status quo.

The Council has discussed permit stacking on several different occasions since the implementation of the limited entry program. Most recently, the Strategic Plan Development Committee has been considering permit stacking as a future management tool. Currently, trip and cumulative limits are associated with individual vessels, so that each vessel has the opportunity to fish towards the species-specific limits appropriate to that vessel's limited entry permit gear and species endorsements. If changes were made to associate limits with permits and to allow permit stacking, vessel owners could stack permits to give themselves access to limits appropriate to individual vessel capacity. Where allowed landings levels more closely match vessel catch capability, vessels are less likely to need to make regulatory discards. A permit stacking program could not be expected to reduce economic discards.

Vessel stacking provisions in a limited entry program may be designed with several variations:

- Permit stacking may be voluntary or mandatory. That is, permit owners may be allowed to purchase and stack additional permits if they so choose, or they may be required to stack permits to ensure that a pre-determined amount of capacity is absorbed through permit stacking.

- Permit stacking may be permanent or temporary. Once a permit has been stacked on to a base permit, the stacked permit may either become an inseparable part of the base permit, or "unstacking" may be allowed so that the stacked permit could be transferred to stack on to a different base permit or become a base permit itself.

- Stacked permits may have the same landings limit values as base permits, or some greater or lesser fractional value. Placing greater landings limit values on stacked permits than on base permits would encourage stacking. Placing lesser landings limit values on stacked permits than on base permits might benefit vessel owners who do not stack, in that it might constrain the drop in landings limits that would result from a stacking program.

In a voluntary program, limited entry permit holders would be allowed to use more than one permit on a single boat. A vessel owner participating in the limited entry fishery could be required to have a "base" permit with appropriate length and gear endorsements for that vessel, but could then be allowed to stack permits of any length to add to that vessel's allowable cumulative landings limits. The current sablefish allocation and management system would accommodate stacking between longline and pot permits, but not between trawl and nontrawl permits. While it is impossible to predict how many vessel owners would stack permits under a voluntary program, 53 people currently hold more than one limited entry permit and stacking would be relatively simple for those people.

If stacking were mandatory, the Council could require vessels participating in the limited entry fishery to have at least two permits per vessel, thereby cutting the number of limited entry permits in half. Under a mandatory program, stacking might be made easier for participants if the stacked permit was not

required to match the base permit in length. Stacking across gear types would have the same difficulties as in a voluntary program in that trawl/nontrawl stacking would not be compatible with the current sablefish management system. If stacking were required, allowing stacking between longline and pot endorsed permits would be helpful to the pot fleet, which now has a pool of just 27 pot permits and 5 dual gear endorsed permits in which pot is one of the gears.

If permit stacking is voluntary, the Council will have to decide whether a stacked permit must remain permanently stacked, or if it may be "unstacked," with the component permits distributed according to the permit owner's wishes. If permits are allowed to be unstacked, then the Council cannot ensure any long-term reduction in number of fleet participants. By allowing unstacking, stacked permits can be reduced to their component permits at any time and the number of fleet participants would continue to hover around 500. Conversely, if permits must remain stacked, then a permit stacking program would essentially create a voluntary tiered permit system. Over the long-term, the stacked permits would allow higher tier landings throughout the fishing season and would have more value on the permit market.

Initially, a permit stacking program would encourage vessel owners capable of meeting and exceeding current landings limits to purchase less active permits. If only less active and inactive permits are purchased, permit stacking would reduce the number of vessels participating in the fisheries, but would allow overcapitalized vessels greater access to groundfish quotas. Base cumulative limit levels would have to be reduced to account for the increased access to quotas by vessels with stacked permits, placing vessels with single permits at a disadvantage relative to the rest of the fleet. Alternatively, the Council could craft a stacking program wherein a stacked permit would allow its owner some fraction of a cumulative limit, rather than another whole cumulative limit. For example, if each stacked permit provided the permit owner to harvest up to one-half of the base cumulative limit amount, a vessel with a base permit and a single stacked permit would have the opportunity to harvest one + one-half cumulative limits for a given species. Under this scenario, cumulative landings limits would remain higher for vessels without stacked permits, and more permits would be "bought out" by vessels wishing to target significantly higher cumulative landings limits. A third alternative would be to set the cumulative landings limit for stacked permits at some greater level than for base permits. Under such a scenario, a vessel with a base permit and a single stacked permit might have the opportunity to harvest a single cumulative limit with the base permit, plus one + one-half cumulative limits with the stacked permit. If the stacked permits are made greater in cumulative limit value than the base permits, the cumulative limits associated with the base permits will have to drop to prevent overharvest. Single permit owners would have the strongest incentive to stack under this scenario.

About 25% of the limited entry permits (124 permits) are currently owned by a person or corporation that owns more than one permit. Of those, 36 permits are owned by a person or corporation that owns more than two permits. If the Council decides to support a permit stacking program, one aspect of that program might be a limit on the number of permits that may be held by a single person or corporation, or a limit on the number of permits that may be stacked on a single vessel. For vessel owners who do not now own more than one permit, permit stacking could become expensive if they decide that they need to purchase a second or third permit. Alternatively, two or more permit owners could join together in a small corporation, in which a single stacked permit is owned cooperatively and shared between vessels as needed. This scenario could be allowed if the once-per-year permit transfer rule were eased to allow transfers only at the beginning of cumulative limit periods, but at any frequency per year desired by the permit holder.

Gear modification requirements. This management alternative could have a positive effect on the environment, but may have no effect whatsoever on the environment. To the extent that this management alternative would require fishers to invest in new gear, this management alternative could have minor negative effects on the fishing community. Gear regulations are usually designed to preclude particular fishing activities. Restrictions on or requirements for gear design must be crafted very carefully to achieve the desired changes to fishing activities. In general, fishers can find ways to engage in the particular fishing activity that regulators wish to control, while still complying with the gear

regulations initially designed to control that activity. Given these circumstances, gear restrictions and requirements may not be the most effective management alternative for reducing bycatch and discard mortality.

As described above in the discussion of historical efforts to reduce bycatch, the Council has used gear modification requirements in the trawl sector to reduce interception of small and juvenile fish. Trawl gear mesh size requirements were first introduced into federal regulations in early 1992, but the Council was not able to work out implementation problems with those regulations until late 1995. Gear requirements must usually be very specifically worded to be enforceable, but that specificity of wording often leaves loopholes that allow fishers to get around the intent of the regulation without disobeying it. Trawl gear restrictions of the early 1990s were designed to reduce trawl interception of small and juvenile fish. Implementing regulations began with a change in mesh size requirements, followed by a requirement for single-walled codends, clarification of where and how chafing gear may be used on the trawl net, a distinction between trawl and pelagic trawl nets, and clarification of where and how mesh sizes would be measured to determine legality.

In 1999, the Council convened an ad-hoc Legal Gear Committee to look at trawl gear and determine whether there might be further gear regulations that could reduce bycatch rates in the groundfish trawl fishery. The committee reviewed current gear regulations and discussed a number of features of trawl gear that affect its catch of both retained and discarded catch: mesh size and type, meshes around the fishing circle, proportion/amount of net covered by chafing gear, sweep length, ground gear design, tickler chains, how much of the net is attached to the footrope, and other gear elements. In general, the committee felt that mandating trawl gear modifications may not be the most effective means of reducing discard. Gear rigging and deployment likely has more effect on directed catch, bycatch, and escapement than the type of net being fished. The committee stated that it would be difficult to craft regulations to address the necessary intricacies of "tuning" the gear to reduce bycatch, and that fishers could possibly circumvent the intent of any regulation by changing the way in which the gear is fished. Committee conclusions on alternatives to gear regulations that could be better expected to reduce discard in the groundfish trawl fisheries included: reduce trawl fleet capacity to better match fishing capacity to available harvest; poll trawlers along length of coast for suggestions on discard reduction and share information between fleet members through education efforts; map habitat areas of overfished stocks under rebuilding plans and compare to mapped trawling areas to determine effectiveness of areal management. Perhaps because of this committee's straightforward advice, the Council has not convened ad-hoc legal gear committees for other sectors of the fishery.

Catch allocation to, or gear flexibility for, gear types with lower bycatch rates. This management alternative could have positive effects on the environment, and could have both positive and negative effects on the fishing community. By allocating harvest to gear types with lower bycatch rates, or by allowing flexibility for vessels to transition to gear with lower bycatch rates, this alternative could reduce the number of vessels with higher bycatch and discard rates. Catch allocation could be expected to have a negative effect on fishers using gear types targeted for reduced allocation. Allowing gear flexibility, however, would give fishers the chance to choose a more bycatch-clean gear type, benefiting the environment without harming fishery participants. Allowing gear flexibility could also change fishers' groundfish targeting strategies in ways that may or may not be compatible with the Council's management goals. The major impediments to this management alternative would be: (1) the lack of data on bycatch rates by gear type, and (2) if allocation is chosen, the long and arduous allocation process.

For the 2000 groundfish fisheries, the Council took emergency management measures to protect overfished and depleted species (lingcod, bocaccio, POP, canary rockfish, cowcod.) Among other measures, the Council recommended higher trawl trip limits for vessels using small footrope gear (less than 8" diameter) or mid-water trawl gear. These gear regulations were designed to keep trawlers from fishing rockpiles, where they would be more likely to intercept the overfished and depleted species. Differential trip limits for different gear types are a form of allocation. The Council may wish to consider whether it wants to make long-term allocations to gear types with lower bycatch rates.

The effectiveness of small footrope and mid-water trawl gear in avoiding overfished and depleted stocks has not been tested. Anecdotal information from trawlers who have fished under these regulations indicates that the requirements are keeping trawlers away from rockpiles, as intended. NMFS and/or the states need to test the bycatch difference between these gear types and between the different gear types used in the limited entry and open access fisheries. Without gear testing, discussions about bycatch and discard rates are likely to become accusatory and ineffective. However, if scientific studies can show lower bycatch rates in particular gear types, the Council might consider catch allocations to the more bycatch-clean gear types.

Alternatively, the Council could improve flexibility for vessels wishing to transition to more bycatch-clean gear. For several years, some members of the limited entry longline fleet have argued that vertical hook-and-line gear is more selective than bottom longline gear, and that they would like to be able to take their landings limits with vertical hook-and-line gear. However, vertical hook-and-line gear is considered an open access gear type, and as such, cannot be used to fish up to the limited entry limits for targeted species. If vertical hook-and-line gear is more selective than bottom longline gear, then easing the restrictions on use of vertical gear might reduce discard rates in the longline fishery. Similarly, there have been limited entry trawlers who have come before the Council to suggest that they would like to fish their limited entry limits with longline gear. If bottom longline gear has lower bycatch and discard rates than trawl gear, flexibility for trawlers in switching between gear types might also achieve bycatch reductions. Of course, if the Council were to endorse such flexibility, it would need to be careful to not allow flexibility for vessels wishing to move from more bycatch-clean gear to less bycatch-clean gear.

Re-examine/improve species-to-species landings limit ratios within stock complexes. This management alternative would have positive effects on the environment, and could have short-term negative effects on the fishing community, but long-term positive effects if it helps rebuild the fisheries. Under this alternative, the Council would set a priority for managing the multi-species fisheries with harvest ratios appropriate to natural abundance ratios. Making harvest rates more closely mirror natural abundance ratios could be expected to reduce bycatch by limiting opportunities for fishers to exceed the landing limit of one species while in pursuit of a second, associated species. To the extent that harvest of some species would be curtailed to prevent overfishing of co-occurring species, this management alternative could reduce fisher revenues. The major impediment to this management alternative would be the lack of information on species-to-species abundance ratios. One caution with this alternative is that improved species-to-species ratio management will necessarily require more area-specific management as well. There would be no point to comparing abundance of POP off the Washington coast with abundance of bocaccio off southern California.

With an FMP that covers 82 species of fish, the Council has faced some particularly challenging questions about the appropriateness of single-species versus multi-species management. One of these challenges has been that the species-to-species ratio at which fish are caught does not necessarily reflect the species-to-species ratio of their abundance. For the DTS complex, Council management has evolved over time, moving away from its harvest strategy where shortspine thornyhead was harvested above its ABC so that the entire longspine thornyhead harvest guideline could be taken. Council practice is now more sustainable and shortspine thornyhead are harvested at their harvest guideline while some of the longspine thornyhead harvest guideline goes unharvested to protect the less abundant, co-occurring shortspine. The tool that the Council uses to maintain this balance is a ratio between shortspine and longspine thornyhead landings limits that is intended to reflect the ratio of abundance between these two species.

This practice of managing harvest through ratios appropriate to assumed abundance and catch rates minimizes dead discards of the less abundant species. Fishers are given a reduced opportunity to take the more abundant species (longspine,) so they are less likely to meet and exceed the landings limits for the less abundant species (shortspine.) Abundance information about many of the FMP species is rather limited. However, for actively managed species with species-specific harvest guidelines, the Council might consider whether it is managing those species at sustainable catch ratios. Regardless of whether the Council continues to manage the fishery with year-round landings limit opportunities, the

health of all managed species would be better protected by a multi-species approach that considers abundance ratios between species that are harvested simultaneously. To properly implement a policy of harvest management through species-to-species ratios, the Council would need an analysis of which species could most benefit from such management, and a comparison between harvest ratios and assumed abundance ratios.

Time/area closures, such as closed "hot spots" to reduce bycatch of species with known areas of aggregation, or like the 2000 lingcod spawning closure. This management alternative could have positive effects on the environment, and depending on closure size, could be either an inconvenience for or have negative effects on the fishing community. If "hot spot" closures can be designed to encompass abundance areas for particular species, incidental harvest and mortality of those species will be reduced. Small "hot spot" closures, such as those for the Washington recreational halibut fishery, may be only an inconvenience for those who have to fish around the closures. Larger closed areas might limit harvest opportunity to a degree that negatively affects the fishing community.

In the sport fishery for halibut off the southern coast of Washington State, there is a halibut "hot spot" that may be open or closed to sport halibut fishing, depending on the desired rate of fishing each year. This "hot spot" is a zone of known halibut abundance, where halibut may be caught quite easily. When fishing outside the "hot spot" seems slow, halibut managers can open those waters to fishing to speed up the fishery and improve access to halibut. Conversely, if harvest rates outside the "hot spot" are high, managers can keep that spot closed to ensure that fishers do not take their halibut allocation quickly and close out the fishery early.

There may be other species besides halibut that have contained zones of high abundance. If the Council has particular species it wishes to protect from overharvest or from the effects of incidental catch and discard, it could close those areas to fishing. This approach would not be particularly useful for species that migrate a great deal, but it could provide targeted protection for the more sedentary species. Although salmon are hardly sedentary, the Council has used this closed area tool in the whiting trawl fishery to exclude whiting fishing in the Klamath River and Columbia River conservation zones. The Council also used time/area closures in its 2000 management measures to close lingcod fishing during the winter spawning and nesting months. These lingcod closures do not prohibit all fishing in lingcod nesting areas, so they do not necessarily provide protection against lingcod interception, but they do provide fisher an incentive to avoid areas of known lingcod abundance. Species-specific area closures would be more difficult to enforce than all-fishing closures designed to protect particular species.

4.3b Management Measures that May Reduce Bycatch and Bycatch Mortality, and which are Impracticable at this Time

Derby fisheries. This management alternative may be technically possible, but it is extraordinarily inconsistent with long-term Council management policies.

Under the landings limit program, each landings limit for each species is a target that fishers may meet, and which they often exceed. When a fisher exceeds that target, he must discard the remainder of his catch of that species. In a fishery with monthly landings limits for many species, a fisher may make regulatory discards every month. An alternative to the landings limit regime might be to throw open fishing opportunities for the entire annual harvest guidelines of a complex of species, such as the Dover sole-thornyheads-sablefish complex (DTS complex). After opening on a set date, the DTS complex fishery would remain open until the first of the four harvest guidelines within that complex had been achieved. The bycatch advantage of such a system would be that fishers could keep as much catch as they desire for the duration of the fishery. Regulatory discards associated with landings limits would not occur in a derby system. However, derbies might encourage targeting on the most valuable species within the complex and encourage discard of associated species to allocate hold space to the more valuable species. Depending on the species, derby management might result in economic discard rates equal to current regulatory discard rates. Derby fisheries could also increase bycatch of overfished and depleted species, because fishers would not have time or opportunity to fish selectively. A derby fishery

for a larger complex of species, such as one of the rockfish complexes, would be even more difficult to manage for harvest rates that are sustainable for all species in the complex without leaving great quantities of fish "on the table."

Derby management would run contrary to long-standing Council preferences for spreading groundfish landings out for as long as possible during the year. Traditionally, open competition derby management has also been viewed as encouraging individual fishery participants to increase the fishing capabilities of their vessels. With all fishery participants encouraged by open competition derby management to increase their individual vessel capacities so as to better compete against other fishers, the overall fleet capacity can skyrocket. The Council has a very vivid example of both the capitalization and decreased safety effects of derby management in its fixed gear sablefish fishery, which went from 9 months in duration to 5 days in duration over a 10 year period. Derby fisheries can also reduce the quality of fish harvested because they promote fast, rather than careful, fishing methods. Lower quality product would reduce price per pound received by fishers and processors. Market glut from derbies also tends to keep prices low. Many fishers off this coast rely on opportunities to create the highest quality product from low-volume fisheries.

Individual Quota Programs. This management alternative is impracticable because new individual fishing quota programs are currently prohibited by the Magnuson-Stevens Act and individual effort quota programs are not compatible with characteristics of a multi-species, multi-gear fishery.

An individual quota program, whether individual fishing quota (IFQ) or individual effort quota (IEQ,) is a management tool that can give fleet participants the time and opportunity to fully harvest their assigned quotas without landings limits or time limits. Under an IFQ program, each fleet participant holds an individualized number of quota shares per year and is permitted to fish toward the total poundage represented by those shares during the year. Generally, quota shares may be traded during the year to ensure that vessel owners either have enough allowable quota shares to cover the fish that they have caught, or to ensure that vessel owners who cannot catch enough fish to meet their quota shares may provide those excess shares to other fleet participants. In general, IFQ programs are expected to reduce or restrain fleet capacity by eliminating the race for fish. Vessel owners do not have to continually upgrade the speed and catching capacity of their vessels to compete with other fleet participants. Individual vessel capacity levels out when the vessel is fully capable of catching its associated quota shares.

IFQ programs may reduce discard because quota share holders can take their allowed fish at any time during the year, without the constraint of landings limits. An IFQ program would also assuage the Council's concern about maintaining a year round fishery. Under the current system, fishers deliver their catch according to the cumulative limit period schedule. With the more open schedule of an IFQ program, fishers can schedule deliveries with processors so that both parties can take better advantage of marketing opportunities.

IFQ programs have a bycatch hazard, highgrading. When fishers have more time to take their harvest, they can pick and choose which of the caught fish they will retain and fish are discarded for economic reasons. For example, fishers targeting sablefish may catch and dress small sablefish in the early part of a fishing trip, but later discard those small sablefish when the following hauls bring up an abundance of the larger, high-value sablefish. Thus, while regulatory discards would likely be reduced under an IFQ program, there would still be opportunities for economic discards. An IFQ program could also be combined with full-retention and observer requirements for landing quota species.

An IEQ program focuses on fishing effort expended (input control,) rather than on fish landed (output control.) Examples of tradeable effort quota programs might include limits on the number of pots or hooks fished, or limits on the number of allowed fishing days or weeks. Effort limitation programs have been used successfully in crustacean pot fisheries, where a fishery participant is limited to a certain

number of pots and all pots must conform to a standardized design. A pots-per-participant limitation program may be expanded to an IEQ program simply by allowing trading of pot allowances. In the groundfish fishery, an IEQ program might be based on the number of days fished, where participants could trade fishing days with each other to fill out their fishing schedules according to their needs.

Building an IEQ program based on fishing days could resolve bycatch problems if fishers were allowed to keep any of their desirable catch. Highgrading might still occur, but regulatory discards would be limited. The disadvantage of an IEQ program for the groundfish fishery is that it would not allow controls on individual species harvests. With the highly varied mix of species in the groundfish complex, an IEQ program could easily lead to overharvest of some of the minor species. Minor species harvest might be controlled in an IEQ fishery through landings limits for those species, but we would then find ourselves returned to our current management system. A fishing days IEQ program also would not control capacity, because it would give fishers the incentive to get the most out of each fishing day through vessel improvements and other capacity increasing measures.

Regardless of the efficacy of IFQ programs at reducing bycatch, development of any individual quota programs is under Magnuson-Stevens Act moratorium until October 1, 2000. It is unclear whether and under what conditions that moratorium might be lifted. The Council must address bycatch in the groundfish fisheries regardless of whether individual quota programs are an available management tool. If the Council believes that an individual quota program is a desirable future management option, it could begin its work to address bycatch by using other management tools now, and then draft an individual quota program when that tool becomes available.

Capacity reduction through reduced fleet size. This management alternative is currently impracticable because implementation would require Council discussion and exploration beyond the scope of this draft amendment. Capacity reduction measures are under discussion for implementation following the adoption of the strategic plan and could ultimately be the result of Alternative 2 under Section 4.3.

Overcapacity in the groundfish fishery is at the base of many other problems in the fishery. Reducing capacity within a fishery is a form of social engineering and as such, is bound to be controversial. When the Council first designed its limited entry program, it dealt with controversiality by setting a fairly low threshold for initial issuance of limited entry permits. Low threshold qualification requirements meant that the program could not reduce capacity to a level compatible with available harvest. Retaining an open access sector to allow continued participation by small harvesters, and to ease controversiality further compounded the fishery's overcapacity problem by leaving room for an unlimited number of new entrants. If the Council wishes to retain its policy of year-round landings limit management, it will need to reduce fleet size to reduce bycatch. Each cumulative limit period, there may be up to 2,000 vessels working to meet landings limits, and often exceeding them. Reducing the number of vessels targeting and exceeding landings limits is one way to reduce discard.

In 1997 and 1998, the Council discussed how and whether to develop a buyback program for the limited entry trawl fleet. Permit buyback is a socially "soft" management option that allows fleet participants to exit the fishery with some financial compensation. While there was agreement within the Council that reduction of trawl fleet capacity would be desirable for addressing myriad problems in the fishery, buyback discussions stalled because of delays in NMFS guidance on requirements for crafting buyback programs, and because the Council was reluctant to deal with the controversial necessity of allocating groundfish between gear groups before setting up a "taxation" program to pay for the trawl buyback. Unfortunately, the buyback program that the Council contemplated just two years ago is now an impossibility under current harvest levels. If the trawl fleet were to borrow money from the federal government to start up a buyback program, it could not repay that loan under current and expected future harvest conditions.

During buyback discussions and the simultaneous development of Amendment 11 to the FMP, the Council recognized that it might have to allocate certain groundfish species between different sectors of the fishery to better craft rebuilding measures for those stocks. At the Council's request, NMFS published a notice of control date of April 9, 1998, as the date after which groundfish landings in the

limited entry fishery and in the recreational fisheries would not be considered during discussions for either allocation between commercial and recreational fisheries or for further access limitation programs in the limited entry fishery. The Council later decided that it might also need to consider access limitation for the open access fishery. NMFS published a notice of control date of November 5, 1999 to announce that landings made after that date in the open access fishery would not be considered by the Council in any future deliberations on access limitation programs for that fishery sector. Thus, the Council has served notice of its intent to reduce fleet size in the commercial fisheries and to possibly constrain harvest in the recreational fisheries. These notices of control dates will be more effective if the Council acts swiftly on the programs contemplated.

In 1999, the Council hired an outside facilitator to bring the Council through a strategic planning process that would coalesce the problems of the groundfish fishery, and foster collective brainstorming on solutions to those problems. At the September 1999 meeting, the consultant engaged the Council, the GMT, the Groundfish Advisory Subpanel (GAP,) the Scientific and Statistical Committee (SSC,) the Habitat Steering Group (HSG,) and the Enforcement Consultants (EC) in discussions about major issues in groundfish fishery management. The consultant, Debra Nudelman of RESOLVE, Inc., reported on these discussions at the Council's November 1999 meeting. In her report, overcapacity was cited as the biggest challenge facing effective groundfish management.

Fleet reduction may be the most effective way to deal with overcapacity, but developing and implementing policies to do so would certainly be difficult and controversial. While limiting controversiality would help to smooth the transition from open access and open competition fisheries, the Council will need to consider whether to make difficult choices in the present or to face further fleet reduction needs in the future. If the Council takes the route of a less controversial access limitation program, it may wish to consider building buyback mechanisms into those programs at the start.

Incentives for vessels with lower bycatch rates, such as higher landings limits or fishing in certain areas (requires observer verification) This management alternative is impracticable without an observer program.

Vessel incentives to reduce bycatch is not a stand-alone management option. However, it does offer some interesting possibilities for encouraging the entire fleet to reduce bycatch rates. If the Council were to institute an observer program, it could monitor individual vessel bycatch rates, rank those vessels by degree of "clean" or "dirty" fishing, and then reward the cleanest fishers with further harvest opportunities. For example, if there were an observer program in the 2000 groundfish fisheries, vessel bycatch rankings could be tallied at the end of 2000. Also at the end of 2000, the Council could reserve 10% of managed species 2001 harvest guidelines for the top 10% of bycatch-clean vessels in the fishery. In 2001, the top bycatch-clean vessels of 2000 would have the opportunity to fish against the 10% reserve. Alternatively, the Council could reserve fishing opportunities in certain areas for only those vessels with the cleanest bycatch records.

Discard caps -- entire fishery closes when discard cap of particular species is achieved. This management alternative is impracticable without an observer program.

A discard cap is designed to protect a particular species within a fish complex, such as halibut bycatch caps in the Alaskan trawl fisheries. If the Council wished to target bycatch protection for a particular species within the groundfish complex, it could set a level of acceptable bycatch/discard for that species, after which all groundfish fishing would close. Over the past several years, the Council has had a policy of building assumed discards into total catch levels for many managed species. This practice is somewhat the reverse of the discard cap, which subtracts discards inseason. The advantage of managing with discard caps is that they draw a firm line beyond which no more of a particular species will be taken. Disadvantages of discard cap management are that they are more effective for protecting single species than for managing entire complexes, and that they tend to constrain entire fishing fleets for what may be the dirty fishing practices of just a few vessels. There are no individual vessel

incentives to fish cleanly, just to fish as quickly as possible. Ironically, encouraging vessels to fish quickly so that they may take as much of the target harvest before the fleet reaches its discard cap may actually result in an increase in overall fleet discard rates.

Complete closures (marine reserves) for areas of interception of species designated for protection. This management alternative is currently impracticable because implementation would require Council discussion and exploration beyond the scope of this draft amendment. Marine reserve design and potential siting is under discussion by the Council's Marine Reserves Committee.

Designating marine reserves to protect particular species or habitat would differ from closing "hot spots" in that the associated fishing closures would be permanent. In 1999, the Council convened a Marine Reserves Committee (MRC) to determine whether marine reserves might be a useful management tool for groundfish management. Thus far, the MRC has recommended that if the Council decides to use marine reserves, the design of those reserves should focus first on the protection of overfished species. Marine reserves are a rather simple tool -- if no fishing occurs in a particular area, then directed and incidental harvest cannot occur in that area. It is doubtful that marine reserves alone can protect against overfishing or mitigate bycatch problems, unless the reserves in question are large enough to encompass the entire habitat of a particular species or species group. However, marine reserves can be used as insurance against overharvest or high rates of incidental catch by banking a certain portion of managed species population in unfished waters.

4.4 Issue 4 -- Annual Management Measures Framework Provisions

Alternative 1 (status quo - no action). Under this alternative, the current list of frameworked "routine" management measures would not change. The Council asked NMFS to use its emergency management authority to take management actions outside of the routine measures framework for 2000. Emergency measures are viable for six months, and may be renewed for the second half of 2000. However, emergency regulatory measures may not be renewed more than once, which would mean that, for 2001 and beyond, the status quo option would leave the Council with only the frameworked routine management measures that were available for the 1999 fishery.

This alternative would have negative effects on both the environment and the fishing community. The emergency measures that the Council recommended for the 2000 fishing season provided management flexibility designed to protect overfished and depleted stocks while also allowing the harvest of healthy stocks. Without this flexibility, the Council's current routine management measures provide only a blunt instrument to perform an intricate task.

The Council is required by the Magnuson-Stevens Act to rebuild overfished species. By November 1999, three groundfish species had been declared overfished (lingcod, bocaccio, POP) and two more species were expected to qualify as overfished (canary rockfish and cowcod.) Of these five species, all but POP are caught in both the commercial and recreational fisheries; POP is generally only caught in commercial trawl fisheries. Recreational fisheries occur mostly inside state waters and are primarily managed by the three states, in cooperation with the Council and NMFS to ensure the application of consistent regulations to groundfish fisheries both inside and outside of three nautical miles. Commercial groundfish fisheries are managed by a cooperative state-tribe-federal effort at the Council level, with Council recommendations then implemented as federal, state, and tribal regulations. This difference in management protocol for the two types of fisheries means that, in general, the Council is more able to control and curtail commercial fishing than recreational fishing.

Although there are no formal groundfish allocations between commercial and recreational fisheries, historic Council practice has been to estimate the amounts of managed species that would be taken in recreational fisheries, and to then manage the remainder for commercial fisheries harvest. Over time, the recreational fishery has expanded, but the overall amount of available groundfish harvest has

declined. This practice also has allocative effects that the Council cannot ignore. State participants in the Council process took significant steps to rein in the recreational fisheries in 1999, with new and lower bag limits for lingcod and rockfish.

For the 2000 fisheries, the Council recognized that the frameworked management measures for the recreational and commercial fisheries were not adequate to allow protection for overfished and depleted stocks. Each of the three states had agreed to craft measures with their recreational constituencies that would reduce harvest of overfished species. These proposed new recreational measures, particularly for California fisheries, were outside of the "routine" management measures. Further, the Council wished to prohibit commercial lingcod landings during lingcod spawning and nesting season, as well as provide differential trip limits for different commercial gear types. Both of these new commercial fisheries management measures were also outside of the "routine" management measures.

Under Alternative 1, the creative management measures in 2000 would not be available in 2001 and beyond. This alternative could have negative environmental effects, particularly for lingcod, because complete fishery closure during spawning and nesting season is an integral part of lingcod rebuilding efforts. Regardless of which of the alternatives is chosen to address this issue, the Council will have to implement measures to rebuild overfished stocks. To achieve the same savings expected from the 2000 measures, the Council would have to dramatically lower the recreational fisheries bag limits and commercial fisheries landings limits. These harvest savings would come at a cost of negative socio-economic effects for both recreational and commercial fisheries. In other words, while this alternative may allow protection of overfished and depleted stocks, it would probably not allow fisheries access to healthy stocks. This alternative sacrifices flexibility in addressing the needs of overfished stocks and fishing communities for the convenience of not having to make changes to the FMP and implementing regulations.

Alternative 2 (amend federal groundfish regulations and the FMP to incorporate the emergency measures taken in 2000 as "routine" management measures -- listed at 6.2.1 in the FMP, and at §660.323(b) in the federal groundfish regulations.)

- *List of frameworked "routine" management measures for the commercial fisheries would include: limited entry cumulative landings limits that may be different based on type of gear used, and closed seasons for lingcod and rockfish.*

- *List of frameworked "routine" management measures for the recreational fisheries would include: size limits for canary rockfish, bocaccio, cabezon, kelp greenling, sculpin; closures for rockfish and lingcod; boat limits for cowcod; a requirement to keep the skin on rockfish; a prohibition on filleting cabezon; and hook limits.*

The purposes of this alternative would include: achieving the rebuilding plans, reducing bycatch, preventing overfishing, allowing the harvest of healthy stocks as much as possible while protecting and rebuilding overfished and depleted stocks, and equitably distributing the burdens of rebuilding among the sectors.

This alternative could have either positive or negative effects on both the environment and the fishing community. As described above under Alternative 1, measures taken for the 2000 fishery were intended to provide management flexibility to protect overfished and depleted stocks while still allowing harvest of healthy stocks. These measures were very specific, as is particularly illustrated in the above list of "routine" management measures for recreational fisheries.

As the Council addresses the needs of overfished and depleted species over time, it may wish to take different measures in 2001 and beyond than those measures it used for 2000. While this alternative would make the boundaries of Council authority very clear, it might not truly provide management

flexibility. If the range of management measures available to the Council is expanded only to include those listed under Alternative 2, the Council may find itself at a loss if it needs to move outside of that list.

If the Council decides in the future that it needs to use management measures different from those on the "routine" management measures list and those listed under Alternative 2, it may not be able to adequately protect overfished and depleted species in the future. Additionally, restricting itself to the measures of Alternative 2 could have socio-economic effects similar to but less dramatic than those described above for Alternative 1. Again, the Council will continue to be obliged to rebuild and protect overfished species; it can best meet this requirement while providing flexibility on the socio-economic effect of this action if it broadens its list of available management tools.

Alternative 3 (frameworking variation) Under this option, commercial and recreational management measures would become part of a framework for routine management measures.

- *List of frameworked "routine" management measures for the commercial fisheries would include: limited entry cumulative landings limits that may be different based on type of gear used, and closed seasons for any groundfish species in cases where protection of an overfished or depleted stock is required.*

- *List of frameworked "routine" management measures for the recreational fisheries would model the more broad framework for open access fisheries, so that all recreational fisheries for groundfish could be managed with bag limits, size limits, time/area closures, boat limits, hook limits, and dressing requirements.*

Further, this option would amend Section 6.2 of the FMP so that the first time any new measure were used (first time for a size limit, for limits on a particular species, first time for a closed season, etc.,) it could only be implemented during the two-meeting preseason process. Once adopted under an annual management measures cycle, the new measure could be adjusted as routine during the year. All routine management measures would contine to be established annually through the two-meeting preseason process, with adjustments to those measures allowable through the Council's meetings during the year.

The purposes of this alternative would include: achieving the rebuilding plans, reducing bycatch, preventing overfishing, allowing the harvest of healthy stocks as much as possible while protecting and rebuilding overfished and depleted stocks, and equitably distributing the burdens of rebuilding among the sectors.

This alternative could have positive effects on the environment and both negative and positive effects on the fishing community. Clearly, Alternative 3 provides the most flexibility for the Council. Under this alternative, the Council could craft management measures targeted at protecting particular species, rather than having to take broad measures that limit all fishing to achieve that protection. With this flexibility, however, the way that management measures are crafted results in a de facto allocation between commercial and recreational fisheries and between different gear groups. To provide long-term socio-economic stability in the fisheries, the Council should consider for the future a more formalized allocation.

As described above under Alternative 1, the result of Council action has been to give harvest priority to the recreational fishery, in part because recreational fisheries have historically taken the smaller portion of the available groundfish harvest. As the overall amount of harvestable groundfish has declined, the recreational fishery harvest has remained fairly constant, thereby increasing the percent of the whole taken in the recreational fisheries. In 1999, the Council lowered some of the recreational bag limits to try to reduce the amount of groundfish taken recreationally. While each individual recreational fisher may not take many fish, the cumulative effect on groundfish stocks of the many thousands of recreational fishers is significant. This same phenomenon happens on a smaller scale in the open access commercial fisheries, where many small-scale fishers were long accustomed to cumulative landings limits far above their catching ability. As the amount of groundfish available to the commercial fishery

has dropped, hundreds of open access fishers have also begun to feel the pinch of smaller limits. Limited entry fishers, accustomed as they have become to limits inappropriate to their catching ability, are also understandably reluctant to give up their hold on a historical portion of groundfish landings.

Under this Alternative, the Council would have the flexibility to craft management measures that would annually distribute available harvest between commercial and recreational fisheries. Allocations between different sectors of the commercial fishery are more formalized, but there could be some allocative effects between gear groups under the flexibility of Alternative 3. If the Council selects Alternative 3 it will need to either annually assess and analyze the allocative effects of its annual management measures, or, in a future action, set more formal allocation goals and standards that it will follow each year in the annual management measures process.

4.5 Issue 5 -- Removing Limited Entry Permit Endorsements Other than "A" Endorsement (Housekeeping Measure)

Alternative 1 (status quo - no action). The FMP provides for four different gear endorsements, the "A" endorsement, the provisional "A" endorsement, the "B" endorsement, and the designated species "B" endorsement. Of those, only the "A" endorsement is currently in use.

This alternative is unlikely to have any effects on the environment or fishing community. However, under this alternative, all endorsements, including provisional "A" endorsements, would continue to be available. Most provisional "A" endorsements are obsolete, but one type of provisional "A" endorsement allows vessels that landed sufficient groundfish during the window period with a gear that has been subsequently prohibited by a state or the Secretary of Commerce to receive limited entry permits. Should a state or the Secretary of Commerce ban a particular gear at some future time, provisional "A" endorsements would still be available to the affected vessels under this alternative. If, in the future, new vessels are able to use the provisional "A" endorsement, it could have the effect of introducing new fishing effort into an already overcapitalized fishery.

Neither retaining nor removing the "B" endorsement will have any effect on the environment, as that endorsement has expired and its removal would be a housekeeping measure. Retaining the designated species "B" endorsement under this option could only have the potential effect of allowing shortbelly rockfish harvest outside of the limited entry fishery. Shortbelly rockfish can be caught in association with other shelf rockfish, some of which species are or will be protected under rebuilding plans. If shortbelly rockfish were landed at their full harvest guideline, such fishing could have a negative effect on rebuilding plans for overfished and depleted species.

The activities described above in which this alternative would have a negative effect on the environment are unlikely to occur. Thus, retaining all three unused endorsements would have a negligible, if any, effect on the environment. The primary results of this alternative would be that it would require NMFS and Council staff to continue to waste time on outdated and unnecessary paperwork, and it would leave outdated material in the FMP and regulations, which could be confusing to the public.

Alternative 2 (remove all of the limited entry permit endorsements other than the "A" endorsement from FMP.) Under this alternative, the three unused gear endorsements (provisional "A," "B," and designated species "B") would be removed from the FMP.

This alternative is unlikely to have any effect on the environment or fishing community. As described above under Alternative 1, removing provisional "A" endorsements would remove obsolete materials and would remove the opportunity for new vessels to enter the limited entry fishery through provisional "A" qualifications. While removing this possibility would have the positive environmental effect of closing one avenue of limited entry capacity expansion, it could also have the negative social effect of denying fishery participation for a group of fishers who might have otherwise have been granted a permit. Given that the qualification window period was 1984-1988, the effects, if any, of removing this type of provisional "A" endorsement from the FMP should be minimal.

Neither retaining nor removing the "B" endorsement will have any effect on the environment, as that endorsement has expired and its removal would be a housekeeping measure. Removing the designated species "B" endorsement under this option would ensure that species associated with shortbelly rockfish would be protected from incidental catch, should a future fishery outside of the limited entry fishery develop for shortbelly rockfish.

Removing all three unused endorsements would have a negligible, if any, effect on the environment. The primary results of this alternative would be that it would save NMFS and Council staff time by removing a requirement for outdated and unnecessary paperwork, it would eliminate a possible avenue for future new entry into the limited entry fishery, and it would remove outdated material in the FMP and regulations, which could be confusing to the public.

Alternative 3 (remove "B" and designated species "B" endorsements, update provisional "A" endorsement.) Under this alternative, the provisional "A" endorsement would be updated so that it is only available in the future to vessels that used gear during the window period that is now prohibited by either a state or the federal government and with that gear, made sufficient landings to meet the minimum landing requirements for legal gears.

This alternative is unlikely to have any effect on the environment or fishing community. The expected positive environmental effects of removing "B" and designated species "B" endorsements are described above under Alternative 2. The expected positive environmental effects of removing provisional "A" endorsements is described above under Alternatives 1 and 2. Retaining one type of provisional "A" endorsements may have the positive social effect of allowing an avenue for future fishery participation for fishers who who might have otherwise have been granted a permit. The designated species "B" endorsement is the endorsement that requires outdated and unnecessary annual paperwork, thus Alternative 3 would also save NMFS and Council staff time.

** None of the above alternatives would preclude the design of future gear or other permit endorsements, or of other access limitation programs.

BACKGROUND. Amendment 6 was adopted by the Council in 1991 to introduce a limited entry permit program for the Pacific coast groundfish fishery. In order to smooth the controversial transition from an entirely open access fishery to the restrictions of limited entry, the Council recommended creation of four different permit endorsements to provide four different levels of fishery access. Only one of those permit endorsements is in use today, the "A" endorsement; this FMP amendment offers an opportunity for the Council to examine the necessity of keeping the other three endorsements in the FMP. Removing these endorsements from the FMP would save staff time for both the Council and NMFS, as staff currently must meet the annual regulatory requirements of maintaining these endorsements.

"A" Endorsements. All 499 current limited entry permits have "A" endorsements. "A" endorsements were originally intended for those vessel owners with a significant level of historical participation in and dependence on the fishery. When the limited entry program began, vessel owners qualified for "A" endorsements by ownership of vessels that met the minimum landing requirements (MLRs) during the window period, or that qualified for and upgraded a provisional "A" endorsement, or that were incorporated into the limited entry program under small fleet provisions.

Gear	Minimum Landing Requirement (for window period 7/11/84 through 8/1/88)
Trawl	At least 9 days in which over 500 lb of any groundfish species caught with groundfish trawl gear except Pacific whiting are landed or delivered, or 450 mt of landings or deliveries of any groundfish species caught with groundfish trawl gear except Pacific whiting, or 17 days in which over 500 lb of Pacific whiting caught with groundfish trawl gear are landed or delivered, or 3,750 mt of landings or deliveries of Pacific whiting caught with groundfish trawl gear.

Gear	Minimum Landing Requirement (for window period 7/11/84 through 8/1/88)
Longline	At least 6 days in which over 500 lb of any groundfish species caught with longline gear are landed or delivered, or 37.5 mt of landings or deliveries of any groundfish species caught with longline gear.
Fishpot	At least 5 days in which over 500 lb of any groundfish species caught with fishpot gear are landed or delivered, or 150 mt of landings or deliveries of any groundfish species caught with fishpot gear.

"A" endorsements were designed to be long-term endorsements, integral to the permit, and transferable upon any transfer of the permit by sale, lease, or other agreement. By the time that the limited entry program was implemented for the 1994 fishing season, approximately 660 vessels had received limited entry permits. That number has been reduced over the 6-year life of the program through permit combinations by permit buyers.

Provisional "A" Endorsements. There are no current provisional "A" endorsement holders. Provisional "A" endorsements were developed for vessel owners who had purchased a vessel part way through the window period, or who had a vessel under construction or conversion during the window period. The provisional "A" endorsement required that, for the first three years after the new vessel purchase or after completion of the vessel upgrade, vessel owners meet minimum groundfish landings requirements. If in any of the years in the three year trial period the vessel did not meet the landings requirements, the provisional "A" endorsement permit would be terminated. Provisional "A" endorsement permits had a maximum duration of 3 years. However, if the landings requirements were met for all three years, the provisional "A" endorsement could be converted to an "A" endorsement. The annual minimum landings requirements for the provisional "A" endorsements were equal to the annualized MLR for vessels receiving "A" endorsements. Vessels with provisional "A" endorsement limited entry permits operated under the same management measures and specifications as the "A" endorsed limited entry fleet. Provisional "A" endorsement permits were not transferable.

When the limited entry program went into effect, three vessels qualified for and were issued provisional "A" endorsements. All three vessels met the annualized landing requirements and were issued "A" endorsements by 1997. NMFS has received no further applications for provisional "A" endorsed limited entry permits. Because of the passage of time, most types of provisional "A" endorsements are obsolete.

Provisional "A" endorsements have also been available to owners of vessels that landed sufficient groundfish during the window period, but that used a gear type that has been subsequently prohibited by a state (Washington, Oregon, or California) or the Secretary of Commerce. Use of this provision has never been triggered. However, the Council may wish to either retain provisional "A" endorsements altogether, or revise the qualifications for provisional "A" endorsements so that only vessels qualifying under this prohibited gear provision would qualify for provisional "A" limited entry permits.

"B" Endorsements. "B" endorsements were developed to allow vessel owners who had participated in the fishery at a low level during the window period to continue in the fishery for a three-year adjustment period before being required to have an "A" endorsed limited entry permit for participation in the limited entry fishery. To qualify for a "B" endorsement, a vessel needed at least 500 lb of groundfish landings on at least three separate days at any time before August 1, 1988. The vessel owner had to have continuously owned the vessel since the date of the first of the three qualifying landings. "B" endorsements could not be upgraded to "A" endorsements, and permits with "B" endorsements were not transferable. Vessels with "B" endorsement limited entry permits operated under the same management measures and specifications as the "A" endorsed limited entry fleet.

Twenty vessels initially qualified for and received "B" endorsed limited entry permits. In accordance with the FMP, those permits and the "B" endorsement opportunity expired on December 31, 1996. Of those vessels initially issued "B" endorsements, two are now participating in the fishery with "A" endorsement permits. The "B" endorsement is now obsolete.

Designated Species "B" Endorsements. These endorsements were developed to allow domestic harvesters to particularly target species that were "underutilized." When Amendment 6 was approved, the three species designated as underutilized were Pacific whiting, shortbelly rockfish, and jack mackerel.

When the FMP was approved in 1982, Pacific coast domestic harvesters and processors did not have the capacity to fully utilize the harvestable surplus of all managed species. The Fishery Conservation and Management Act of 1976 provided for foreign fishing in U.S. waters for " . . . that portion of the optimum yield of [any] fishery which will not be harvested by vessels of the United States . . ." (201(d)) In its groundfish FMP, the Council divided groundfish species into two categories, those species that could not be discretely harvested without bycatch of other species, and those species that could be harvested with the expectation of minimal bycatch of other managed species. The FMP acknowledged that there were several species that were harvested at rates below maximum sustainable yield (MSY), but determined that most of those species could not be selectively harvested without bycatch of other species that were already fully utilized by domestic fisheries. Pacific whiting, sablefish, shortbelly rockfish, widow rockfish, and jack mackerel were categorized as harvestable without significant bycatch of other species, and therefore were subject to annual evaluations of domestic harvest needs and availability for foreign utilization.

By 1991, when the limited entry program was approved, only Pacific whiting, shortbelly rockfish, and jack mackerel were considered harvestable without significant bycatch and subject to evaluation of availability for foreign harvest and/or processing. Pacific whiting was fully used by the domestic fleet in 1991, and small joint venture processing levels were allowed for shortbelly rockfish and jack mackerel, as well as a small amount of directed foreign fishing for jack mackerel. From 1992 onward, all Council-managed species were considered fully utilized and there were no allocations to either the joint-venture processing interests or to directed foreign fishing.

The limited entry program and designated species "B" permits were implemented for the 1994 fishing year. Under the designated species "B" program, any Pacific whiting, shortbelly rockfish, and jack mackerel that would not be used by the limited entry fleet could be made available to vessels outside of the limited entry fleet by providing those vessels with designated species "B" endorsed permits. NMFS conducted annual surveys of the limited entry fleet to determine whether limited entry permit holders would fully use those species. After 1998, NMFS no longer surveyed the fleet about its Pacific whiting harvest, as that species was clearly fully utilized by the limited entry fleet. With the approval of Amendment 8 to the Coastal Pelagic Species FMP, jack mackerel was formally removed from the list of groundfish species managed under the groundfish FMP. Shortbelly rockfish are part of the shelf rockfish complex and as such, are associated with overfished and depleted species under the protection of rebuilding measures. Furthermore, since shortbelly rockfish are taken predominantly with trawl gear, there is little reason to expect future interest in harvesting shortbelly rockfish by vessels outside of the limited entry fleet.

NMFS has never issued any designated species "B" endorsed permits. NMFS has also never received any requests or applications for designated species "B" permits.

RENEWAL OF EMERGENCY RULE FOR 2000 MANAGEMENT MEASURES

Situation: Several management measures necessary to implement the initial rebuilding plans and protect canary rockfish were implemented by emergency rule in conjunction with the 2000 annual specifications. Emergency measures are effective for up to 180 days and may be extended for an additional 180 days. In order for extension to be approved, the Council must begin the necessary fishery management plan (FMP) or regulatory amendment to address the emergency conditions in a more permanent manner. Proposed Amendment 13 to the groundfish FMP is intended to authorize the Council to continue using the types of management measures implemented in the emergency rule. At this meeting, the Council should advise National Marine Fisheries Service (NMFS) to extend the emergency rule provisions for the remainder of the year.

Council Action:

1. Recommend extension of the emergency rule provisions.

Reference Materials: None.

PFMC
03/17/00

AMERICAN FISHERIES ACT

Situation: The American Fisheries Act (AFA) mandates that, "by not later than July 1, 2000, the Pacific Fishery Management Council... shall recommend for approval by the Secretary [of Commerce], conservation and management measures to protect fisheries under its jurisdiction and the participants in those fisheries from adverse impacts caused by this Act, or by any fishery cooperatives in the directed pollock fishery."

It is critical the Council's recommendations specify the rationale for excluding vessels and/or processors, and include justification for the management measures. That is, participation restrictions must directly relate to protecting West Coast fisheries from harm caused by the AFA. This specificity is important for establishing that the management measures comply with National Standard 4 (i.e., are fair and equitable) and developing the Regulatory Impact Review and Regulatory Flexibility Act analyses to assess whether economic impacts that may result from the management measures are justified.

In September 1999, the Council adopted a control date of September 16, 1999 and directed staff to develop an amendment to the groundfish fishery management plan based on two industry-sponsored proposals. Measures in the Midwater Trawlers Cooperative proposal would restrict participation of AFA-qualified vessels in whiting and groundfish fisheries. Measures in the West Coast Seafood Processor's Association proposal speak to restricting participation in the whiting fishery and the West Coast groundfish fishery by processors that do not meet stated criteria.

At the March 2000 meeting, the Council reviewed a draft analysis of a set of proposed management alternatives. After hearing public comment, the Council revised several of the draft options and provided additional options. At the April meeting, the Council will review the suite of proposed alternatives and a preliminary analysis of the potential effects of the qualifying requirements and participation restrictions. Council action might include refining and narrowing the suite of alternatives, and providing direction to staff for preparing the required regulatory analyses. The Council will take action on the draft recommendations at the June 2000 meeting.

Guidance on several questions is requested (1) what specific harm from the AFA do the management measures protect against?; (2) do participation restrictions apply to vessels or limited entry permits?; (3) do vessel or permit restrictions apply to all AFA-qualified vessels or only those that join cooperatives?; (4) what is the rationale for the participation requirements (e.g., landings/processing amounts, qualifying years)?; and (5) how does the Council define processors that "benefitted" from the AFA?

Council Action:

1. **Provide direction to Council staff and advisory entities for preparing draft conservation and management measures to protect West Coast fisheries from harm caused by the AFA.**

Reference Materials:

1. Measures to protect West Coast groundfish fisheries from adverse impacts as a result of the AFA (Supplemental Attachment B.15.a.).

PFMC
03/21/00

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON AMERICAN FISHERIES ACT

Objective Statement: To avoid adverse impact caused by the American Fisheries Act (AFA) by maintaining status quo capacity and maintaining permit value for AFA and non-AFA permit holders.

To ease in the analysis, the Groundfish Advisory Subpanel (GAP) suggests the Council limit the analysis to the following options:

The proposed options are based on the following criteria:

Catch history based on:

a. minimum tonnage requirements, i.e., 50, 100, 500 metric tons in any one of the qualifying years; **or**

b. number of deliveries, i.e., 10 deliveries in any one of the qualifying year.

Qualifying years (window periods):

a. 1995, 1996, 1997;

or

b. 1995, 1996, 1997, 1998, 1999 through 9/16/1999.

Definition: An AFA catcher vessel is a vessel that holds an AFA permit and was fishing pollock during the AFA's qualifying years.

Process: The Groundfish Advisory Subpanel suggest the following:

1) Set participation criteria for AFA catcher vessels in the:
   a) mothership whiting fishery,
   b) shore-side whiting fishery,
   c) groundfish other than whiting.

2) Analyze the following participation option:

A. Mothership Whiting Fishery:

A.i. Harvested (50, 100 or 500) mt whiting during any one of the following:
   a. 1995, 1996, 1997;
   or
   b. 1995, 1996, 1997, 1998, 1999 through 9/16/1999.

A.iii. Made 10 deliveries during any one of the following
   a. 1995, 1996, 1997;
   or
   b. 1995, 1996, 1997, 1998, 1999 through 9/16/1999.

B. Shorebased Whiting Fishery:

B.i. Harvested (50, 100, 500) mt whiting during any one of the following:
   a. 1995, 1996, 1997;
   or
   b. 1995, 1996, 1997, 1998, 1999 through 9/16/1999.

B.iii. Made 10 deliveries during any one of the following:

a. 1995, 1996, 1997;
or
b. 1995, 1996, 1997, 1998, 1999 through 9/16/1999.

C. Groundfish other than whiting:

C.i. Harvested (50, 100, 500) mt groundfish other than whiting and cannot be based on bycatch landed in the whiting fishery, during any one of the following:
a. 1995, 1996, 1997;
or
b. 1995, 1996, 1997, 1998, 1999 through 9/16/1999.

C.iii. Made 10 deliveries of groundfish other than whiting and cannot be based on bycatch landed in the whiting fishery, during any one of the following.
a. 1995, 1996, 1997;
or
b. 1995, 1996, 1997, 1998, 1999 through 9/16/1999.

3) Issue AFA catcher vessels a Pacific Coast Groundfish eligibility endorsement based upon meeting the eligibility criteria.

4) Non-AFA catcher vessels may participate in all Pacific Coast groundfish fisheries as per their limited entry (LE) permit and do not need an eligibility endorsement to do so. AFA catcher vessels which do not meet the selected minimum landing criteria are precluded from participation in such fisheries unless substituting for another AFA catcher vessel of similar or greater size (i.e., downsizing).

5) If an AFA catcher vessel meets the Council's selected participation criteria, then the vessel is eligible to use or obtain (lease or purchase) a limited entry trawl A permit and use it only in a fishery that the vessel qualified for under the above criteria.

6) AFA catcher vessels not meeting requirements:

Any limited entry (LE) trawl permit assigned to an AFA catcher vessel not meeting the minimum landing requirements will be revoked. The GAP suggests setting a control date to provide notice to potential purchasers of any LE permits held by AFA vessel owners which do not meet the selected minimum landing criteria will be revoked. The GAP suggest setting the control date as of April 7, 2000.

The topic of AFA as it relates to catcher-processors, motherships, and shoreside processors was not addressed by the GAP, and there is no new comments on these sectors. The GAP suggest you refer to staff's briefing Supplemental Attachment B.15.a.

PFMC
04/06/00

American Fisheries Act

Management Measures to Protect West Coast Groundfish Fisheries

4/6/00 1

Purpose for Council Action

Protect West Coast fisheries from harm

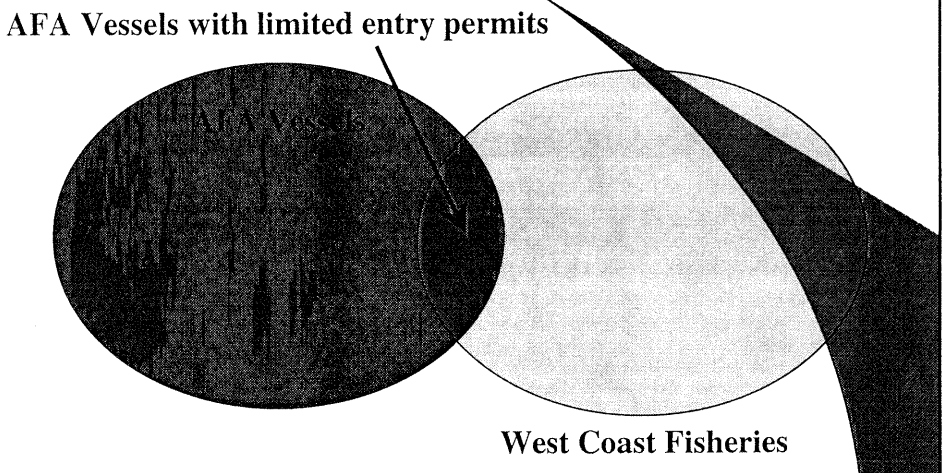
If no action, Secretary could implement measures

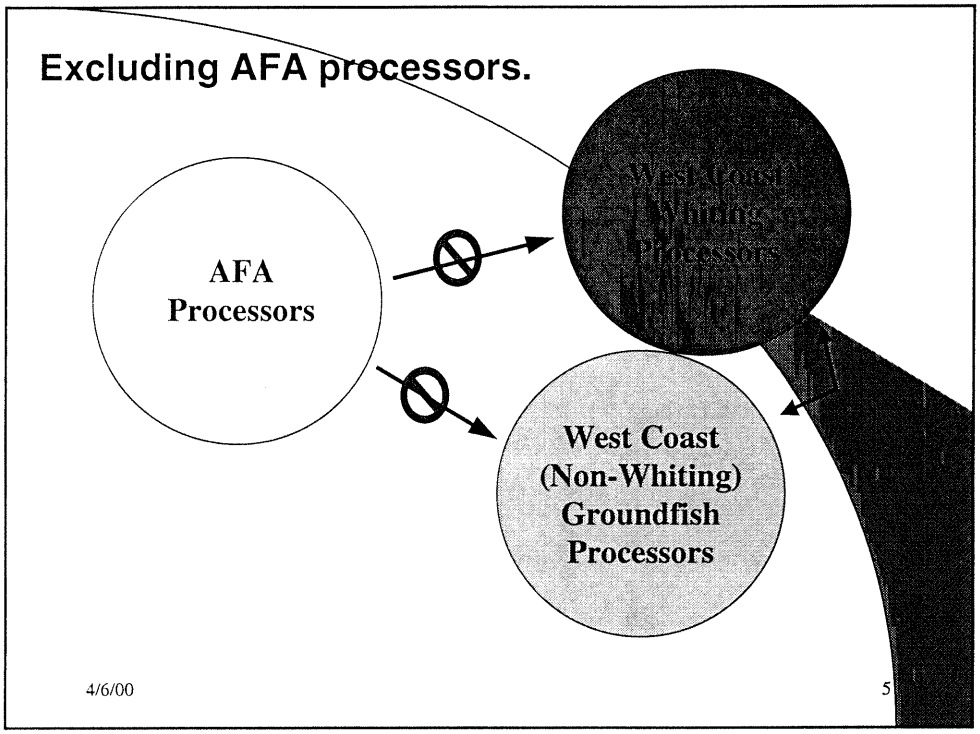
4/6/00 2

Council Objective Today

Determine qualifying criteria to exclude vessels and processors that gained an advantage (i.e.,"benefited") from the AFA

Excluding AFA vessels with LE permits.
The number excluded will depend on the criteria.




Excluding AFA processors.
AFA Processors
West Coast (Non-Whiting) Groundfish Processors
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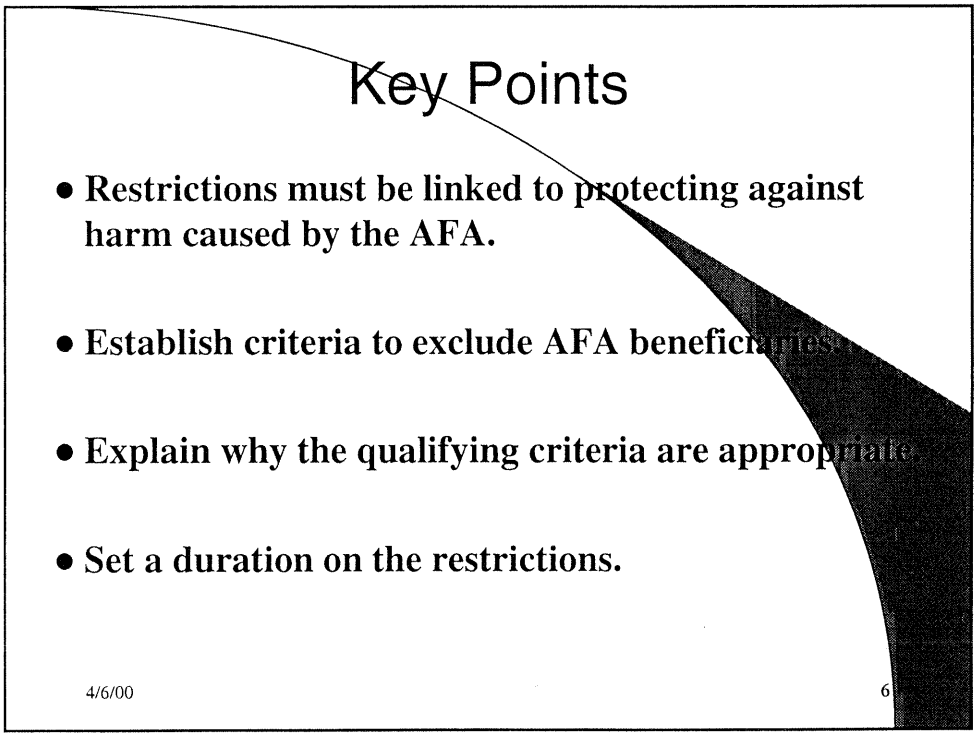
Key Points
• Restrictions must be linked to protecting against harm caused by the AFA.
• Establish criteria to exclude AFA beneficiaries.
• Explain why the qualifying criteria are appropriate.
• Set a duration on the restrictions.
4/6/00
6

Definitions

AFA vessel.

Catcher vessel, catcher processor, or mothership receiving a portion of the directed pollock quota.

AFA processor.

Processor receiving a portion of the directed pollock quota.

Spill-over vessel or processor.

AFA vessel with a West Coast LE permit; or AFA processor.

Sectors for Exclusion Consideration

I. AFA Catcher Vessels (C/V)

II. AFA Motherships (M/S) and AFA Catcher Processors (C/P)

III. AFA Processors

I. C/V Exclusion Groups

Whiting fishery

A. Catcher vessels delivering offshore.

B. Catcher vessels delivering shorebased.

Groundfish Fishery

A. C/Vs landing (non-whiting) groundfish shorebased.

I. Catcher Vessel Exclusions

Three approaches to exclude spill-over vessels:

1 **Vessel is excluded.**

2 **Limited entry permit is retired or restricted.**

3 **Vessel excluded <u>and</u> permit retired.**

Why vessels vs. permits?

If restrictions are not placed on the permit, an excluded vessel could sell permit to a non-AFA vessel or transfer to new boat.

This could result in another vessel entering the fishery, causing harm.

Catcher Vessel Exclusions

The proposed criteria are:

Catch history:

a. **minimum tonnage requirements, i.e., 50 mt;**
b. **number of deliveries, i.e., 30 deliveries.**

Window periods:

a. **1994, 1995, 1996, 1997;**
b. **1994, 1995, 1996, 1997, 1998, 1999 through 9/16/99.**

Sectors for Exclusion Consideration

I. AFA Catcher Vessels

II. AFA Motherships (M/S) and AFA Catcher Processors (C/P)

III. AFA Processors

C/P and M/S Exclusions

Approaches to exclude spill-over C/Ps and M/Ss:

For C/Ps –

- **Vessel is excluded.**
- **Limited entry permit is retired or restricted.**
- **Vessel excluded and permit retired.**

For M/Ss –

- **Vessel excluded or restricted.**

C/P and M/S Exclusions

The proposed criteria are:

For C/Ps –

- **possessed limited entry permit;**
- **window period, i.e., 1997, 1998, 1999 through 9/16/99.**

For M/Ss (and C/Ps as M/Ss) –

- **processing history;**
- **window period.**

Sectors for Exclusion Consideration

I. AFA Catcher Vessels

II. AFA Motherships (M/S) and AFA Catcher Processors (C/P)

III. AFA Processors

Processor Exclusion Groups

I. **Whiting Processors**

II. **(Non-whiting) Groundfish Processors**

Processor Exclusions

Approaches to exclude processors:

- **If no history, no future participation**
- **If some history, future participation restricted to historic.**

Processor Exclusions

The proposed criteria are:

For whiting processors –

- **processing history, i.e., 1000 mt;**
- **federal authorization;**
- **qualifying years, i.e., 1998 or 1999.**

For (non-whiting) groundfish processors –

- **processing history.**

Conclusion

Purpose of Council action is to recommend management measures to protect against spill-over effects (harm) from the AFA.

Key Points

- Restrictions must be linked to protecting against harm caused by the AFA.
- Establish criteria to exclude AFA beneficiaries.
- Explain why the qualifying criteria are appropriate.
- Set a duration on the restrictions.

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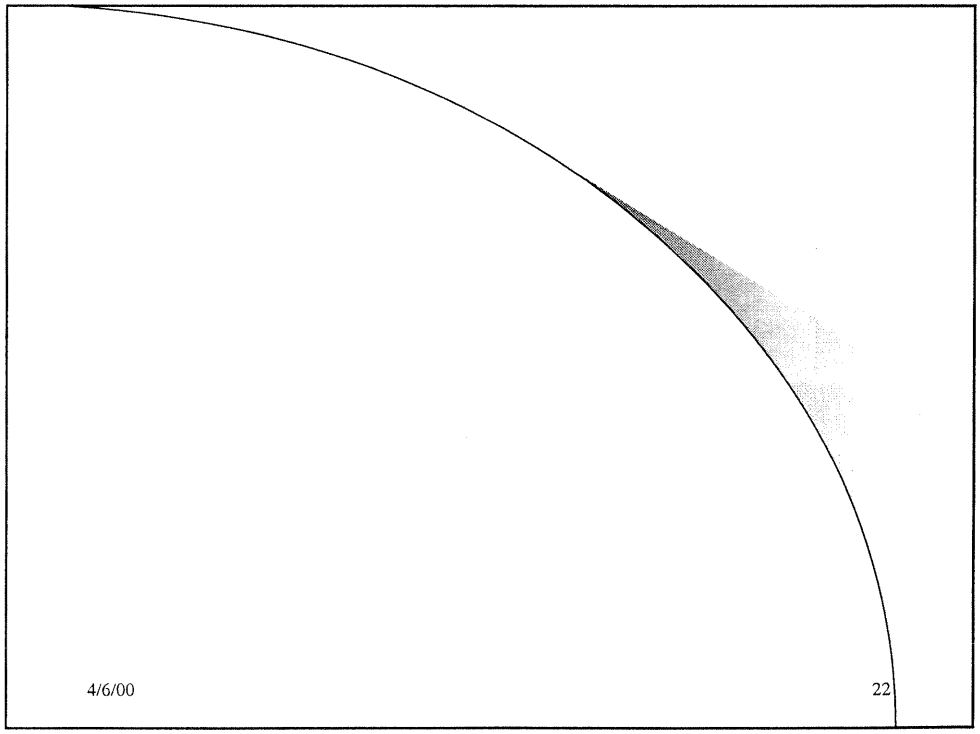

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Exclude Vessels or Permits?

- **Vessel is excluded.**
- **Limited entry permit is retired or restricted.**
- **Vessel excluded <u>and</u> permit retired.**

Options for excluding spill-over C/Vs

I. Whiting Fishery (offshore)

A. Exclude C/Vs delivering offshore that have not:

A.i. harvested 50 mt whiting during:
- **a. 1994, 1995, 1996, 1997; <u>or</u>**
- **b. 1994, 1995, 1996, 1997, 1998, 1999 through 9/16/99; or**

A.ii. made 30 deliveries during:
- **a. 1994, 1995, 1996, 1997; <u>or</u>**
- **b. 1994, 1995, 1996, 1997, 1998, 1999 through 9/16/99; or**

A.iii. made 10 deliveries during 1997.

Options for excluding spill-over C/Vs

I. Whiting Fishery (shorebased)

B. C/Vs landing shorebased that do not meet the following requirements will be excluded.

B.i. harvested 50 mt whiting during:
a. 1994, 1995, 1996, 1997; or
b. 1994, 1995, 1996, 1997, 1998, 1999 through 9/16/99; or

B.ii. made 30 deliveries during:
a. 1994, 1995, 1996, 1997; or
b. 1994, 1995, 1996, 1997, 1998, 1999 through 9/16/99; or

B.iii. made 10 deliveries during 1997.

Options for excluding spill-over C/Vs

II. (Non-whiting) Groundfish fishery

A. C/Vs without shorebased landings of (non-whiting) gf during the qualifying period will be excluded.

A.i. 1994, 1995, 1996, 1997; **or**

A.ii. 1994, 1995, 1996, 1997, 1998, 1999 through 9/16/99

Direction Needed to Finalize Catcher Vessel Options

Determine criteria to exclude spill-over vessels.

Why are these the right criteria?

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Options for excluding spill-over permits

Permits on AFA vessels will be retired or restricted based on catch history during the qualifying period.

A.i. harvested 50 mt of groundfish during:
- **a. 1994, 1995, 1996, 1997; or**
- **b. 1994, 1995, 1996, 1997, 1998, 1999 through 9/16/99; or**

A.ii. made 30 deliveries of groundfish during:
- **a. 1994, 1995, 1996, 1997; or**
- **b. 1994, 1995, 1996, 1997, 1998, 1999 through 9/16/99; or**

A.iii. made 10 deliveries of groundfish during 1997.

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Direction Needed to Finalize Permit Options

Determine criteria to retire or restrict spillover vessel permits.

Why are these the right criteria?

Options for excluding spillover C/Ps and/or M/Ss

- **C/Ps not licensed to harvest gf in 1997, 1998, or 1999 through 9/16/1999 are excluded from the whiting fishery.**
- **M/Ss (and C/Ps as M/Ss) that did not receive at least 1000 mt of whiting during the 1998 or 1999 regular whiting season are excluded.**

Direction Needed to Finalize C/P and M/S Options

Determine criteria to exclude spill-over vessels.

Why are these the right criteria?

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Options for excluding spillover processors

I. Whiting Processors

AFA facilities would be EXCLUDED from the whiting fishery unless:

Facility recv'd at least 1000 mt of whiting in the 1998 or 1999 regular whiting season; or held state or federal authorization to receive or process unsorted whiting in 1998 or 1999.

Once during the year, a processing company that owns or controls a qualified processor or receiving station may substitute a facility owned or controlled by the same company.

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Options for excluding spillover processors

II. (Non-whiting) Groundfish Processors

AFA facilities would be EXCLUDED from WC (non-whiting) gf fisheries unless:

AFA facility has processing history in WC (non-whiting) groundfish fishery. Future participation is based on processing history.

Direction Needed to Finalize Processor Options

- **Clear rationale for excluding AFA processors.**
- **Linkage between restrictions and the AFA.**
- **Determine the qualifying criteria.**
- **Why are these the right criteria?**
- **Ensure that restrictions on AFA processors do not harm (non-whiting) WC groundfish processors.**

AFA Cooperative

Arrangement between vessels and processors to use a portion of the directed pollock quota allocated.

For example, an inshore cooperative formed by catcher vessels and shorebased processors would share a portion of the inshore sector's pollock allocation.

Benefits to Vessels (C/V, C/P, and M/S)

Vessels in cooperatives, or who lease their portion of the pollock allocation, can optimize their pollock fishing. This operational advantage could harm WC groundfish fisheries, as these vessels could increase participation in WC fisheries.

Benefits to Processors

An operational advantage is less distinct.

It might be possible for an AFA processing company in Alaska to build a new WC facility. It might also be possible for an AFA processing company to buy an existing WC facility and expand the range of species the facility processes. Both of these could be seen as harm current WC processors.

ARCTIC STORM, INC.
400 North 34th Street, Suite 306
Seattle, Washington 98103 U.S.A.

March 15, 2000

Pacific Fisheries Management Council
Attn: Jim Lone, Chairman
2130 S.W. 5th Ave., Suite 224
Portland, Oregon 97201

RE: American Fisheries Act (AFA); Control Date

Dear Council Members,

I am writing in support of the industry agreement from the September council meeting where the control date of September 16, 1999 was established to protect fisheries under the jurisdiction of the Pacific Fishery management Council and the participants in those fisheries from adverse impacts from the American Fisheries Act (AFA), or by any fishery cooperatives in the directed pollock fishery.

At the September Council meeting, members from the Midwater Trawlers Cooperative (MTC) and United Catcher Boats (UCB) presented a unified statement in favor of an AFA control date of September 16, 1999. The Council has approved this control date and NMFS has published this date in the Federal Register.

At the March Council meeting, a second option of December 31, 1997 was presented. The people presenting this date stated it was the date that the North Pacific Fishery Management Council used to determine participation in the North Pacific. As far as Pacific fishery management is concerned, this date is not significant. It does not correspond to any management issue. It does not link to any licensing or moratorium program.

The qualifying period of January 1, 1995 to December 31, 1997 was used in the North Pacific because it worked for the participants in the North Pacific. Industry members of the North Pacific got together and negotiated these dates. Just like the industry members of the Pacific have gotten together and determined that September 16, 1999 works for the industry members in the Pacific fisheries.

Members from the MTC and UCB are the most likely participants who will be affected by AFA. These organizations have agreed on a unified control date of September 16, 1999. The Council has passed this control date and NMFS has published it in the Federal Register. The Control date has gone through the necessary process and is defendable. The new proposal would have an adverse impact on my company and therefore we do not support this proposal.

We encourage the Pacific Council to reject any changes to the industry agreement.

Sincerely yours,

Dale D. Myer

Dale Myer

SEA STORM FISHERIES, INC.

400 North 34th Street, Suite 306
Seattle, Washington 98103 U.S.A.

March 14, 2000

Pacific Fisheries Management Council
2130 SW 5th Avenue, Suite 224
Portland, Oregon 97201
Attn: Jim Lone, Chairman

RE: American Fisheries Act (AFA)

Dear Jim,

I am writing on behalf of our vessel, the Sea Storm. The Sea Storm purchased its Limited Entry permits in 1997, prior to any discussion on the AFA. That permit was a "Groundfish" Trawl A permit which permitted the vessel to fish all groundfish (whiting At-Sea, whiting shore-side and groundfish shore-side). We purchased the permit with the intention of fishing whiting for the mothership sector and whiting for the shore-side sector. Every year since purchasing our permit, we have contacted members of shore-side whiting processors in an attempt to get a market.

In 1999, we were contacted by one of the shore-side plants in the middle of the season. The plant told us that 60 to 80% of their whiting fleet were abandoning them. Those vessels were leaving to go up to Alaska to qualify for Pollock Co-ops permitted under the American Fisheries Act (AFA). The plant asked us if we could come down and fill in for their fleet. We did, and because of our efforts, we kept the plant running for another two weeks. We kept people employed where otherwise the entire plant and its community would have been deserted. At the end of the season, the plant manager said we did a real good job and thanked us for our efforts. Thinking we might have a chance for the next season, we asked the plant manager where we stood for next season. He said, "Top of the Standby List", same place we were at the beginning of the season.

I have no problem with the plants decision. I understand and appreciate the plant's loyalty to vessels that have fished for them for years. These vessels, however, were leaving their market in a lurch, so they could qualify for a Pollock Co-op in Alaska. The same vessels probably will never fish that Pollock, but will lease it and remain on the West Coast to fish whiting. I have no problem with them leasing their Pollock. However, I do have a hard time hearing that these same vessels need protection under the American Fisheries Act (AFA). It seems these vessels are twisting the AFA around for their own benefit.

The Sea Storm paid very good money to retire existing permits and enter the whiting fishery. We made the investment prior to the AFA. Although we have no shore-side market for the near future, we wish to be able to have the opportunity to pursue a shore-side whiting market. Admittedly, the West Coast fisheries are in trouble, however, no one knows where they will be in the future. Rockfish bycatch may force all whiting vessels to fish outside 100 or 150 fathoms of

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water. Whiting stocks may continue to be pushed way to the North. If these patterns continue, the shore-side plants may once again need more vessels. I would like the Sea Storm to have the opportunity to be one of those vessels. An opportunity we paid for when we purchased our Limited Entry permits. We feel strongly that to lose that opportunity under the guise of AFA would be a form of takings by the federal government without due compensation.

The Sea Storm is a member of United Catcher Boats (UCB). In September, members from Midwater Trawlers Cooperative (MTC) and UCB worked out an equitable agreement that would not adversely affect either of their members. That control date was September 16, 1999. In the name of fairness, I urge the council to go forward using the previous industry agreement as the control date in regards to AFA restriction. To do otherwise so that our Sea Storm would not qualify to fish shore-side whiting would be discriminatory and unjust.

Thank you for your understanding of our situation.

Sincerely yours,

Walter T. Pereyra
General Partner
F/V Sea Storm

MUIR MILACH MANAGEMENT, LLC

120 LAKESIDE AVENUE
SUITE 230
SEATTLE, WASHINGTON, 98122

PHONE: 206-860-1380
FAX: 206-860-1418
E-MAIL: CFF@MSN.COM

16 March 2000

Pacific Fisheries Management Council
2130 SW 5th Avenue, Suite 224
Portland, Oregon 97201
Attn: Jim Lone, Chairman

Re: Alternative Control Dates and Tonnage requirements For Participation in the Hake Fishery

Dear Sir:

Following intensive discussions and negotiations within the Groundfish Advisory Panel, the Panel with the concurrence of the Trawl Fishery Organizations recommended to the Council that the Council adopt a control date of September 15, 1999, for purposes of determining entitlement to participate in future Hake shoreside and at-sea fisheries. As a result of this negotiated recommendation, the Council adopted a similar date. During these negotiations, there was input from every organization representing trawlers on the West Coast, and there was intense scrutiny of the vessels that would be impacted by this control date.

In the case of the Muir Milach, it was noted that she was built in Coos Bay Oregon in 1979 specifically for the Hake fishery, and had participated in that fishery almost every year since her construction. She has delivered Hake shoreside whenever she has had a market, which included the years 1996 and 1999. It was recognized by all the participants in the discussions that she would qualify for Shoreside endorsement only if the control date was following the 1999 season. And it was for that specific reason that we requested that date and agreed to certain conditions with the trawl groups in order to gain approval of that date.

We understand that the question of the control date has again been raised before the Council by individual members of the same organizations that agreed to and benefited from the previous negotiations about the date. This places the Council in the position of having to choose between the recommendation of the organizations of the fishermen affected by the Council decision or the individuals who choose to request actions contrary to the recommendation of their organization.

The problem with ignoring the organizations is two fold. One, ignoring the organizations recommendation is the equivalent of telling them that the Council doesn't trust the judgment of these organizations or care about their input. If the reasonable recommendations of the organizations carry no weight with the Council there would be no reason for anything but the anarchistic input of all individuals, thereby condemning the Council and its Panels to sorting through endless testimony and disjointed information in attempting to make its decisions. Secondly, if the Council ignores the negotiated resolution of issues by the organizations, it would severely handicap the ability of these organizations

to continue in their capacity as an informal co-manager of the fishing activities. If the Council won't back the reasonable recommendations of the organizations, then the organizations lose credibility.

A collateral issue apparently is that, in addition to changing the control date, it has been requested that entitlement to participation in the Hake fishery be attached to permits rather than to vessels. The reason for the consideration of a restriction into the entry of the Hake fishery was because of this being required by the American Fisheries Act. Under the act certain vessel were entitled to certain rights in the Alaskan Pollock fishery so long as that vessel did not use those rights to expand its participation in other fisheries. The Act is vessel specific and this requires that the "side boards" restrictions and entitlements granted pursuant to the AFA also be vessel specific. To consider a restricted entry into the Hake fishery via a permit would constitute the implementation of a limited entry program, which would require the Council to engage in a much more exhaustive investigation of the issues.

We respectfully request that the Council retain 15 September 1999, as the control date for the Hake fishery, or in the alternative, set the minimum delivery prior to that date at 25 tons.

Thank you for your consideration of this matter.

Sincerely,

Charles E. Yates

CC: Midwater Trawlers Association
Fishermans Marketing Association

March 14, 2000

Pacific Fisheries Management Council
Attn: Jim Lone, Chairman
2130 SW 5th Avenue, Suite 224
Portland, Oregon 97201

RE: American Fisheries Act (AFA)

Dear Chairman Lone,

The American Fisheries Act was passed by congress in the fall of 1998 and enacted by the President on October 21, 1998. AFA requires the PFMC to exercise its authority under the AFA to adopt regulations to protect the existing West Coast fishery from further capitalization by AFA qualified vessels. The intent is to restrict further investments being made by vessels that received a benefit from AFA.

The Nordic Fury purchased its West Coast groundfish trawl permits in 1996 and combined those permit on the vessel in 1997. This investment was made almost two years prior to any talk of an American Fisheries Act. Those groundfish permits qualified the Nordic Fury to fish all groundfish on the West Coast. The vessel was qualified and still is qualified to fish mothership whiting, shore-side whiting and groundfish. To say that the Nordic Fury took advantage of the AFA to make further investments in the West Coast fisheries is completely wrong.

The Nordic Fury has fished in the mothership whiting fishery every years since combining our permits. However, we have not fished shore-side whiting or groundfish. We do not intend to exacerbate the West Coast fishery by fishing the Nordic Fury for other groundfish.. However, we would like to maintain the value of our permit by retaining the opportunity to fish shore-side whiting. No one can predict the future for whiting and there may someday be a market for the Nordic Fury. Both Alternatives being put forth would disqualify the Nordic Fury from ever being able to fish shore-side whiting. We feel this unfairly takes away the opportunities for which we made our investments and severely devalues our Limited Entry permit. In the AFA the federal government was very careful not to create a "takings without just compensation".

There is a very simple solution. As an new alternative, the Council should consider as their preferred option:

1) "An AFA qualified vessels which does not have a West Coast Limited Entry Permit, could not participate in the West Coast fisheries without first buying a permit from an AFA vessel that had a Limited Entry Permit at the time of the passage of the AFA."

This alternative would freeze AFA qualified vessel's investments and fishing effort at the time of passage of the American Fisheries Act (October 21, 1998). It would preserve the value of the existing permits by allowing AFA qualified vessels to buy and sell permits. It would prevent 'unjust takings without compensation". AFA qualified vessels could purchase Limited Entry permits only from other AFA qualified vessels. There would never be any increase of effort from AFA qualified vessels. It would be simple to implement. It would be easy to justify and defend. Most importantly, it would be equitable.

Thank you for you consideration and understanding.

Sincerely yours,

Stan Hovik
F/V Nordic Fury

Dave

MTC Proposal with modifications in bold type.

1. AFA qualified CVs that have not harvested at least **50** tons of whiting in the mothership fishery in the years **1994 through September 16, 1999** will be ineligible to participate in the mothership fishery for whiting in the future.

2 AFA qualified vessels that have not landed at least **50** tons of whiting in the inshore fishery in the years **1994 thorough September 16, 1999** will be ineligible to participate in the inshore fishery in the future.

3 AFA qualified vessels that do not have inshore landings of groundfish other than whiting in the years **1994 through September 16, 1999** will be prohibited from participating in those fisheries in the future. Bycatch amounts of other groundfish in the Pacific whiting fishery shall not be eligible for qualifying a vessel under this provisions.

4 The Council should immediately announce a control date of **September 16, 1999** to the extent necessary to preserve the status quo.

Rod Moore:

1) Define "AFA processor" as any company that is part of an on-shore cooperative in Alaska under the American Fisheries Act

2) Require that, in order to process Pacific groundfish (including whiting), a processing facility must obtain a permit from NMFS

3) No permit may be issued to a company identified as an AFA processor unless that company has engaged in processing Pacific groundfish (including whiting) prior to April 7, 2000.

4) The permit requirement will continue until changed by the Council. The prohibition on AFA processors will expire on December 31, 2004, unless the Congress extends the life of on-shore processor cooperatives, in which case the prohibition will be automatically extended.

American Fisheries Act: Management Measures to Protect West Coast Groundfish Fisheries

I. Introduction

Purpose of Council Action

The American Fisheries Act of 1998[1] (AFA) provides the Council the opportunity to recommend management measures to protect fisheries under the Council's jurisdiction from harm caused by the AFA or cooperatives under the AFA. These recommendations are due to the Secretary of Commerce by July 1, 2000.

The AFA provides certain vessels and processors with greater operational flexibility. The concern is that AFA vessels and/or processors will use this advantage to move into West Coast groundfish fisheries, increase effort, and cause harm to current participants.

Goal

Recommend management measures to control increases in effort in West Coast fisheries – i.e., protect against harm to current participants as a result of the AFA or cooperatives under the AFA.

Objective

Determine criteria that will be developed into management recommendations for excluding vessels and processors from West Coast groundfish fisheries.

Key Points

- The restrictions must have clear link to protecting against harm caused by the AFA.
- The Council is not specifying vessels, processors, or companies by name. The Council is setting criteria which will be used to determine future participation of AFA vessels and/or processors.
- The Council needs to clearly explain how the proposed qualifying criteria will protect West Coast groundfish participants from harm caused by the AFA.
- The Council needs to explain why the qualifying criteria are the most appropriate "sideboards" for excluding "spill-over vessels."
- The AFA eligibility requirements for pollock harvesters and processors is scheduled to sunset on December 31, 2004. The Council's recommendations should specify that restrictions are permanent (i.e., extend beyond the duration of the AFA) or expire on December 31, 2004.

Definitions[2]

AFA vessel.
: A catcher vessel, catcher processor, or mothership that, because it is named in the AFA or meets qualifications in the AFA, is guaranteed a portion of the directed pollock fishery quota.

AFA processor.

[1]The AFA was signed into law October 23, 1998 as part of Public Law 105-277 -- Omnibus Consolidated and Emergency Supplemental Appropriations for Fiscal Year 1999.

[2]These are not legal definitions, they are brief approximations to provide context for the Council.

A processing company that, because it meets qualifications in the AFA, is guaranteed a portion of the directed pollock fishery quota.

AFA cooperative

A cooperative arrangement between vessels and processors for optimally using the portion of the directed pollock quota allocated to their sector. For example, an inshore cooperative formed by catcher vessels and shorebased processors would share a portion of the inshore sector's pollock allocation. Similarly, an offshore cooperative formed by catcher processors would share a portion of the offshore allocation of the pollock quota.

"Spill-over vessel."

An AFA vessel that possesses a limited entry permit for West Coast groundfish.

Benefits to vessels (C/V, C/P, and M/S).

The AFA formalized the ability to form cooperatives and allocated a portion of the directed pollock fishery quota to each sector in the fishery. Vessels that join cooperatives, or lease their portion of their sector's pollock allocation, gain the advantage of arranging fishing schedules to increase average revenue. This operational advantage could harm West Coast groundfish fisheries, as these vessels would be able to increase their participation in these fisheries.

Benefits to processors.

It is harder to pinpoint an operational advantage that provides the opportunity for AFA processing companies to enter West Coast groundfish fisheries and displace traditional West Coast processors. It might be possible that, as a result of the AFA, a shorebased processing company in Alaska could build a new processing facility on the West Coast. It might also be possible for an AFA processing company to buy an existing West Coast facility and expand the range of species the facility processes. Both of these could be seen as an encroachment on (and harm to) current West Coast processing facilities.

Duration

Sideboards could be implemented for one of two periods.

1. Permanent, extending beyond the December 31, 2004 expiration of AFA eligibility provisions.

2. In effect as long as the AFA, i.e., December 31, 2004, unless extended by the Council.

II. Harvester Protections

Goal – Protect West Coast groundfish fisheries from the operational advantage provided to AFA vessels. "Spill-over vessels" that do not meet qualifying criteria will be EXCLUDED from the fishery.

The proposed options seek to restrict harvesters that benefit from the AFA (AFA vessels) from participating in West Coast groundfish fisheries if they did substantially participate in the past. It has been proposed that this be done by restricting the participation of the vessel or the permit.

At the March 2000 meeting, the Council discussed whether restrictions should apply to an AFA vessel or the limited entry permit possessed by an AFA vessel. At issue is the ability of an AFA vessel with a limited entry groundfish permit to sell or transfer the permit if the vessel was excluded from West Coast fisheries. If restrictions are not placed on the permit, the vessel could sell the permit to a non-AFA vessel or transfer to newly built boat. If this results in another vessel entering the fishery, effort increases, causing harm.

There are three ways the Council could exclude non-qualified AFA vessels ("spill-over vessels"):

1. Vessel – restrict the vessel, but not the permit. If an AFA vessel does not meet the participation requirements for the West Coast, it is excluded. This means it could not purchase a limited entry permit, and if it currently owns a permit it may sell the permit.

> If a vessel met the participation requirements in one sector (e.g., delivering whiting to motherships) it could continue to participate in that sector, but could not participate in other sectors (e.g., non-whiting groundfish).
>
> Because no restrictions are placed on the permit, the permit could be sold or transferred to a non-AFA vessel. This could potentially increase effort in the fishery.

2. Permit – restrict the permit, but not the vessels. If an AFA vessel does not meet the participation requirements its permit becomes invalid; or if it only met certain participation requirements, the permit would become restricted to the specific sector in which the vessel qualified.

> Restrictions stay with the permit. That is, the permit may be sold or transferred to a non-AFA vessel, but the restrictions still hold. However, AFA vessels could expand their participation by purchasing a permit from another vessel.
>
> Restricting permits without applying restrictions directly to AFA vessels may not protect West Coast groundfish fisheries from vessels using their operational advantage to displace traditional participants. It provides a financial penalty to AFA vessels that own limited entry permits, but does not exclude them from the fishery.

3. Combination – restrict both vessel and permit. An AFA vessel that does not qualify is excluded from the fishery. Any permit the vessel possesses is subject to the restrictions described in (2) above. The vessel would not be allowed to purchase another limited entry permit.

> This combination of vessel and permit restrictions excluded an AFA vessel if it did not have enough participation, and invalidates the vessel's limited entry permit (if it has one).

Determining the Qualifying Criteria

In September 1999 and March 2000, the Council put forward various criterion for AFA vessels to qualify for future participation in West Coast groundfish fisheries. These criteria are based on past participation and attempt to show a dependence on the fishery.

The Council needs to refine these criteria. Specifically, the Council needs to decide on the appropriate qualifying years and determine if catch history is based on landed tons or number of deliveries.

More importantly, the Council needs to:

- clearly explain how these criteria protect West Coast groundfish participants from harm caused by the AFA; and
- explain why the qualifying criteria are the most appropriate measures (sideboards) for excluding "spill-over vessels."

The proposed criteria are:

> **Catch history** based on:

a. minimum tonnage requirements, i.e., 50 metric tons; **or**
b. number of deliveries, i.e., 30 deliveries.

Qualifying window periods:
a. 1994, 1995, 1996, 1997; **or**
b. 1994, 1995, 1996, 1997, 1998, 1999 through 9/16/1999.

Options for excluding "spill-over vessels."

I. Whiting fishery

A. AFA catcher vessels (delivering to motherships) that do not meet the following minimum requirements will be excluded. **The Council needs to select A.i, A.ii, or A.iii**.

A.i. harvested 50 mt whiting during:
a. 1994, 1995, 1996, 1997; **or**
b. 1994, 1995, 1996, 1997, 1998, 1999 through 9/16/1999; or

A.ii. made 30 deliveries during:
a. 1994, 1995, 1996, 1997; **or**
b. 1994, 1995, 1996, 1997, 1998, 1999 through 9/16/1999; or

A.iii. made 10 deliveries during 1997.

B. AFA catcher vessels landing shorebased that do not meet the following minimum requirements will be excluded. **The Council needs to select B.i, B.ii, or B.iii**.

B.i. harvested 50 mt whiting during:
a. 1994, 1995, 1996, 1997; **or**
b. 1994, 1995, 1996, 1997, 1998, 1999 through 9/16/1999; or

B.ii. made 30 deliveries during:
a. 1994, 1995, 1996, 1997; **or**
b. 1994, 1995, 1996, 1997, 1998, 1999 through 9/16/1999; or

B.iii. made 10 deliveries during 1997.

II. Groundfish fishery

A. AFA catcher vessels without shorebased landings of groundfish (other than whiting) during the qualifying period will be excluded. **The Council needs to select A.i or A.ii.**

A.i. 1994, 1995, 1996, 1997; **or**
A.ii. 1994, 1995, 1996, 1997, 1998, 1999 through 9/16/1999.

III. Excluding Limited Entry Permits

Limited entry permits on AFA vessels will be retired or restricted based on catch history during the qualifying period. **The Council needs to select A.i, A.ii, or A.iii**.

A.i. harvested 50 mt of groundfish during:
a. 1994, 1995, 1996, 1997; **or**
b. 1994, 1995, 1996, 1997, 1998, 1999 through 9/16/1999; or

A.ii. made 30 deliveries of groundfish during:
   a. 1994, 1995, 1996, 1997; **or**
   b. 1994, 1995, 1996, 1997, 1998, 1999 through 9/16/1999; or

A.iii. made 10 deliveries of groundfish during 1997.

If no deliveries made during qualifying period, the permit will be retired. If only offshore landing during qualifying period, the permit is only valid for offshore. If only shorebased landing during qualifying period, the permit is only valid for shorebased deliveries.

III. Catcher Processor and Mothership Protections

Goal – Protect current whiting fishery catcher processors and motherships from new entry of AFA catcher processors and motherships into the fishery. "Spill-over vessels" that don't meet criteria will be EXCLUDED from the fishery.

The previous discussion about restricting 1) vessels, or 2) permits, or 3) vessels and permits also applies to catcher processors and motherships. That is, the Council needs to decide whether restrictions are placed on vessels; on the vessel's limited entry permit; or on both the vessel and the vessel's limited entry permit.

Determining the Qualifying Criteria

Two measures have been recommended that apply to catcher processors and motherships. **The Council needs to affirm that these are the appropriate criteria**.

As stated for catcher vessels, the Council needs to

- clearly explain how the criteria for catcher processors and motherships protect West Coast groundfish participants from harm caused by the AFA; and
- explain why the qualifying criteria are the most appropriate measures (sideboards) for excluding "spill-over vessels."

Catcher Processors

Catcher processors that were not licensed to harvest groundfish in 1997 through 9/16/1999 are excluded from the whiting fishery (both as catcher processor and mothership).

Motherships and Catcher Processors acting as Motherships

Motherships (and catcher processors acting as motherships) that did not receive at least 1000 mt of whiting during the regular (directed) whiting season in 1998 or 1999 are excluded.

IV. Processor Protections

Goal – Protect current whiting and non-whiting groundfish processors from harm caused by the AFA or cooperatives under the AFA. AFA processing facilities that do not meet the criteria will be EXCLUDED from the fishery.

The proposed processor restrictions seek to protect existing processing facilities by preventing AFA processors from entering the fishery and increasing processing capacity.

Staff is defining an AFA processing facility as a facility on the West Coast that is owned by a company that owns a facility in Alaska that benefitted from the AFA (i.e., an AFA processor). "Facility" includes receiving stations.

The extent of what the Council can do to protect against harm from AFA processors is to restrict participation of an AFA facility. That is, based on the qualifying criteria, an AFA facility will be excluded from or restricted in:

1) processing shore based whiting during the whiting season; or
2) processing groundfish

The proposed qualifying criteria (below) would be used to determine if the facility was a substantial participant prior to passage of the AFA.[3]

As noted previously, it is difficult to pinpoint an operational advantage that provides for AFA processing companies to enter West Coast groundfish fisheries and displace traditional West Coast processors. It might be possible that, as a result of the AFA, a shorebased processing company in Alaska could build a new processing facility on the West Coast. It might also be possible for an AFA processing company to buy an existing West Coast facility and expand the range of species the facility processes. Both of these could be seen as an encroachment on (and harm to) current West Coast processing facilities.

Questions about Processor Restrictions

Several questions should be addressed before developing recommended management measures to restrict processor participation in West Coast groundfish fisheries.

- What, specifically, is the Council trying to accomplish by creating processor restrictions?

For example, existing facilities (even if owned by AFA qualified [Alaskan] companies) could continue to operate. However, AFA processors could not buy into existing facilities nor build new facilities.

Conversely, it was also suggested that an AFA facility could buy into (or outright) an existing processor, but could not build new facilities on the West Coast.

- What is the Council's intention for current West Coast processors that never bought/processed whiting and are not AFA qualified? Because their processing history fails to meet the proposed qualifying criteria, these processors would be excluded from processing whiting in the future.

- What if an AFA processor purchases a plant without whiting history, this plant (now owned by an AFA processor) is restricted from participating in the whiting fishery. If this AFA facility is sold to another company (not an AFA company), can the facility then participate in whiting, or is the restriction permanent for that facility?

- What if an AFA company buys an existing facility, processing restrictions are placed on this facility based on processing history. Is the Council asking for an analysis of all West Coast processing facilities to see if they meet the qualifying criteria?

[3]The Council put forward criteria for whiting processors, but not for non-whiting groundfish processors.

It is important to note that restricting new entry into the West Coast processing sector by processing companies that did not receive benefits from the AFA is beyond the scope of the protective measures allowed under the AFA.

Determining the Qualifying Criteria

Two measures have been recommended that apply to processors, one applies to the whiting fishery, the second to the groundfish fishery. **The Council needs to affirm that these are the appropriate criteria**.

The Council needs to:

- clearly state the rationale for excluding AFA processor;
- show linkage between restrictions and processors that received benefits from the AFA;
- determine the qualifying criteria; and
- explain why these are the most appropriate criteria for protecting West Coast groundfish processors from harm caused by the AFA.

Whiting Processors

An AFA facility that does not meet the following criteria MAY NOT receive unsorted whiting during the shore-based whiting season:

> received at least 1000 mt of whiting during the regular whiting season in 1998 or 1999; or held state or federal authorization to receive or process unsorted whiting in 1998 or 1999.

Once during the year, a company that owns or controls a qualified processor or receiving station may substitute a facility owned or controlled by the same company.

Groundfish (non-whiting) Processors

AFA facilities would be EXCLUDED from West Coast groundfish fisheries unless:

> AFA facility has processing history in West Coast (non-whiting) groundfish fishery. Future participation is based on processing history.

Conclusion

The Council has the opportunity to recommend management measures to protect fisheries under the Council's jurisdiction from harm caused by the AFA or cooperatives under the AFA. These recommendations are due to the Secretary of Commerce by July 1, 2000. Sideboards may be necessary because the AFA provides certain vessels and processors with greater operational flexibility. The concern is that AFA vessels and/or processors will use this advantage to move into West Coast groundfish fisheries, increase effort, and cause harm to current participants.

The goal is to produce a set of recommended management measures to control increases in effort in West Coast fisheries – i.e., protect against harm to current participants as a result of the AFA or cooperatives under the AFA.

In developing these management measures the Council will need to determine criteria for excluding vessels and processors from West Coast groundfish fisheries.

There are several key points that should drive this process:

- The restrictions must have clear link to protecting against harm caused by the AFA.
- The Council is not specifying vessels, processors, or companies by name. The Council is setting criteria to determine future participation of AFA vessels and/or processors.
- The Council needs to explain how the proposed qualifying criteria will protect groundfish participants from harm AFA.
- The Council needs to explain why the criteria are the best "sideboards."
- AFA eligibility requirements for harvesters and processors are scheduled to end on December 31, 2004. The Council's recommendations should specify the duration of the restrictions.

Appendix

Background Information on Certain Dates Relevant to the AFA

1. AFA is codified within Public Law 105-277 -- Titled: Omnibus Consolidated and Emergency Supplemental Appropriations for Fiscal Year 1999 - Conference Report. Signed into law 10/23/1998.

2. In the AFA – these dates determine whether you are qualified to participate or not:

   - Inshore C/Vs and M/S C/Vs, effective date 1/1/00; qualifying harvest 1996 or 1997 or 1/1/98 - 9/1/98.

   - C/Ps and C/P C/Vs, effective date 1/1/99; qualifying harvest 1997.

   - M/Ss, effective 1/1/00; qualifying harvest 1997.

   - Processors, effective 1/1/00; qualifying processing history –
     greater than 200o mt in 1996 and 1997; or
     less than 2000 mt in 1996 or 1997 (future processing limited to < 2000 mt).

3. The NPFMC uses these dates to determine future harvest amounts:

   Generally, harvest or processing history in the years 1995, 1996, 1997 is used to determine future participation in non-pollock fisheries.

What dates are more important to the Pacific Council? That is, where is the benefit? Was it when the Act was signed into law, the dates that determine future participation in BSAI pollock fisheries, or the dates used to determine catch/processing history used by the NPFMC?

1999 PACIFIC WHITING FISHERY
ALL SECTORS

TABLE 1 - Comparative Annual Catches of Yellowtail Rockfish, Widow rockfish, Salmon, Halibut and Miscellaneous Groundfish in the Pacific Whiting Fishery, 1999.

SPECIES	MOTHERSHIPS PROCESSORS						CATCHER/ PROCESSORS		SHORE-BASED PROCESSORS		TOTAL WOC	
	TRIBAL MOTHERSHIPS		NON-TRIBAL MOTHERSHIPS		All * MOTHERSHIPS							
	mt	Rate	mt	Rate	mt	Rate	mt	Rate	mt	Rate	mt	Rate
Whiting Allocation	32,500		47,900		80,400		67,800		83,800		232,000	
WHITING	25,844		47,580		73,424		67,679		83,350		224,453	
Yellowtail Rockfish	451	0.0175	253	0.0053	704	0.0096	431	0.0064	481	0.0058	1,616	0.0072
Widow Rockfish	37	0.0014	48	0.0010	85	0.0011	101	0.0015	192	0.0023	378	0.0017
All other groundfish	216		149		365		160		1,026		1,551	
TOTAL GROUNDFISH	26,548		48,030		74,578		68,371		85,049		227,998	
Percent over/under Whiting Allocation	-20.5		-0.7		-8.7		-0.2		-0.5		-3.2	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Chinook	4,497	0.1740	1,687	0.0355	6,184	0.084	2,704	0.0400	1,696	0.0203	10,584	0.0472
Non-Chinook	278		506		784		296		16		1,096	
Total Salmon	4,775		2,193		6,968		3,000		1,712		11,680	
Halibut	22		25		47		22		35		104	

Data sources: Catcher/processor and mothership data is total catch data (retained plus discard) from Alaska Fisheries Science Center Observer Program.
Shore-based data from Oregon Department of Fish and Wildlife, 1998 Pacific whiting shoreside observation program report (12/18/98).
*Sum of tribal and non-tribal data.

Supplemental NMFS Report B.16.(1). April 2000

PACIFIC COAST GROUNDFISH FISHERY EXEMPTED FISHING PERMIT
AUTHORITY: Title 50, Code of Federal Regulations
Sections 600.745 and 660.406, and Subpart G of part 660

MONITORING INCIDENTAL CATCH IN THE PACIFIC WHITING FISHERY

F/V **xxves name**

PERMIT # xx**00-HAK-xx**
Pacific Coast Groundfish
Limited Entry Permit # xx

The Administrator of the Northwest Region of the National Marine Fisheries Service (NMFS), acting on behalf of the Secretary of Commerce, hereby permits the master and owner of the fishing vessel **xx[ves name]**, documentation number **xx**, to engage in the exempted harvest of Pacific Coast groundfish over which the United States exercises fishery management authority under the Magnuson-Stevens Fishery Conservation and Management Act, 16 United States Code 1801 et seq. (Magnuson-Stevens Act), and implementing groundfish regulations at 50 CFR Part 660, Subpart G and section 600.745, and under salmon regulations at 50 CFR 660.406. The exempted fishing must be conducted in accordance with the provisions of the Magnuson-Stevens Act and 50 CFR Parts 600 and 660, Subpart G except as provided in the attached terms and conditions incorporated herein.

This permit implements a cooperative state/federal/industry observation program to monitor the bycatch of salmon and groundfish in the shore-based component of the Pacific whiting fishery. This permit is valid when signed by both the Regional Administrator and the authorized representative of the vessel (hereinafter referred to as the "permit holder"). It expires 24 hours after notification by the Regional Administrator of termination of this permit, or on December 31, 2000, whichever is earlier. It also may be terminated or modified earlier by regulatory action pursuant to 50 CFR Part 660, Subpart G, or revocation, suspension, or modification pursuant to 15 CFR Part 904, or successor regulations, or by the terms and conditions of this permit. The Regional Administrator will notify the vessel owner of the conclusion of the observation program and the termination of the permit if other than December 31, 2000.

Signature _____ Date Signed _____

William Stelle, Jr., Administrator
Northwest Region
National Marine Fisheries Service

Signature _____ Date Signed _____

xx, Authorized Representative of vessel.

By signing this document, the authorized representative of the vessel agrees to comply with the intent and the terms and conditions of this permit, and is responsible for seeing that this information is understood by the vessel's crew.

Vessel Owner's Name/Address:
name, address, phone, fax xx

EXEMPTED FISHING PERMIT

MONITORING INCIDENTAL CATCH IN THE PACIFIC WHITING FISHERY

TERMS AND CONDITIONS

A. PURPOSE. The purpose of this program is to determine levels of incidental catch of salmon and groundfish in the shore-based fishery for Pacific whiting. Target fishing on any species other than whiting (particularly yellowtail and widow rockfish) is contrary to the intent of this program and may result in unrealistically high estimates of incidental catch. This would reflect on the entire shore-based whiting fleet, and may result in additional restrictions.

Incidental species caught while fishing for whiting are counted against a vessel's cumulative trip limit for the incidental species. Although landings in excess of a trip limit currently are allowed under this EFP, the proceeds from the sale of overages are forfeited to the State where landed. Any overages are deducted from the optimum yield and therefore reduce the amount of fish available to non-whiting fishers.

B. SCOPE.

1. This permit implements a cooperative observation program with the states of California, Oregon, and Washington to monitor the incidental catch of salmon and groundfish caught in Pacific whiting trawl operations on vessels that deliver shoreside.

2. This permit applies to all fishing activities by the permitted vessel targeting on Pacific whiting during the effective dates of the permit. It is issued to the authorized representative who is responsible for instructing all vessel operators and crew members of its terms and conditions.

3. This permit authorizes, for limited purposes as described in this permit, the following activities which would otherwise be prohibited by 50 CFR 660.306 (b) and (f); 50 CFR 600.725 (p); and 50 CFR 660.405:

    a. Retention, until offloading, of salmonids incidentally caught in a mid-water trawl, only if the salmonids are turned over to the State for disposition; and

    b. Retention, until offloading, of groundfish in excess of trip limits, only if the overage proceeds are turned over to the State.

    c. For vessels designated in Appendix B, retention of whiting in excess of 10,000 pounds from a trip where fishing occurs inside the 100-fathom contour in the Eureka area (43°- 40° 30' N. lat.). (Most permits will not have an Appendix B.)

4. All other provisions of 50 CFR Part 660, Subpart G, including restrictions specified by or pursuant to 50 CFR 660.323, apply to fishing conducted under this permit.

5. The States of Oregon, Washington, and California were the applicants for, and are the sponsors of, this EFP program, and as such have the authority to select which vessels and processors are allowed to participate in the program. The State(s) where the whiting are or will be landed may decline to forward a vessel's or processor's name to NMFS for inclusion on an EFP, and may modify Appendix A to an EFP to add or delete a designated processor.

C. EXEMPTED FISHING.

1. This permit is valid only for fishing with pelagic trawl gear targeting on Pacific whiting, Merluccius productus, for shoreside delivery under the States' observation program.

2. All fishing trips by the permitted vessel targeting on Pacific whiting during the effective dates must be conducted in accordance with this permit.

3. A fishing trip targeting on Pacific whiting is defined for the purposes of this permit as a fishing trip resulting in the landing of 10,000 pounds or more of Pacific whiting.

4. If a vessel lands less than 10,000 pounds of Pacific whiting from a fishing trip, then that trip will not be considered as "targeting on Pacific whiting," and therefore that trip will not be governed by this permit. Consequently, all fish landed from such a trip will count toward otherwise applicable trip limits in effect at the time in the Pacific coast groundfish fishery. Trip limits shall apply to all trips within a cumulative trip limit period that fail to target on whiting.

D. EFFECTIVE DATES.

1. This permit is valid from the date signed by the Regional Administrator, NMFS, and the authorized representative of the permitted vessel.

2. This permit terminates on December 31, 2000, unless terminated at an earlier date by one of the following actions: at the request of the vessel owner or the authorized representative of the vessel owner, in which case the permit is terminated on the date requested and no further notification from the Regional Administrator or State is required; at the request of the cooperating State, when the State observation program ends, or when the processing plant(s) designated in Appendix A are no longer included in the sampling program conducted by the State, in which case written notification from the State to the vessel owner is required and termination occurs no sooner than 24 hours after delivery of the notification; when the Regional Administrator determines it is necessary to issue amended permits containing additional restrictions under F.4.b, in which case termination occurs no sooner than 24 hours after delivery of the notice of termination from the Regional

Administrator to the vessel owner; when the whiting fishery is closed because of achievement of the shore-based allocation, commercial harvest guideline, or species' harvest guideline, in which case termination occurs concurrent with the closure, as announced in the Federal Register, in which case further written notification of the vessel owner is not required.

3. The vessel owner is responsible for advising the authorized representative of the termination of the permit.

E. LANDINGS.

1. This permit is valid only for landings made at processing plants that have been designated by the States as participants in the observation program. The States will require a written agreement to be signed by a representative of a processing plant before that processing plant is accepted as a "designated processor" to ensure that the purposes of the EFP program are implemented.

   a. Designated processing plants are listed in Appendix A to this permit. The list of designated plants in Appendix A may be revised by NMFS or the State observation program coordinator. The revised Appendix A must be attached to this permit. The State may decline issuance of an EFP to a vessel if the designated processor is in a different state, if there is reason to believe the vessel's catch cannot or will not be sorted according to current laws, cannot be monitored under reasonable conditions, if there is not an adequate facility for storing prohibited species, or if there is no designated processor for that vessel. The State agency may decline listing a processor as a designated processor if the processing plant's representative did not sign a written agreement with the State or if the processor is not, or has not been, in compliance with a signed written agreement with the State.

   b. The States will provide instructions to each participating processing plant specifying the plant's role and responsibilities in the observation program. Designated processing plants have agreed to: (1) allow State personnel and program observers to sample whiting landings and all associated incidental catch; (2) set-aside all salmonids and Pacific halibut for biological sampling and disposition by State agency personnel; and (3) remit to the State of landing the market value of any groundfish trip limit overages.

2. The permit holder is to contact the appropriate State coordinator listed below to make arrangements for observations of offloading of catch at a designated processing plant.

   In California: Larry Quirollo, California Dept. of Fish and Game, 707-441-5755
   In Oregon: Steve Parker or Lara Hutton Oregon Dept. of Fish and Wildlife, 541-867-0300
   In Washington: Brian Culver, Wash. Dept. of Fish and Wildlife, 360-249-4628

3. All fish caught during an exempted fishing trip must be offloaded at only one designated

processing plant (i.e. the offloading of catch from one trip cannot be split between processing plants). Once offloading has commenced at a designated processing plant, all fish onboard the vessel must be offloaded at that plant.

F. FISHING RESTRICTIONS.

1. Discards. At-sea discarding of selected catch is prohibited.

   a. All fish caught during a tow under this permit must be brought onboard the vessel unless the entire contents of the tow are discarded. Any discarded fish must be recorded according to paragraph H.1.c.

   b. All fish brought on board the vessel under this permit must be retained onboard the fishing vessel and delivered shoreside for sampling under the State observation program.

2. Disposition of salmon. Salmon caught under this permit shall be retained and landed, but cannot be sold. Salmon will be set aside for disposition in accordance with State instructions to processing plants, which may include providing salmon to a food bank or food bank resource coordinator authorized by the State coordinator.

3. Disposition of Pacific halibut. The permit holder agrees that Pacific halibut caught while fishing under this permit are voluntarily forfeited. Pacific halibut will be set aside for disposition in accordance with State instructions to processing plants.

4. Groundfish trip limits.

   a. Groundfish trip limits will apply to vessels operating under this permit except that overages in trip limits will not be in violation of 50 CFR 660.323 so long as such overage is surrendered to the State of landing.

   b. The Regional Administrator may place limits on the overages of groundfish trip limits during the course of the exempted fishery. If such restrictions are necessary, the Regional Administrator will terminate this permit and issue an amended permit containing the additional restrictions on groundfish trip limits as determined necessary by NMFS in consultation with the states.

5. Fishing inside the 100-fathom contour in the Eureka area: Special authorization in Appendix B is required for a vessel to take and retain more than 10,000 pounds of whiting caught shoreward of the 100-fathom contour in the Eureka area (43°00' - 40°30' N. lat.).

G. GEAR RESTRICTIONS. Only pelagic trawl gear authorized under 50 CFR Part 660, Subpart G may be used.

H. REPORTING REQUIREMENTS.

1. The permit holder must provide, to the State or observer program coordinator, departure and arrival notification, including reasonable notice of unexpected changes in fishing plans, as required by the States to allow for the sampling of the catch at offloading and for deployment of at-sea observers, if any.

2. For landings at processing plants in California, the vessel operator must notify CDFG at least 12 hours before departing port to commence fishing under this permit.

I. DATA REQUIREMENTS. It is unlawful to fail to report catches as required while fishing pursuant to an exempted fishing permit (50 CFR 600.725(l)).

1. Trawl Logs. Trawl logbooks as required by the applicable state law must be maintained by the vessel operator. "Exempted Fishing Trip" (or "Experimental Fishing Trip") shall be written on the log for each trip conducted under this permit.

   a. Estimated pounds of all species caught in each tow must be recorded in the logbook.

   b. If salmon or Pacific halibut are observed at-sea, the numbers observed, by species, are to be recorded by tow in the logbook. The total number of salmon and Pacific halibut landed must be recorded, by species, in the "remarks" section of the log.

   c. If fish are discarded (see paragraph E.1.), an estimate of the amount discarded, the species (list the 3 most prevalent species, if possible), location of the tow, and reason for discarding (such as "whiting too small") shall be recorded (and labeled "discard") on a separate line in the logbook required by the State of landing.

2. Other Reports. This permit does not relieve the vessel operator from any other state or federal reporting requirements.

3. Public Release of Information. The fishing activities carried out under this permit, which are otherwise prohibited, are for the purpose of collecting information. The vessel owner, operator, and permit holder agree to the public release of any and all information obtained as a result of activities conducted under this permit. Data from individual vessels may be released for purposes of examining incidental catch levels and rates of non-whiting species and prohibited species.

J. OBSERVER REQUIREMENTS.

1. Shoreside observers. The state coordinator will make necessary arrangements to ensure achievement of the observation program objective for randomly selected observer coverage of at least 10 percent of the landings by vessels participating in the exempted fishery, excluding vessels specifically authorized (in Appendix B) to take and retain more than 10,000 pounds of

whiting inside the 100-fathom contour in the Eureka area. The State will review coverage rates on a monthly basis and advise the permit holder of any deficiencies in observer coverage that must be resolved to meet program objectives. A State may deny issuance of an EFP if necessary to assure adequate observer coverage.

2. At-sea observers. An at-sea observer may be assigned to a vessel to monitor discard and incidental catch levels, to determine fishing practices that may result in high or low incidental catch levels, and to compare incidental catch from vessels that carry observers and those that do not. The vessel owner, operator and permit holder shall allow an observer to accompany the vessel during fishing under this permit when an observer is assigned under the states' observation program. If an at-sea observer is assigned, the vessel operator or owner shall:

a. Provide, at no cost to the observer, the State or NMFS, board and living accommodations for the observer aboard the vessel which are equivalent to those provided to the officers of the permitted vessel;

b. Allow the observer access to and use of the permitted vessel's navigation equipment and personnel as necessary to determine the vessel's position;

c. Allow the observer to use the permitted vessel's communications equipment and personnel as necessary for the transmission and receipt of messages;

d. Provide safe working conditions and accommodations for the observer. The vessel operator and vessel owner, his agents and employees, including the master and crew of the permitted vessel, shall not harass, assault, oppose, impede, intimidate or interfere with the observer.

3. The vessel operator shall:

a. Provide the observer with vessel fishing location information for the trip observed, upon request; and

b. Provide all other reasonable assistance necessary to accomplish the observer's duties.

4. Any observer must be approved by the State coordinator before deployment.

K. SANCTIONS.

Failure of the vessel owner, operator, or permit holder to comply with the terms and conditions of this permit, a notice issued under 50 CFR Part 660, Subpart G, any other applicable provision of 50 CFR Parts 600 and 660 Subpart G, the Magnuson-Stevens Act, or any other regulations promulgated thereunder, may be grounds for revocation, suspension, or modification of this permit as well as civil or criminal penalties under the Magnuson-Stevens Act with respect to all persons and vessels conducting activites under the EFP (50 CFR 600.745(b)(8)).

L. WAIVER.

The permit holder on his/her own behalf, and on behalf of all persons conducting activities authorized by the permit under his/her direction, waives any and all claims against the United States or the State, and its agents and employees, for any liability whatsoever for personal injury, death, or damage to property directly or indirectly due to activities under this permit.

APPENDIX A

EXEMPTED FISHING PERMIT
MONITORING INCIDENTAL CATCH IN THE PACIFIC WHITING FISHERY

Vessel Name: **xx** EFP#: 00-HAK-xx

1. Designated processor(s):

xx[EXAMPLE:]
Eureka Fisheries, Inc.
P.O. Box 217
Field's Landing, CA 95537
attn: Tom Devere

ph: (707) 463-1673
fx: (707) 463-7952

2. Changes to this appendix:

Item Changed	Date Approved	Authorizing Official Name	Agency

EFFORTS TO REDUCE YELLOWTAIL ROCKFISH CATCH IN THE WHITING FISHERY: REVIEW OF EXEMPTED FISHING PERMITS

Situation: At the March 2000 meeting, the Council discussed the exempted fishing permit (EFP) for the shore-based whiting fishery, focusing mostly on incidental catch of widow and yellowtail rockfish. Shore-based whiting industry representatives briefly described a draft agreement that would require fishery participants to maintain a incidental catch rate at or below a specified level. The intention would be to reduce the overall level of incidental catch or rockfish in the shoreside whiting fishery. At-sea whiting fishery representatives said they also like to present their rockfish avoidance plan to the Council. The Council asked both sectors of the industry to present their reports at the April meeting. The Council will provide comments to the industry and may also consider recommending National Marine Fisheries Service (NMFS) include provisions in the EFPs.

Council Action:

1. Comments to industry and recommendations to NMFS, if appropriate.

Reference Materials:

1. At-Sea Bycatch Control Plan (Attachment B.16.a.).
2. Memo dated March 16, 2000 from Neal Coenen to Don McIsaac regarding Whiting EFP Consideration (ODFW Report B.16.).

PFMC
03/20/00

Oregon
John A. Kitzhaber, M.D., Governor

Department of Fish and Wildlife
Marine Resources Program
2040 SE Marine Science Drive
Newport, OR 97365
(541) 867-4741
FAX (541) 867-0311

March 16, 2000

To: Don McIsaac
From: Neal Coenen
Subject: Whiting Exempted Fishing Permit Consideration

As requested by the PMFC at its March 2000 meeting, we have considered a number of items heard in public testimony with respect to bycatch regulation in the shoreside Pacific whiting fishery with the following results. California is not directly included in this plan in 2000 as its fishery will be underway on April 1, 2000. However, much of this process is already in place in California, and the remainder will be implemented for the 2001 fishery.

1) Consider Observers

We discussed and rejected adding at-sea observers to vessels with high bycatch rates as part of the regulatory program this year for two reasons. First, we already collect all the information about a catch when the vessel lands the unsorted catch. Therefore, an observer is not needed to collect information at sea. Although this idea suggests onboard oversight is needed, an observer cannot know why the captain fished in a particular manner, and therefore may not be effective either. Second, maintaining an undetermined number of observers on staff for short terms at sea as a penalty is administratively unmanageable and expensive.

2) Reconsider the Need for Bycatch Rate Cap

We understand the concern of introducing a cap is the possibility of stimulating sorting and discard if a captain believes he is approaching a bycatch rate cap with a penalty. We believe a cap with a penalty is needed to create a disincentive to exceed as well as an incentive to avoid bycatch. A bycatch rate cap is needed to provide a mechanism to penalize vessels that refuse to minimize their bycatch like other vessels in the same port, so that bycatch rates are lower than they have been in the recent past. In 1999, vessel owners and captains were asked to reduce bycatch, but the lack of a penalty and confusion regarding how the bycatch was tabulated contributed to a lack of concern for this aspect of the fishery. There is no way to have an unlimited amount of bycatch in the whiting fishery and to have responsibility for exceeding an arbitrary number imposed after the fishery is over. Given the need for a penalty, the bycatch rate cap discussed is generous and would target boats fishing well above the average for the fishery.

3) Number of Checkpoints

With only two checkpoints (at 50% and 90% of the projected shoreside whiting harvest), a large percentage of the bycatch will have been landed by the first check, and a very short period would remain after 90% of the projected harvest is attained. If more than 3 checks are made, given some delay between the checkpoint and our collection and processing of data, ODFW will be constantly evaluating bycatch rates, compromising our ability to conduct normal fishery monitoring. Therefore, we suggest 3 bycatch rate checks (at 25%, 50%, and 85% of the shoreside whiting allocation).

4) Expected Bycatch Reduction

There are three main components in the regulatory program that will reduce bycatch levels in the shoreside whiting fishery.

Education: It is essential to understand the strategy of the EFP program, the conclusions drawn from observations of unsorted catch, and how it operates. ODFW will educate both fishers and processors about the monitoring program, bycatch accounting methods and individual responsibilities.

Real-time feedback: Processor-vessel agreements will provide vessel captains with more or less real-time information on their bycatch rates so they may minimize their bycatch rates. This information will be provided by the processor to all EFP vessels it has agreements with, and will also be provided to ODFW, which will post this information on an agency website so all fishermen will have access to information about areas with high bycatch, promoting a minimal bycatch amount. These vessel-processor agreements will be required by the State-Processor agreements required in the EFP and will be enforced through the State-Processor agreements. We anticipate that providing education and information will be the most effective actions to reduce bycatch. ODFW will also continue to publish individual vessel bycatch rates to promote peer review of fishing performance.

Bycatch Rate Cap: A bycatch rate cap will create a disincentive for vessels targeting on a bycatch species or fishing without concern for high bycatch levels. We have analyzed how a given rate cap would have worked given 1999 data (Figure 1). These reductions are minimums as they do not include the expected effects of education and real-time information feedback discussed above and only show a regulatory effect on boats fishing above the bycatch rate cap.

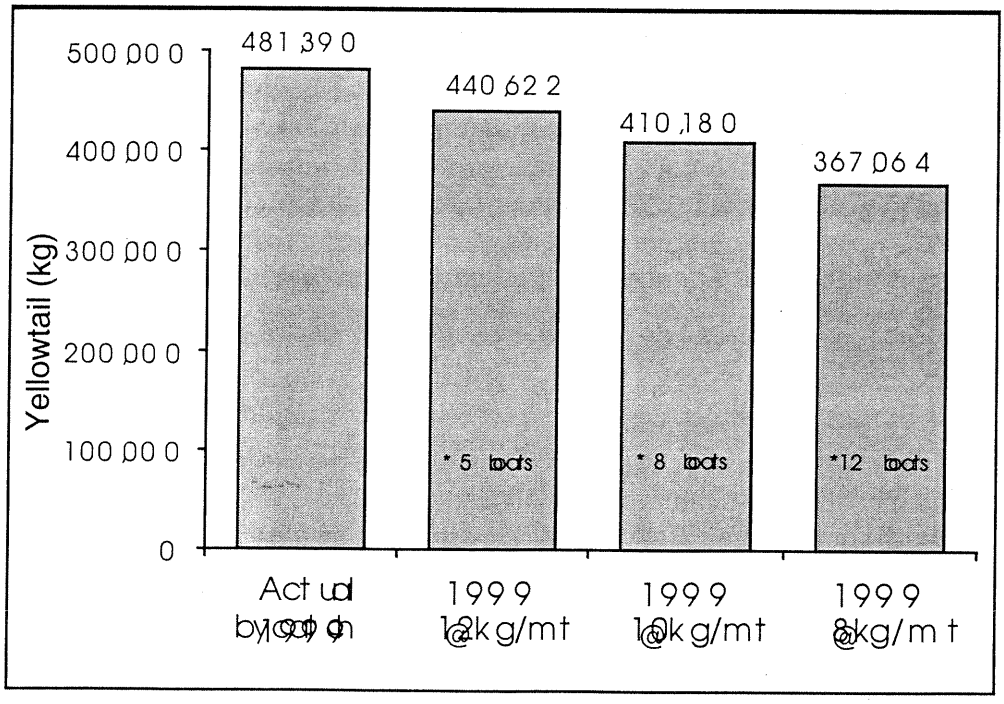

Figure 1. The yellowtail bycatch that would have been landed if an 8, 10, or 12 kg of yellowtail / mt of whiting bycatch rate cap was imposed on the shoreside whiting fishery in 1999. This assumes that vessels with bycatch rates above these trigger rates reduced their rate to meet the rate cap, and that vessels with bycatch rates below the trigger rate remained at their 1999 rate. * indicates the number of boats affected for each rate cap.

Setting a coast-wide bycatch rate cap at 12 kg yellowtail / mt whiting is liberal and would only affect the vessels with the highest bycatch rates. Picking a liberal cap should encourage the desired behaviors without promoting sorting or discard. Thus the information collection aspect of the program is supported while having an enforceable standard.

The procedures to be followed by vessels applying for EFPs and processors wishing to become designated processors for the EFP fishery have been developed and presented by the shoreside whiting industry. These procedures will result in a better educated, well-informed fishery with specific objectives to minimize bycatch while maintaining a productive fishery.

Process for Vessels to Receive and operate under an Exempted Fishing Permit (EFP) in the Pacific Whiting Fishery

1) To be eligible to receive an EFP for Oregon and Washington unsorted Pacific whiting deliveries, the vessel captain, or captains if two, must attend a **pre-season educational meeting** with the Oregon Department of Fish and Wildlife.
   a) There will be two opportunities in early May (Astoria, Newport) and two opportunities in early June (Astoria, Newport). Vessel captains not attending one of these meetings must wait until after June 15, 2000 to apply for an EFP to enter the fishery late.
   b) This meeting will provide information to fishers regarding the purpose and monitoring strategy for the EFP program, including bycatch accounting methods. It will also outline procedures for fishers to track their own bycatch rates in real time with cooperation from designated processors.
   c) Applications for EFPs in 2000 will be available at these meetings and will be submitted to NMFS for approval.
   d) Vessel captains fishing in the California shoreside fishery must also attend a pre-season meeting prior to having an Oregon or Washington designated processor added to their EFP.

2) Each vessel must have a **signed vessel-processor agreement** prior to being issued an EFP (signed by both parties). Copies of this agreement must be presented to ODFW to have the processor listed as a designated processor on the vessel's EFP.

3) Just prior to fishing, a vessel representative must **sign the vessel's EFP** and provide a signed copy of the EFP to the ODFW whiting coordinator.

4) Three times during the shoreside whiting fishery (when 25%, 50% and 80% of the shoreside whiting allocation has been harvested), a **bycatch rate** will be calculated for each vessel for that period (non-cumulative). Given the training at a pre-season meeting, the vessel captain(s) will already have determined this rate themselves. Having agreed to the terms of the vessel-processor agreement, vessels will be removed from the delivery schedule for one day for each kg of yellowtail / mt whiting over 12 kg yellowtail / mt whiting. For example, with a bycatch rate for that period of 15 kg yellowtail / mt whiting, a vessel would be held out of the delivery schedule for 3 days after notification (this excludes days when the processor is not processing whiting).

Process for Processors to Receive a State-Processor Agreement

1) Prior to entering an agreement with the state, a processor representative must attend a **pre-season educational meeting** with the Oregon Department of Fish and Wildlife.
   a) There will be two opportunities in early May (Astoria, Newport) and two opportunities in early June (Astoria, Newport). Processor representatives not attending one of these meetings must wait until after June 15, 2000 to meet receive information and will enter the fishery late.

2) Processors must contribute to the shoreside observation program. Pre-season invoices covering the first half of the season will be distributed to each processor based on the percentage of the shoreside whiting it landed in 1999. These **invoices must be paid** in full, confirmed by PSMFC, prior to the state entering into a state-processor agreement.

3) Before being listed as a designated processor, each processor in Oregon and Washington (in 2000) must **sign an agreement with its respective state** defining the responsibilities of a designated processor. Because an agreement with the state is required prior to being included as a designated processor on a vessel's EFP, processors are encouraged to attend the early meetings and complete this requirement early.

4) Each **vessel must have a signed agreement** with a designated processor for that designated processor to be listed on the vessel's EFP. Vessels cannot deliver to a designated processor if it is not listed in the vessel's EFP appendix.

   a) Processors will conduct a pre-season meeting with vessel owner and captain(s) to discuss bycatch controls. If a vessel has two captains they are both required to attend the meeting and sign the agreement. At the pre-season meeting processors and fishermen will discuss the terms of this agreement and ways they can work together to keep bycatch at a minimum.

   b) The agreement will identify the bycatch rate cap for each vessel (12 kg yellowtail /mt whiting). This will be the same rate identified in the state-processor agreement. All processors and fishermen recognize the need to stay well below this rate.

   c) Processors will give vessels bycatch information (kg of whiting, yellowtail, widow, salmon, sablefish and halibut). This information will be available to the vessel within 6 hours of offload. This will give the captain adequate time to adjust his fishing strategies before the next day's fishing begins. Captains will inform their processor how they want to receive their bycatch information (cell phone, fax, radio, TLX). The processor's bycatch coordinator will log date, time, vessel name, and person receiving information. The person receiving the information onboard the vessel will do the same to assure both parties that the information was given and received. With daily bycatch information a vessel captain will be able to determine his bycatch rate on a daily basis.

d) Vessels will give the processor tow information from the day's fishing at the time of offload. This information will consist of date, set time, latitude and longitude, bottom depth, and trawl depth, for the start and end points of each tow. The coordinator will take the tow information along with bycatch information and compile it for real-time information. This information can be posted at the plant and forwarded to ODFW to be posted on a web page for access by the entire whiting fleet. A nightly captains radio discussion to inform each other about areas of high bycatch so they may be avoided is also encouraged.

e) If, during one of the bycatch rate checks by the state, a vessel is found to be over the bycatch rate cap of 12 kg yellowtail / mt whiting, the vessel will be removed from the delivery schedule for one day for each kg yellowtail / mt whiting over the rate cap. The state will notify the vessel and all processors listed as designated in the vessel's EFP of the penalty. Failure of a processor to enforce this penalty is grounds for the state to terminate its agreement with the processor and remove it from designated processor status for all EFP vessels.

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON EFFORTS TO REDUCE YELLOWTAIL ROCKFISH CATCH IN THE WHITING FISHERY: REVIEW OF EXEMPTED FISHING PERMITS

The Groundfish Advisory Subpanel (GAP) received a presentation from representatives of onshore and off-shore whiting fishermen and processors regarding actions proposed for 2000 to reduce rockfish bycatch in the whiting fishery. The proposals would require a number of industry initiatives, in conjunction with state permit requirements, to avoid and minimize rockfish bycatch, as required by law. The GAP believes this program should be allowed to proceed and then analyzed at the end of the year to determine its success.

The GAP notes the program will not apply to the early California whiting fishery, as that fishery has already begun. Further, as noted by the Groundfish Management Team at the March 2000, Council meeting, rockfish bycatch does not appear to be a significant problem in California. Finally, the GAP notes comments made in March regarding operational difficulties with establishing this particular program in California.

However, the GAP wishes to express its strong concern over the reported high levels of salmon and rockfish bycatch in the tribal whiting fishery. These numbers are masked by NMFS' insistence on combining them with non-tribal mothership catches, which are much lower. The GAP urges the Council to take whatever steps it can to reduce salmon and rockfish bycatch in the tribal whiting fishery.

PFMC
04/05/00

Supplemental Public Comment B.16
April 2000

Pacific Marine Conservation Council

Statement on
reducing yellowtail bycatch in the shoreside whiting fishery

My name is Bob Eaton. I am Executive Director of the Pacific Marine Conservation Council.

We support the Council and industry goal of reducing yellowtail overages in the shoreside whiting fleet and believe that can best be done by:

1) holding the fleet accountable
2) holding accountable processors permitted to receive unsorted whiting
3) having contracts backed by the full force of state legal enforcement
4) having the Council set a fleet-wide numerical expectation against which actual overages will be measured.

The task, as we understand it, is to reduce overages of the twelve or so highest vessels which may have been illegally targeting yellowtail during whiting trips and to tighten regulations for processors who may have been encouraging, accepting and profiting from higher numbers of overages.

We strongly urge the Council to take decisive steps to reduce yellowtail overages for 2000 by adopting meaningful and measurable standards – adopting a vessel overage rate of 10kg/mt and an expected total overage amount of 350,000 kg. This would be a one-year trial not intended to set a precedent in the numbers, just in approach.

Regarding the individual vessel rate, I draw your attention to the attached chart.

·The fleet-wide average over the past four years is under 6 kg/mt.

·64% of the fleet currently fishes under 6 kg/mt.

·70% of the fleet fishes under 7 kg/mt

The industry recommended 12 kg/mt, as twice the fleet average, seems liberal. We suggest you give a more conservative message and adopt a lower number, and recommend 10 kg/mt.

The Council is also urged to adopt a overage number that allows the fishery, the public and you to know what success will look like. This would not be a cap – just a statement of Council expectation against which actual overage numbers could be compared for end of the season analysis.

In 1999, overages totaled about 480,000 kg. To reduce overages, a number smaller than 480,000 kg is necessary. The four-year, 1995-1999 average is 392,000 kg which represents the status quo. Adopting an expectation below 392,000 kg would indicate you expect better than status quo performance. We recommend the Council adopt 350,000 kg as an expectation. An expectation number is critical.

We are not trying to be punitive in our recommendations, but rather to set up expectations that move beyond status quo and hold the fleet and processors accountable to targets.

We fully support the following suggestions of the industry and the State of Oregon.

1) Mandatory state-held meeting which all vessel owners and skippers must attend prior to receiving their vessel's EFP at which reasons for yellowtail overage reduction are clearly stated.
2) A mandatory state/processor agreement with legal authority by the state to pull the permit.
3) A mandatory processor/vessel agreement in place before the EFP is issued
4) A bycatch rate checkpoint review at 25%, 50% and 80% of whiting landings
5) An off-the-water penalty of one day per point over for vessels exceeding the bycatch rate at checkpoint time.
6) Processors provide real-time bycatch information to the vessel skipper, with the information publicly posted at the processing plant.

In addition, we offer the following recommendations:

A) At the mandatory meeting the state provide a handout to be posted on the vessel.
B) Also at the meeting explain clearly the challenge to be faced in 2001 in avoiding widow rockfish.
C) Vessels be encouraged to utilize communications to alert one another to yellowtail hotspots as a means of avoidance.
D) The Council adopt an overage bycatch rate and a number that specifies the expected fleet-wide overage amount.

We are concerned that initiating an individual bycatch rate may not reduce bycatch, but it most certainly will institutionalize it.

We are equally concerned that managing yellowtail as a percentage of whiting catch is biologically flawed. Whiting have greater reproductive capacity and grow more rapidly than the yellowtail and other rockfishes with which they sometimes school. To include them both in a common ratio does not recognize the differences in life history. For instance, as whiting abundance and harvest increase so would the yellowtail bycatch if the bycatch ratio remained the same. <u>That does not provide protection for yellowtail.</u> Better criteria will need to be adopted for future years.

A third area of concern is based on the need to actually reduce bycatch as mandated in the reauthorized Magnuson-Stevens Act. The majority of the fleet manages to fish very cleanly, so it is important to hold the remainder of the fleet to a high standard. The fleet average vessel overage for the season is about 6kg/mt. The industry recommendation is to establish a 12 kg/mt overage cap. We agree that should encourage the higher vessels to fish cleaner. What is important is how much the Council wants overages reduced.

A fourth concern area is the impact an early-in-the-season take of yellowtail as whiting bycatch has on later-in-the-year yellowtail directed fisheries. The potential for

whiting fleet bycatch to close targeted yellowtail fisheries should be viewed as unacceptable. It puts target fisheries at unnecessary economic risk. In addition, according to testimony given this Council last year, the introduction of bycatch yellowtail into the marketplace adversely affected targeted yellowtail prices.

Thank you for the opportunity to testify today on this issue.

Yellowtail bycatch for the
on: : whiting fleet
(Summary: ODF data)

Year	# vessels	Fleet average	# vessels under 7kg/mt	% of fleet	# vessels under 6kg/mt	% of fleet	
1996	37	6.54 kg/mt	24	65%	21	57%	
1997	37	2.98 kg/mt	33	89%	31	84%	
1998	35	6.09 kg/mt	23	66%	22	63%	
1999	36	6.69 kg/mt	22	61%	19	53%	
AVERAGES	36	5.58 kg/mt	25.5	70.25%	23.25	64.25%	

Based on four year averages, nearly 65% of the fleet fishes under a 6 kg/mt rate. That is without bycatch reduction incentives.

April 2000

Testimony of the Makah Tribe on Efforts to Reduce Yellowtail Bycatch in the Whiting Fishery
April 7, 2000

Presented by Steve Joner, Makah Tribe

1999 Season

In 1999, the Makah Tribe required that whenever feasible, all ~~yellowtail~~ rockfish be retained and processed aboard the Excellence and forfeited to the tribe for non-commercial use.

To implement this, all rockfish bycatch was sorted by species, hand tallied, average weights determined, and the fish were headed and gutted and frozen in 24 kg bags. Any fish not of food grade quality was discarded (ie: undersized or poor quality fish).

The processed rockfish were then delivered to cold storage and later distributed to food banks by "Northwest Harvest". A total of 119,976 kg were delivered to cold storage.

By retaining and counting the rockfish bycatch, we estimate a total bycatch of yellowtail rockfish in 1999 of 204 mt compared to the 451 mt estimate generated from the observer data.

We have been unable to reconcile the ~~tow~~ two estimates, so in 2000, we plan to periodically monitor the observer activities and more closely coordinate with NMFS Regional Office and the observer program to correct this problem.

2000 Season

We plan to continue the retention of rockfish in 2000 and will implement additional measures aimed at reducing the rockfish bycatch.

These include:
1) Reporting to the catcher vessel the amount of rockfish in a tow as soon as possible after the delivery.

2) Providing the vessels with daily tow by tow reports on the amount of whiting, rockfish, and salmon in the catch.

3) Coordinating weekly catch reviews with the tribe, the processor, and catcher vessels.

Our objective in these activities is to respond to high levels of bycatch in a timely manner and to correlate bycatch with the time, area, depth, or other variables in the fishery.

AT-SEA BYCATCH CONTROL PLAN

Historical Bycatch

The bycatch of other species has historically been a very small part of the at-sea Pacific whiting fishery catch, averaging about 1 percent of the total catch. However, with the reduction in TAC for non-whiting groundfish species, and the endangered species status of salmon species there is interest in further minimizing bycatch in the whiting fishery. In the whiting fishery, there are three species of special concern regarding bycatch. These are Chinook salmon, yellowtail rockfish and widow rockfish.

The following table shows the catch of whiting, yellowtail, and widow rockfish in tonnes, and the bycatch rates for these species expressed as kg per tonn of whiting, in the sectors of fishery since 1993 (Table 1.). In general, the bycatch has been lowest in the catcher-processor sector, followed by the mothership fishery, and then the Tribal mothership fishery. In the non-tribal fishery, the bycatch rate has been trending downward, however, in 1999 the bycatch rate of yellowtail rockfish increased.

Table 1. Catch of Pacific whiting, yellowtail and widow rockfish in tonns by sector and the bycatch rate for yellowtail and widow rockfish in kg/t.

	CATCHER-PROCESSOR			MOTHERSHIP			TRIBAL MOTHERSHIP			ONSHORE		
	Whiting	yellowtail	widow	Whiting	yellowtail	widow	Whiting	yellowtail	widow	Whiting	yellowtail	widow
1993	81,302	172	113	14,506	136	71				42,119	114	
1994	85,172	211	186	90,476	409	192				73,656	210	
1995	60,472	85	85	39,850	708	155				74,965	225	
1996	64,070	252	125	42,136	379	142	15,000	95	11	85,731	522	601
1997	68,796	116	73	49,460	174	134	24,805	113	9	87,499	230	159
1998	70,365	64	121	50,087	313	172	24,509	159	14	87,862	518	366
1999	67,679	431	101	47,580	253	48	25,519	451	37	83,800	481	192
Bycatch Rates (kg/t)												
1993		2.1	1.4		9.4	4.9					2.7	n/a
1994		2.5	2.2		4.5	2.1					2.9	n/a
1995		1.4	1.4		17.8	3.9					3.0	n/a
1996		3.9	1.9		9	3.4		6.3	0.4		6.1	7.0
1997		1.7	1.1		3.5	2.7		4.6	0.4		2.6	1.8
1998		0.9	1.7		6.2	3.4		6.5	0.6		5.9	4.2
1999		6.4	1.5		5.3	1.0		17.7	1.4		5.7	2.3
Mean		2.7	1.6		8.0	3.1		8.8	0.7		4.1	2.2

Distribution of bycatch

Bycatch of yellowtail rockfish occurs in the whiting fishery from southern Oregon to the U.S.-Canadian border. However, the greatest amount of bycatch occurs off the Washington coast from 46° N northward. Hauls from catcher-processors containing high bycatch (>50 kg/t) are shown in Figure 2. for 1997, 1998 and 1999. Yellowtail bycatch was low in 1997, extremely low in 1998, and extremely high in 1999. No clear pattern is evident in the distribution of high bycatch hauls between 1997 and 1999 other than the number of hauls with high bycatch increased in hauls deeper than 100 fa. increased in 1999.

The At-sea sector has been conducting operations in a manner that reduces the bycatch of non-whiting species to the minimum extend possible. In 1999, the bycatch controls that have been successfully employed in prior years were ineffective. It is likely that the higher than normal bycatch experienced in 1999 was the result of unique oceanographic conditions resulting from the recent strong el Nino and la Nina events. The strong variation in ocean conditions appears to have altered the spatial distribution of whiting and bycatch species. Whiting were distributed further to the north than usual, and yellowtail rockfish were encountered further offshore than usual.

Widow rockfish bycatch is not as widespread and more localized than yellowtail rockfish in the at-sea whiting fishery (Figure 2).

Regardless of the underlying cause of the increased bycatch in 1999, the at-sea sector is taking steps to monitor and improve bycatch control in the 2000 fishery. Bycatch control in the at-sea whiting fishery rests with the captain or fishing masters of individual vessels. They are aided by reports from SeaState which compiles catch data and report back to the fleet with information on areas of high bycatch. To assist the vessels in minimizing bycatch we plan to make better use of the available information, and provide clear bycatch avoidance criteria and instructions to at-sea vessels for the 2000 fishing season.

Bycatch Control Measures

The focus of the at-sea bycatch control program is to:

1. Avoid areas of known concentrations of rockfish and salmon.
2. Utilize threshold bycatch rates to stop fishing an area of high bycatch.
3. Improve communication between the fleet on bycatch avoidance.
4. Continue research on potential bycatch reducing gear modifications and physical factors associated with bycatch.

Identification of areas of yellowtail and widow rockfish concentrations. and other areas of special concern.

The at-sea sector met with Washington and Oregon coastal fishermen to identify areas of high yellowtail and widow rockfish concentrations. The identified areas were marked on charts, and the boundaries delineated. Copies of these charts will be provided to all at-sea vessels along with a list of the latitude and longitude of the areas (Figure 2, Table 2.).

At-sea whiting vessels will avoid these areas while engaged in whiting trawling.

Concentrate whiting fishing to areas deeper than 100 fa.

The highest incidence of rockfish bycatch is in waters shallower than 100 fa. Concentrating fishing effort in areas deeper than 100 fathoms will also avoid most of the areas identified as areas of potentially high rockfish bycatch. Vessels fishing over deeper water have generally experienced a lower bycatch of pelagic rockfish. However, as pointed out previously, this was not as effective in 1999.

Establishment of Threshold bycatch rates

Threshold bycatch rates have been established to provide guidance to at-sea whiting vessel masters. These values, based on past performance, are intended to alert them to being in an area of potentially high bycatch and to relocate to an area of lower bycatch.

The various sectors of the at-sea fleet have different operational characteristics and experience differing rockfish bycatch rates. To establish a threshold bycatch rate the mean bycatch rates for each sector are used as preliminary guidelines.

SECTOR	CATCHER-PROCESSOR	MOTHERSHIP	TRIBAL MOTHERSHIP
Yellowtail rockfish kg/t	2.7	8.0	8.8
Widow rockfish kg/t	1.6	3.1	0.8

The goal is to maintain bycatch at or below the historic average. If the overall bycatch in 2000 is at the threshold level, the yellowtail bycatch in the at-sea whiting fishery will be about half of what it was in 1999.

Improve communications within the fleet.

The Mothership fleet has agreed to institute daily communication among the fleet of bycatch rates and location of high bycatch areas. The Catcher-processor fleet communicates on a regular basis to inform vessels of areas of high levels of bycatch, which has helped to control bycatch.

Also to improve communication with other fishing vessels the at-sea whiting fleet is providing contact information to other fishers on the grounds. The contact information consists of the vessel name, call sign, bridge cell phone, company contact and their phone number. This will allow any vessel that wishes to communicate in-season problems on the grounds directly to the vessel or company.

Bycatch Research

Research is ongoing to devise methods or gear to reduce bycatch. This year five vessels will be equipped with recording conductivity, temperature and depth (CTD) meters to determine if there are relationships between bycatch rates and oceanographic conditions. Morphometric data will be collected from whiting and yellowtail and widow rockfish to determine if there are significant differences in body forms that would allow for the use of in trawl bycatch reduction devices. Lastly, some research will be conducted to determine if yellowtail rockfish are located above whiting schools and taken as the net is deployed.

Catch data indicate that early morning hours before dawn may be a period of higher than average bycatch. It may be possible to curtail fishing for a 2 to 3 hour period without disrupting factory operations. This option will be analyzed to assess its feasibility as a potential additional bycatch control mechanism.

Operational Plans

The above summarizes the bycatch problem in the at-sea whiting fishery and means of controlling bycatch. The at-sea fishery is composed of three sectors: catcher-processors, motherships, and the Tribal mothership fishery. It is apparent that there is a great deal of variability in bycatch, both spatially and temporally, and it is difficult to predetermine means of bycatch control.

Each sector has unique operational characteristics. Due to the differences in circumstances, it is not possible to develop a unified bycatch reduction plan for all sectors. It is likely that each sector will use different bycatch control methodologies to achieve the lowest bycatch level attainable.

The control of bycatch rests with each individual vessel. What we have set forth in this plan is a guideline threshold and a suite of tools that may be used to hold bycatch to the lowest level possible.

In discussions among catcher-processors and non-tribal motherships it was agreed that the identified "rockfish avoidance areas" are areas that vessels would only fish if it is demonstrated that whiting can be harvested without exceeding bycatch thresholds. The Tribal mothership sector may not be able to avoid these areas due to spatial limitations in the fishery.

Catcher-processors, as in passed years, will confine their operations to areas outside of 100 fa. to the greatest degree possible. The mothership sector will also attempt to fish to the greatest degree possible outside of 100 fa.

The agreement to communicate bycatch information among motherships is a major step for this sector, which will likely improve bycatch control in the coming year.

The at-sea sector is committed to bycatch control, and will actively monitor fleet performance in the whiting fishery to initiate measures to insure that rockfish bycatch does not exceed acceptable levels.

Table 2. Positions of rockfish bycatch avoidance areas.

Avoidance reason	Latitude				Longitude		
	Deg.	Min.	Sec.		Deg.	Min.	Sec.
Yellowtail	48	8	45		124	59	0
	48	7	0		124	58	0
	48	4	0		125	1	30
	48	4	0		125	3	0
Yellowtail	48	27	0		125	6	30
	48	25	0		125	2	0
	48	23	0		125	6	30
	48	25	0		125	11	0
Yellowtail &widow	48	16	0		125	41	30
	48	14	0		125	35	0
	48	13	30		125	32	0
	48	11	0		125	32	0
	48	9	30		125	35	0
	48	10	30		125	40	0
	48	13	30		125	38	0
	48	15	0		125	42	0
juvenile rockfish area	48	18	0		125	5	0
	48	12	0		125	10	0
	48	11	30		125	6	0
	48	9	30		125	7	0
	48	11	0		125	13	0
	48	17	0		125	9	30
yellowtail	48	24	0		125	15	0
	48	22	0		125	16	0
	48	23	0		125	12	30
	48	25	0		125	12	30

Avoidance reason	Latitude				Longitude		
	Deg.	Min.	Sec.		Deg.	Min.	Sec.
Yellowtail and widow	48	0	30		125	20	0
	48	1	30		125	17	0
	47	58	30		125	15	0
	47	58	0		125	17	0
Yellowtail	48	4	20		125	22	30
	48	3	30		125	21	0
	47	58	0		125	26	0
	47	59	0		125	28	0
widow	48	7	0		125	38	0
	48	5	30		125	35	0
	47	59	0		125	31	30
	47	57	30		125	33	30
	48	2	30		125	37	0
	45	47	0		124	30	0
rockfish	45	50	0		124	30	0
	45	50	0		124	39	0
	45	47	30		124	40	0
widow	47	55	30		125	35	0
	47	52	0		125	34	0
	47	52	0		125	36	0
	47	57	0		125	38	0
yellowtail	47	50	30		125	5	0
	47	50	30		125	8	0
	47	45	0		125	2	0

Avoidance reason	Latitude				Longitude		
	Deg.	Min.	Sec.		Deg.	Min.	Sec.
Cobb Tow	48	17	0		125	25	0
	48	16	0		125	25	0
	48	14	0		125	32	0
	48	16	0		125	32	0
Yellowtail	48	7	30		124	58	30
	48	7	0		124	58	0
	48	4	30		125	1	30
	48	5	0		125	3	0
yellowtail	48	7	30		125	9	0
	48	6	30		125	8	0
	48	5	0		125	14	0
	48	5	30		125	15	0
yellowtail	47	31	30		124	58	0
	47	30	0		124	58	0
	47	29	0		124	51	0
	47	31	0		124	51	0
rockfish	47	16	30		124	58	30
	47	13	0		124	58	30
	47	12	0		124	55	0
	47	13	0		124	53	0
	47	16	30		124	53	0
yellowtail	47	19	30		124	49	0
	47	19	0		124	48	0
	47	16	0		124	49	0
	47	16	0		124	50	0
yellowtail	47	19	0		124	48	0
	47	17	0		124	48	0
	47	17	0		124	46	0

Avoidance reason	Latitude				Longitude		
	Deg.	Min.	Sec.		Deg.	Min.	Sec.
widow	46	18	30		124	34	0
	46	17	30		124	33	0
	46	13	30		124	34	0
widow	46	13	30		124	33	0
	46	12	0		124	33	0
	46	12	0		124	35	0
	46	13	0		124	35	0
yellowtail and widow	46	11	30		124	33	0
	46	14	0		124	26	0
	46	13	0		124	26	0
	46	11	0		124	32	0
rockfish	46	3	0		124	38	0
	46	1	0		124	38	0
	46	1	0		124	43	0
	46	3	0		124	43	0
yellowtail	47	17	0		124	46	0
	47	21	0		124	46	0
	47	21	0		124	44	0
	47	17	0		124	44	0
yellowtail	47	8	30		124	59	0
	47	8	30		124	58	0
	47	3	0		124	55	0
	47	3	0		124	57	0
yellowtail	47	1	30		125	0	0
	47	2	0		124	58	0
	46	57	30		124	58	0
	46	58	30		124	57	0

Avoidance reason	Latitude				Longitude		
	Deg.	Min.	Sec.		Deg.	Min.	Sec.
yellowtail	46	52	0		124	58	0
	46	52	30		124	54	0
	46	49	30		124	57	0
yellowtail	46	52	30		124	54	0
	46	55	0		124	54	0
	46	55	0		124	49	0
	46	54	0		124	49	0
	46	54	0		124	52	0
	46	52	30		124	52	0
yellowtail	46	35	0		124	32	0
	46	32	0		124	32	0
	46	32	0		124	28	0
	46	35	0		124	28	0
rockfish	46	9	0		124	37	0
	46	13	0		124	38	0
	46	12	30		124	33	0

At-sea vessel contacts for each catcher-processor and mothership.

Vessel	Call Sign	Cell Phone	IMAR	Company Contact	Contact Number
PWCC Vessels					
American Ocean	KRCT	206-915-3491		Mike Atterberry or Rod Hendricks	360-293-4677
American Triumph	KTHZ	206-910-1533	888-908-1716	Frank Vargas, or Jan Jacobs	206-448-0300
Island Enterprise	KEOM	206-604-0822		Mike Luchino or Dave Benson	206-783-3818
Kodiak Enterprise	WCZ4176	888-908-1569			
Northern Jeager	WNBG	206-399-3317	888-908-1720	Brett Vielbig or Jan Jacobs	206-448-0300
Pacific Glacier	WRYH	206-849-2386		Marie Windrow	206-298-1200
Motherships					
Arctic Storm	WTQ-5896	206-310-9066	872-150-0475	Dale Myer	206-783-8040
Excellence					
Golden Alaska					
Ocean Phoenix	KCAK	206-919-6182		Rich Wood	206-286-8584
Ocean Rover	KRLM	206-399-7020	888-908-1717	Jan Jacobs	206-448-0300

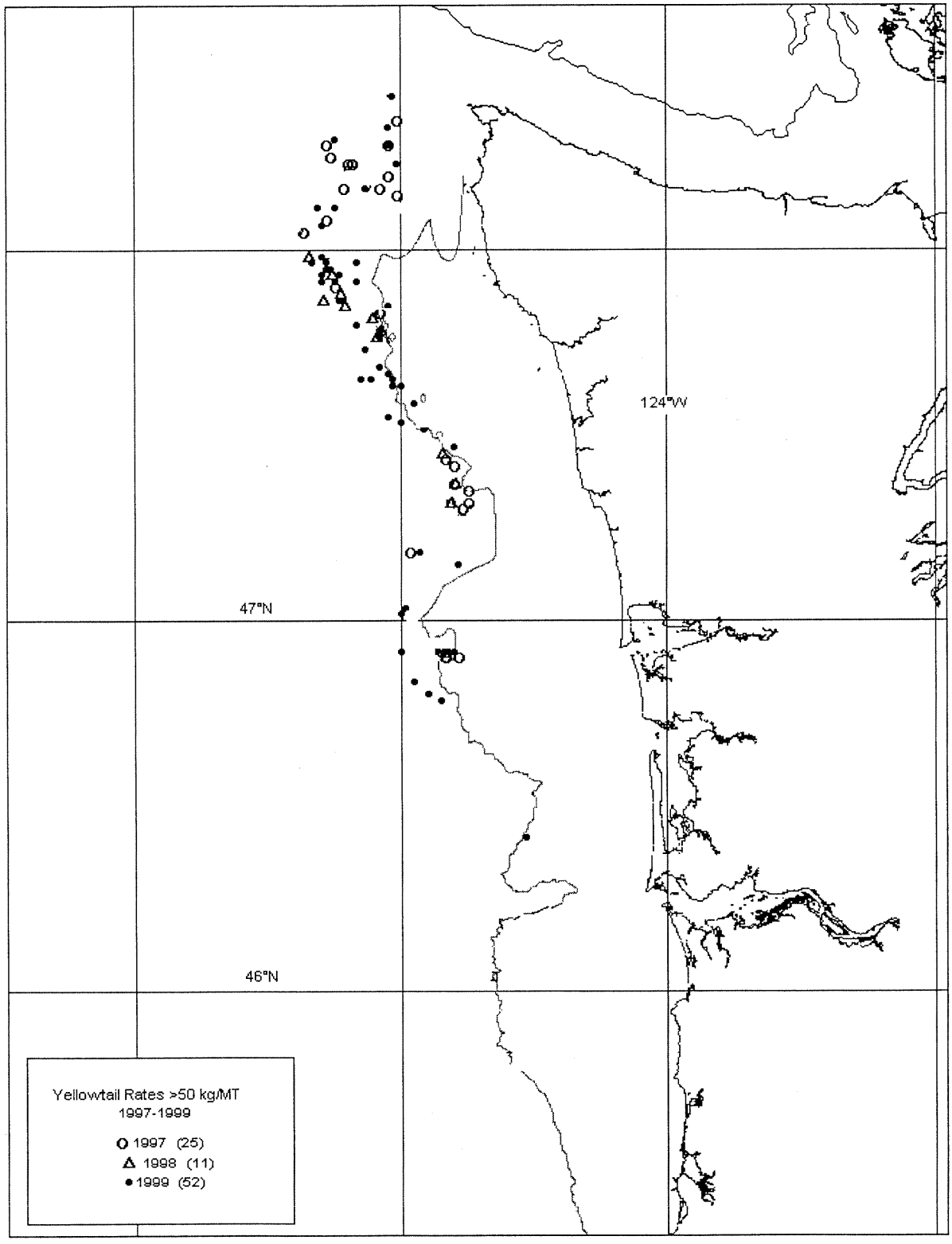

Figure 1. Distribution of hauls with high (> 50 kg/t) yellowtail rockfish bycatch in the at-sea whiting fishery.

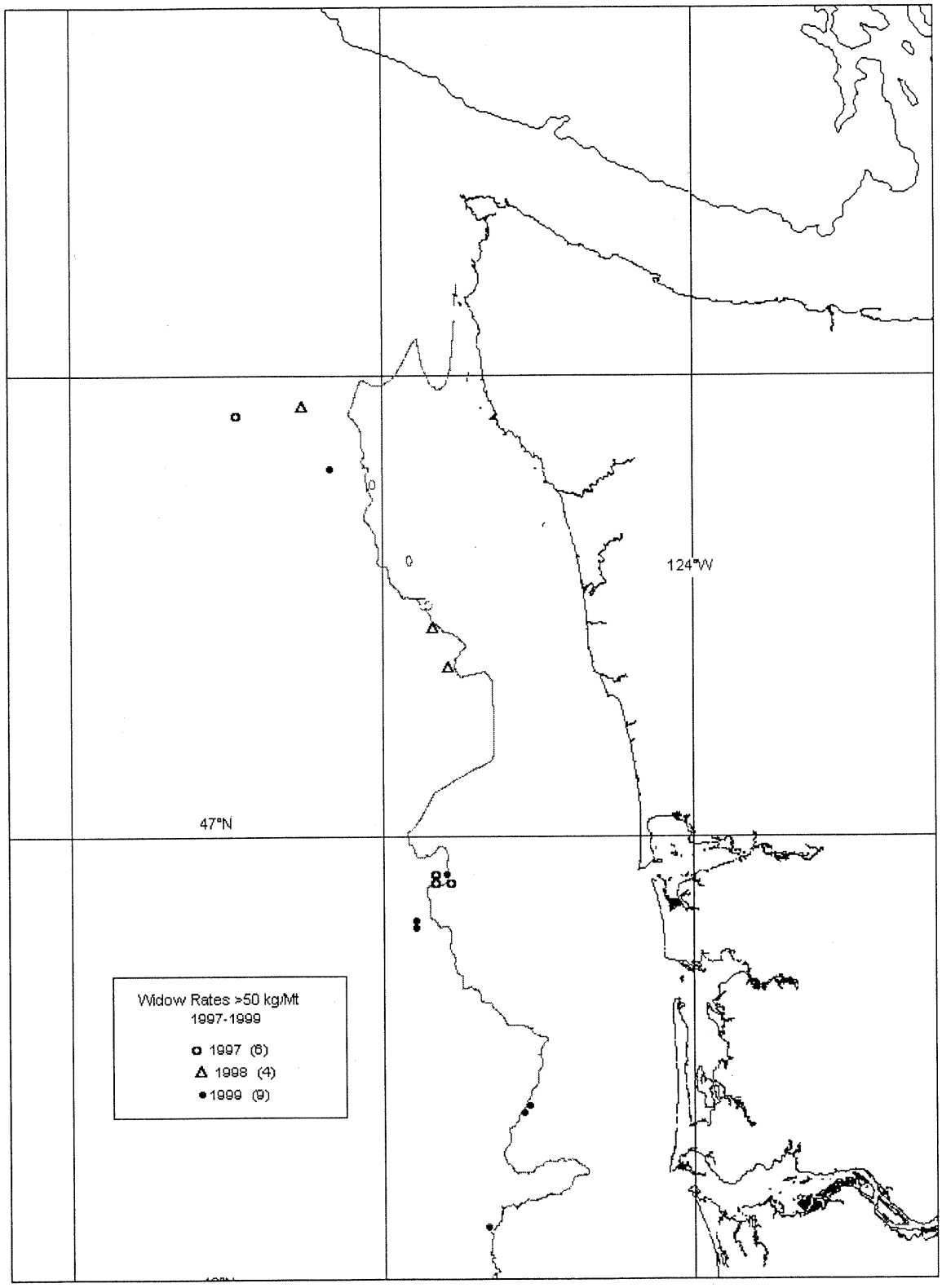

Figure 2. Distribution of high bycatch hauls of widow rockfish in the at-sea whiting fishery.

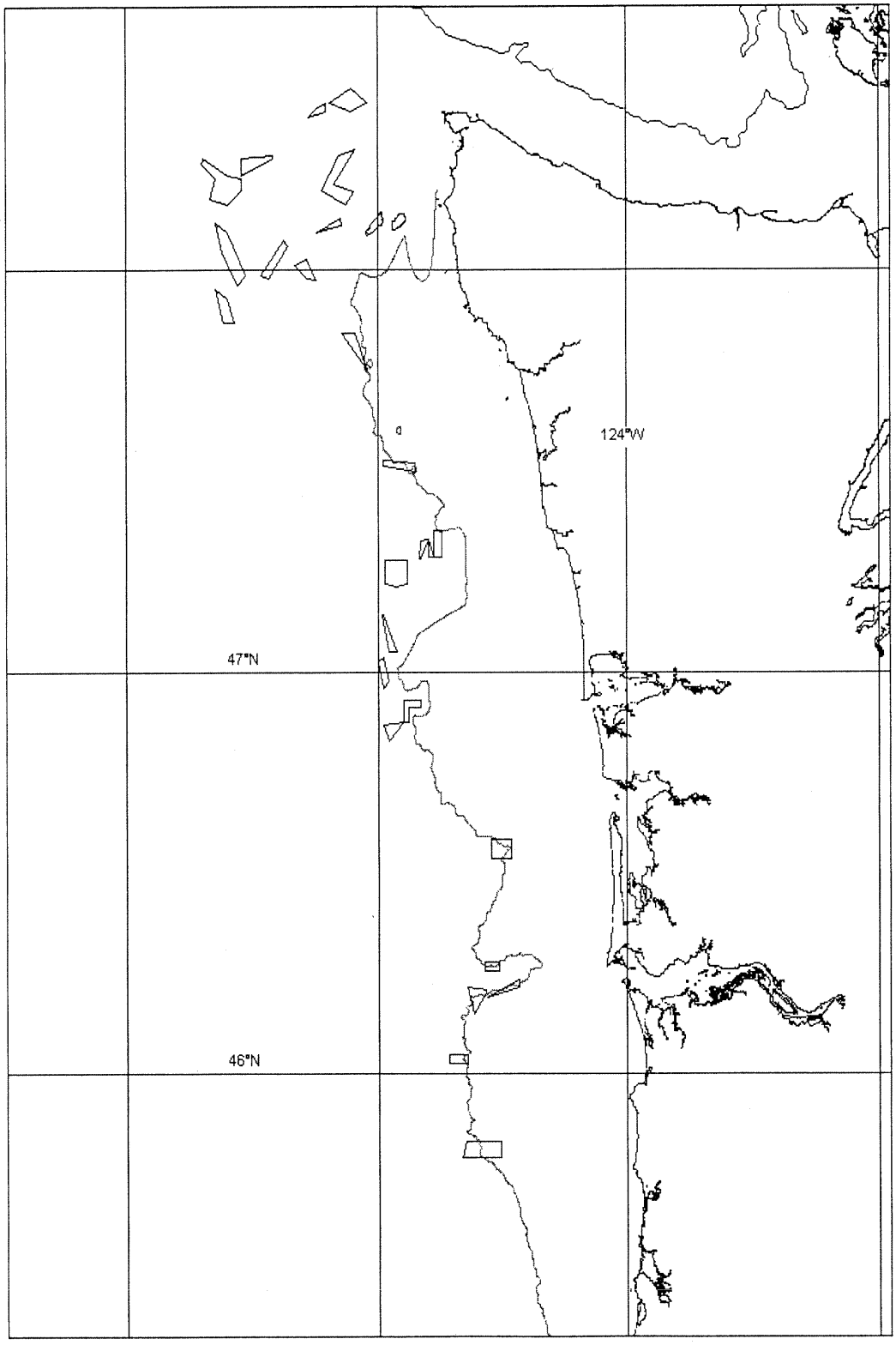

Figure 3. Distribution of rockfish avoidance areas.

GROUNDFISH ADVISORY SUBPANEL COMMENTS ON SUMMARY OF THE 1999 LIMITED-ENTRY, FIXED-GEAR PRIMARY FISHERY FOR SABLEFISH, AND RECOMMENDATIONS FOR THE 2000 SEASON

The Groundfish Advisory Subpanel (GAP) received information from the Groundfish Management Team (GMT) regarding proposals for cumulative limits for the 2000 sablefish derby fishery.

The GAP recommends the Council release for public comment the GMT options with the "92/80/60" option identified as preferred. The GAP believes this option provides a higher overhead for a mop-up fishery.

The GAP favors August 6, 2000 as the opening date for the derby fishery. This date provides the best advantages due to tide, weather, and the timing of a September mop-up fishery.

PFMC
04/05/00

SUMMARY OF THE 1999 LIMITED-ENTRY, FIXED-GEAR PRIMARY FISHERY FOR SABLEFISH, AND RECOMMENDATIONS FOR THE 2000 SEASON

The 1999 3-tiered fishery had a 9-day opening with limits around 85,000 lb, 38,000 lb, and 22,000 lb for Tiers 1 through 3, respectively. The projected landings during this phase of the fishery were just over 4.5 million lb. The preliminary tally of poundage conducted shortly after the close of the fishery indicated that nearly 4.6 million lb had been taken. This estimate proved to be almost 300,000 lb too high, though 125,000 lb were landed during the fishery by vessels that could not be linked to limited-entry permits. In order to differentiate this fishery from an individual quota program, it is managed with the intent that not all permits with tier endorsements will be able to take their entire limits. The difference between what could have been caught and what was actually caught is referred to as "overhead", with the desired level of overhead being greater than 20%. Projected overhead with last year's season length and limits was 31%, however the 4.3 million lb taken by authorized participants resulted in an overhead of 37%.

Participation and landings in the 1999 fishery are summarized in Table 1, by tier, gear, and state. It had been anticipated that increased limits for the 1999 fishery would reduce the absenteeism observed among Tier-3 permits in 1998. However, 21 of 94 permits in this tier did not participate in 1999. Figure 1 illustrates the accuracy of projections used for the 1999 fishery. Although projections for some individual permits were highly inaccurate, the purpose of the projections is to estimate the fleet's landings, and not any individual's. Importantly, this scatter plot shows a good balance of projections that were too high and too low. Average landings within the tiers had been expected to be roughly 65,000 lb, 29,000 lb, and 17,000 lb. Actual averages, over all permits, within each of Tier 1 and Tier 2 were within 4% of the expected amounts. Despite the fact that Tier-3 participants averaged just over the projection of 17,000 lb, the high rate of absenteeism produced an average of only 13,200 lb for all permits in that tier.

Three sets of parameter options for the 2000 fishery are presented in Table 2. It should be noted that since last year's analysis, an additional permit has applied for and received a Tier 1 endorsement, making a total of 164. Additionally, another permit's assignment has been corrected from Tier 3 to Tier 2. The projected increase in landings attributable to these permits, as well as other permits where highest catch rates were observed in 1999, results in somewhat lower limit recommendations for 2000, despite modeling efforts to reduce the likelihood of realizing excessive overhead. As with the model which last year's fishery was based upon, worst-case scenarios for 2000 were constructed using one additional day of fishing for all permits, up to the specified limits. So for a 10-day fishery, the worst-case scenario is based on the fleet landing amounts that would be projected for an 11-day fishery. Limits are set so that the total poundage allocated to this fishery would be achieved under the worst case scenario. Basing the worst case scenario on only one additional day of fishing allows the minimum 15% overhead to be achieved with more liberal season length/limits than prior to 1999, when a 2-day buffer was used. After permits' catching abilities are constrained by the appropriate limits, their landings are reduced by 2%, reflecting the fact that not everyone will fish fully up to their limit.

The differences between the first two options reflect differing assumptions regarding the degree to which permits in a particular tier will tend to achieve their highest observed catch rate, and the degree to which expected landings are reduced for recent non-participants. The more conservative approach shown in Option 2 uses the same reductions in catching ability employed in last year's preferred model. Catching capacities are reduced by 5%, 15%, and 25% for Tiers 1-3, respectively, before they are constrained by the limits. The projected landings of a Tier 1 permit, for instance, would be unaffected by this adjustment as long as the original expected catch was more than 5% greater than the limit. Based on comparison of projected and actual landings in the 1999 fishery, the upper panel uses more aggressive reductions of 8%, 20%, and 40% for Tiers 1-3, respectively. This approach is riskier, in that it assumes a high degree of continuing non-participation among Tier 3 permits. Option 2 also uses a more conservative approach in discounting expected landings by recent non-participants. After a permit's modified catching capacity is constrained by the limit (with the 2% reduction mentioned), expected landings are reduced by up to 40%, for a permit that did not participate at all from 1997 to 1999. Twenty percent is deducted for missing 1999 and 10% for each of the preceding years. Option 1 uses more aggressive discounts of 30% and 20% for missing 1999 and 1998, respectively, yielding a maximum possible reduction of 60% from the original

projected landings.

Options 1 and 2 were designed to provide the longest possible season lengths where expected and worst-case overhead meet the desired objectives. Following discussions with the Groundfish Advisory Panel, Option 3 was developed, which identifies tier limits associated with assumptions underlying Option 1, but using a 9-day season, instead of a 10-day season. The Option 3 limits are very similar to those employed in the 1999 fishery. Expected overhead in Option 3 is considerably higher than the other two options.

The bottom panel presents a rudimentary decision table showing possible consequences of applying the limits from one of the options under the two alternative sets of assumptions used in modeling fleet participation. In particular, if the highest limits, from Option 3, were used, and participation reflects the modeling assumptions of Option 2, the expected landings would be 777,178, which is about 65,000 lb greater than the poundage allocated to the primary fishery (including mop-up). The highest limits where the expected catch under the Option 2 assumptions would not exceed this allocation would be 81,000 lb for Tier 1, 37,000 lb for Tier 2, and 21,000 lb for Tier 3.

Table 1.--Participation in the 1999 limited-entry fixed-gear primary sablefish season, by tier, gear, and state.

	Tier 1			Tier 2			Tier 3			
	Longline	Pot	All	Longline	Pot	All	Longline	Pot	All	All permits
Number of permits	10	17	27	37	6	43	85	9	94	164
Avg. lbs/permit	61,399	71,137	67,530	28,680	31,244	29,038	13,156	13,814	13,219	26,308
Permit avg. / cum. Limit	71%	83%	79%	75%	82%	76%	60%	63%	60%	
3-tiered fishery										
1999 participants	9	17	26	33	6	39	66	7	73	138
Total landings (lb)	613,987	1,209,335	1,823,322	1,061,151	187,462	1,248,613	1,118,222	124,324	1,242,546	4,314,481
Avg. lbs/participant	68,221	71,137	70,128	32,156	31,244	32,016	16,943	17,761	17,021	31,264
Cum. Limits (lb)	86,000	86,000	86,000	38,000	38,000	38,000	22,000	22,000	22,000	
Part. avg. / cum. Limit	79%	83%	82%	85%	82%	84%	77%	81%	77%	
Landings by state										
California	84,094		84,094	52,032	88,529	140,561	234,739	27,000	261,739	486,394
Oregon	307,471	1,146,071	1,453,542	404,166	98,933	503,098	500,051	76,571	576,622	2,533,262
Washington	222,422	63,264	285,686	604,954		604,954	383,432	20,753	404,185	1,294,825
Mop-up										
1999 participants	3	9	12	14	4	18	39	3	42	102
Total landings	3,207	9,256	12,463	14,834	4,341	19,175	38,767	2,848	41,615	104,891

	Poundage from vessels not linked to permits at the time of landing		
	HKL	POT	All
California	21,240	1,182	22,422
Oregon	94,322		94,322
Washington	7,691		7,691
Total	123,253	1,182	124,435

Comparison of preliminary and final numbers				
Preliminary		Final		
Pounds	Permits	Pounds	Permits	
790,899	29	486,394	24	
2,578,539	69	2,533,262	63	
1,227,089	51	1,294,825	53	
4,596,527	149	4,314,481	140	(138 unique)

Table 2.–Options for the duration and cumulative limits for the 2000 primary season of the Limited-entry, fixed-gear sablefish fishery.

Option 1: 10-day fishery, using tier-specific %'s (92-80-60) of maximum observed catch rates with a landings reduction of 2% and reductions for permits not fishing in 1999-1997) (.3:.2:.1)

	Tier 1	**Tier 2**	**Tier 3**	**Total**	**Worst Case** (1-day differential)
# of permits	27	43	94		
Cumulative Limit	**79,460**	**35,910**	**20,629**	5,628,686	5,557,815
Expected average	69,993	29,664	14,522	4,530,446	4,711,315
Overhead	114%	121%	142%	**124%**	**119%**
Expected Mop-up lbs.	1,103	1,103	1,103		
Cum. Limit + Mop-up	80,563	37,013	21,732		

More conservative approach

Option 2: 9-day fishery, using higher tier-specific %'s (95-85-75) of maximum observed catch rates with landings reduction of 2% and smaller reductions for permits not fishing in 1999-1997) (.2:.1:.1)

	Tier 1	**Tier 2**	**Tier 3**	**Total**	**Worst Case** (1-day differential)
# of permits	27	43	94		
Cumulative Limit	**76,889**	**34,748**	**19,962**	5,446,553	5,446,553
Expected average	66,534	29,089	15,601	4,513,747	4,711,315
Overhead	116%	119%	128%	**121%**	**116%**
Expected Mop-up lbs.	1,205	1,205	1,205		
Cum. Limit + Mop-up	78,094	35,953	21,166		

Higher limit option : Shorter season with less conservative assumptions

Option 3: 9-day fishery, using tier-specific %'s (92-80-60) of maximum observed catch rates with a landings reduction of 2% and reductions for permits not fishing in 1999-1997) (.3:.2:.1)

	Tier 1	**Tier 2**	**Tier 3**	**Total**	**Worst Case** (1-day differential)
# of permits	27	43	94		
Cumulative Limit	**85,735**	**38,746**	**22,258**	6,073,161	6,073,161
Expected average	67,713	29,441	14,223	4,431,145	4,711,315
Overhead	127%	132%	156%	**137%**	**129%**
Expected Mop-up lbs.	1,708	1,708	1,708		
Cum. Limit + Mop-up	87,443	40,454	23,966		

Decision table identifying the potential impacts of employing limits from one option with fleet assumptions from another

	Using Tier limits from				
Assumptions based on	Option 1	Option 2	Option 3		
Option 1: exp. lbs	4,530,446				
expected overhead	**124%**				
Option 2: exp. lbs	4,549,964	4,513,747	4,777,178	4,711,315	= target poundage
expected overhead	**122%**	**121%**	**127%**		
Option 3: exp. lbs		4,233,072	4,431,145		

expected overhead		**129%**	**137%**

Figure 1.--Comparison of predicted and actual landings in the 1999 primary sablefish fishery