

**DRAFT  
ENVIRONMENTAL ASSESSMENT/  
REGULATORY IMPACT REVIEW  
  
FOR  
  
PROPOSED 2002 GROUND FISH ACCEPTABLE  
BIOLOGICAL CATCH AND OPTIMUM YIELD  
SPECIFICATIONS  
AND MANAGEMENT MEASURES  
  
FOR THE  
PACIFIC COAST GROUND FISH FISHERY**

**Prepared by the Pacific Fishery Management Council**

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**OCTOBER 22, 2001**

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## EXECUTIVE SUMMARY

The Pacific Fishery Management Council (Council) has proposed harvest levels for the Pacific Coast groundfish fishery for the year 2002 and certain management measures to achieve these harvest levels while protecting overfished and depleted stocks. Harvest level specifications for each major stock typically include two reference points: an acceptable biological catch (ABC) and an optimum yield (OY). The ABCs are based on the best scientific information available, which is a quantitative stock assessment whenever possible. The OY is typically the management target. In a few cases, additional target levels are proposed, referred to as harvest guidelines. The Pacific Coast Groundfish Fishery Management Plan (FMP) includes a harvest control rule for determining a default OY value that responds to precautionary management and uncertainty in the scientific information. The Council may deviate from the default values but only within certain limitations. Thus, OYs are typically lower than the ABCs, in response to other considerations such as stock rebuilding plans, bycatch control measures, or social and economic objectives.

Seven groundfish stocks have been designated as overfished, which obliges the Council to develop rebuilding plans within one year of the designation. In 2002, one more stock will be designated as overfished. The 1996 amendments (Sustainable Fisheries Act) to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) strengthened and clarified the mandate to prevent overfishing. These two factors greatly influenced the Council's proposals for year 2002 harvest levels, resulting in more conservative management than in previous years. The OY proposals are intended to respond to the best and most current scientific information available to prevent overfishing, to reduce avoidable bycatch and take into account unavoidable bycatch, and to make meaningful progress towards rebuilding overfished stocks. The OY for bocaccio is based on a rebuilding analysis adopted by the Council in November 1999. The OYs for cowcod and canary rockfish are based on rebuilding analyses adopted by the Council in November 2000. The OYs for lingcod, darkblotched rockfish, widow rockfish, and Pacific ocean perch are based on rebuilding analyses adopted by the Council in June and September 2001. The OY for yelloweye rockfish is set in acknowledgment that this stock will be designated as overfished and is based on the recommendation from the stock assessment author and the Stock Assessment Review (STAR) Panel that reviewed the assessment. Other stocks, such as sablefish north of Point Conception, are in the precautionary zone where the current biomass is between 25% and 40% of the stock's unfished biomass. The OYs for such stocks are based on the Council's default OY harvest policy (the "40-10" rule) which reduces the exploitation rate when a stock is at or below its precautionary threshold. Management measures, consistent with the biological necessities of rebuilding overfished stocks, preventing stocks from becoming overfished (stocks in the precautionary zone), or maintaining a sustainable harvest of healthy stocks are proposed. These management measures take into account historic fishing patterns, bycatch reduction objectives, the needs of coastal communities, and other biological, social and economic considerations.

The Council will consider three issues, each with several alternatives and sub-options, and will ultimately choose alternatives that will shape the 2002 Pacific Coast groundfish fishery. The relevant issues are alternative harvest levels, alternative bycatch and discard rate estimates, and alternative season options. The alternative harvest levels apply to six stocks that are subject to new stock assessments or rebuilding strategies. The bycatch and discard rate estimation issue arises by the need to accurately track total mortality of groundfish stocks and by recent scrutiny of past bycatch and discard rate assumptions. The alternative season options result from a desire to consider area and time manipulations of the fishery to potentially realize higher trip limits and lesser regulatory discard of groundfish. Each issue has several alternatives with varying degrees of potential risks and benefits to the groundfish fishery that are described in this document. Less restrictive alternatives tend to buffer, but not necessarily ameliorate, the continued downward trend in economic benefits and fishing opportunities. However, the short term benefits of less restrictive alternatives need to be weighed against longer term stock conservation risks. The Council adopted alternatives modeled in this Environmental Assessment/Regulatory Impact Review (EA/RIR) are believed to adequately bracket a reasonable range of options for the 2002 groundfish fishery given anticipated short and long term risks and benefits. The issues considered are also chosen as the most anticipated issues currently influencing a decision on 2002 harvest levels and management measures.

## 1.0 PURPOSE AND NEED FOR ACTION

The fishery resources off the coasts of the United States are held in trust for the people and Nation. Congress delegated management responsibility to the Secretary of Commerce (Secretary), with the aid of eight regional councils, to develop regional management plans and recommend measures to ensure these resources are managed and conserved to prevent overfishing and to achieve the maximum benefit to the Nation. The goals, standards, responsibilities, and processes are laid out in the Magnuson-Stevens Act, which was most recently amended in 1996. The Council was assigned stewardship responsibilities for the fish resources off the Pacific Coast, specifically the area from 3 to 200 nautical miles off Washington, Oregon, and California.

The groundfish fisheries in the Exclusive Economic Zone (EEZ) offshore of Washington, Oregon, and California are managed in accordance with the Council's Pacific Coast Groundfish Fishery Management Plan (FMP). The FMP<sup>1</sup> requires the Council to annually recommend groundfish harvest levels and management measures for the upcoming year. These recommendations must be consistent with the goals and objectives of the FMP, the Magnuson-Stevens Act, and other applicable laws and federal policies. In accordance with the National Environmental Policy Act (NEPA), an Environmental Assessment (EA) must be prepared to analyze and discuss the impacts of the proposed harvest specifications on the human environment (that is, the anticipated impacts on the biological resources, the physical environment, and the social and economic well-being of fishers, fishing communities, and the Nation). This document, along with its associated reference documents, constitutes the required EA.

On March 3, 1999, NMFS approved Amendment 11 to the groundfish FMP. That amendment established a default optimum yield (OY) policy that reduces the numerical OY of any stock believed to be below its precautionary threshold, which is defined as smaller than 40% of its pristine (unfished) abundance unless better information is available.<sup>2</sup> A groundfish stock is defined to be "overfished" if its abundance is less than 25% of its unfished abundance. These provisions of the FMP are intended to address National Standard 1 (conservation and management measures shall prevent overfishing while achieving on a continuing basis, the optimum yield from each fishery for the United States fishing industry) and three overall management goals established in the FMP to guide this process: (1) Conservation - prevent overfishing by managing for appropriate harvest levels, and prevent any net loss of habitat of living marine resources; (2) Economics - maximize the value of the groundfish resource as a whole; and (3) 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.

A variety of management measures have been employed to achieve the goals and objectives of the FMP, including gear restrictions, a license limitation program, time/area closures, the specification of OYs or other harvest limitations for some species, seasons, and trip limits, which are limitations on the amount of certain species that may be caught, retained and landed by any vessel. The FMP authorizes continued establishment of harvest guidelines and quotas. Harvest guidelines are specified numerical harvest objectives which are treated as targets but not absolute limitations. Attainment of a harvest guideline does not require closure of a fishery, although the Council may choose to terminate further fishing. All recent numerical harvest specifications, including OY values, have been harvest guidelines. A quota is defined as a specified numerical harvest objective, the attainment (or expected attainment) of which causes closure of the fishery for that species or species group. The main use of harvest guidelines and quotas recently has been to designate allocations and sub-components of a specified OY.

The Council reviews available stock status information at its September and November meetings, after which it forwards its final recommendations to the Secretary. These recommendations are made annually, so the Council is able to change its harvest management policies as new information on fish stock abundance and fishing community needs becomes available, and as new legislative requirements are imposed. Although the FMP states that all specifications will remain in effect until changed, they are announced annually on or about January 1.

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<sup>1</sup> See section 5.3 of the FMP.

<sup>2</sup> Sometimes spawning stock biomass is used instead of total stock biomass, and sometimes spawning potential is used. Where there is insufficient information to develop a numerical OY, the FMP still allows establishment of a non-numerical OY.

This EA analyzes possible environmental and socioeconomic impacts of harvesting at the proposed range of 2002 OY specifications as compared to the 2001 harvest guideline specifications. It also analyzes the management measures accompanying each set of harvest level alternatives, season structure alternatives, and bycatch/discard rate alternatives.

## 2.0 ALTERNATIVES INCLUDING PROPOSED ACTION

The Council considered three suites of alternatives at the September 2001 Council meeting, each with several sub-components and specific proposals. A brief summary of each suite of alternatives (Issue 1: alternative harvest levels, Issue 2: alternative bycatch rate estimates for overfished stocks, and Issue 3: alternative season options) is provided below; the multitude of provisions, mostly in table form, are provided afterwards. The first issue (alternative harvest levels) depicts a status quo alternative, a low end alternative, a high end alternative, and a preferred alternative. The preferred alternative is based on the Council-adopted preferred alternative harvest levels from the September 2001 meeting. The analysis of the second issue (alternative bycatch rate estimates) depicts a range of estimated bycatch rates of key overfished groundfish stocks within various target trawl fishing strategies (similar data for limited entry fixed gear and open access gears is not currently available) using a variety of data sources, including field observations in the mid-1980s, logbooks, fishtickets, and Enhanced Data Collection Project (EDCP) data. The high and low ends of the range of bycatch rates are analyzed with respect to how they influence landing limits for each of the season options. Preferred bycatch rates have not been adopted by the Council. The third issue is management measures (alternative season options). For the commercial fishery, there is a Groundfish Management Team (GMT)-recommended year round season alternative, a coastwide season alternative, and two Groundfish Advisory Subpanel (GAP)-recommended year round season alternative (one with the Council-preferred and one with the high total catch OY alternatives). The GMT-recommended year round and the coastwide six month commercial season alternatives have seasonal suboptions for sablefish. Tables cited in Section 2.3 specify trip and cumulative landing limits given the alternatives modeled for each commercial season option. The resulting trip and landing limits in these tables are analyzed for their relative economic effects. A preferred 2002 commercial season alternative was not adopted by the Council.

Recreational rockfish and lingcod season and bag limit options proposed by the states of Washington, Oregon, and California are also analyzed. The potential biological impacts of recreational fishery options are analyzed with respect to adhering to OY specifications and the recreational set-asides (preliminarily adopted by the Council in September 2001) for bocaccio, canary rockfish, and yelloweye rockfish. The alternative harvest levels issue only applies peripherally to recreational fisheries, because only a minor catch of those stocks with variable harvest levels under consideration (darkblotched rockfish, Dover sole, sablefish, shortspine thornyhead, and widow rockfish) is realized by the recreational fishery. Effort shifts resulting from the recreational fishery options are predicted to determine relative economic effects of these options. The Council did not adopt preferred recreational fishery alternatives for 2002.

### 2.1 Alternative Harvest Levels

A range of alternative harvest levels for the 2002 groundfish fishery for six groundfish stocks was adopted by the Council for public review in September (Table 2.1-1). Three of the stocks (darkblotched rockfish, Pacific ocean perch, and widow rockfish) have been declared overfished. The ABC and OY specifications for these stocks range from status quo (2001 specifications) to harvest levels consistent with rebuilding trajectories estimated to have an 80% probability of achieving target biomass within the specified time frame. The low and intermediate harvest levels considered correspond to rebuilding strategies consistent with 60% and 70% probabilities of achieving target biomass within the specified time frame. Two of the stocks (Dover sole and sablefish) have estimated biomasses within the precautionary zone (25%-40% of unfished biomass). The range of harvest levels for these stocks correspond to harvest levels between status quo (2001 specifications),  $F_{40\%}$ ,  $F_{45\%}$ , and  $F_{50\%}$ . A range of exploitation rates was chosen for these stocks due to uncertain recruitment assumptions and projections and the desire to adopt harvest levels that are likely to prevent them being declared overfished in the near future. One stock, shortspine thornyhead, has an adopted range of harvest levels corresponding to status quo (2001 specifications) and a higher harvest level conforming to a higher estimated biomass in 2001. There was great uncertainty in the 2001 assessment of the current biomass of shortspine thornyhead. Shortspine thornyhead could either be above  $B_{MSY}$  (the biomass that sustains a maximum sustainable yield harvest) or within the precautionary zone. The GMT treated shortspine thornyhead as if they were in the "precautionary zone"; the harvest levels have the "40-10" adjustment applied. Preferred alternative harvest levels were adopted by Council action in September for five of the six stocks with adopted harvest level ranges (all except shortspine thornyhead).

Harvest levels adopted for 2002 for all the other groundfish stocks and stock complexes managed on the Pacific Coast correspond to status quo (2001 specifications). These stocks and stock complexes are either

estimated to be or assumed to be healthy (biomasses >40% of unfished biomass) or under Council-adopted rebuilding strategies.

**Status Quo Alternative:** The status quo ABC and total catch OY specifications against which the 2002 Pacific Coast groundfish fishery harvest levels are compared are the 2001 specifications (see Table 2.1-1).

**Alternative 1.1:** Implement ABCs based on new stock assessments, new maximum sustainable yield (MSY) harvest levels, and the lower end of the preliminary total catch OY ranges for darkblotched rockfish, Dover sole, Pacific ocean perch, sablefish, shortspine thornyhead, and widow rockfish (see Table 2.1-1).

Under this alternative, the lowest ABCs and total catch OYs under consideration for darkblotched rockfish, Dover sole, Pacific ocean perch, sablefish, shortspine thornyhead, and widow rockfish would be adopted. Harvest levels for all other stocks would also be the same as in 2001. These OYs would provide the most protection to the groundfish resources, and would hasten rebuilding of overfished and depleted stocks. Impacts on recreational and commercial fishers and fishing communities would be the greatest of the four alternatives, and resulting management measures would most restrict commercial groundfish fishing on the continental shelf and slope.

**Alternative 1.2:** Implement ABCs and total catch OYs based on new stock assessments, new MSY harvest levels, and the upper end of the preliminary total catch OY ranges for darkblotched rockfish, Dover sole, Pacific ocean perch, sablefish, shortspine thornyhead, and widow rockfish (see Table 2.1-1).

Under this alternative, the highest ABCs and OYs under consideration for darkblotched rockfish, Dover sole, Pacific ocean perch, sablefish, shortspine thornyhead, and widow rockfish would be adopted. Harvest levels for all other stocks would also be the same as in 2001. These OYs would provide greater risk to the conservation of groundfish resources than alternative 1.1 (although less risk than status quo), which could potentially impede rebuilding of overfished and depleted stocks. Economic impacts on recreational and commercial fishers and fishing communities would be the least of the three no-status-quo alternatives, and resulting management measures would least restrict commercial groundfish fishing on the continental shelf and slope.

**Alternative 1.3 (Preferred Alternative):** Implement ABCs and total catch OYs consistent with new stock assessments, revised MSY harvest rates, including the high ABC and total catch OY for sablefish north of Pt. Conception and widow rockfish (60% probability of rebuilding within the specified time frame), and intermediate ABC and total catch OY levels for darkblotched rockfish (70% probability of rebuilding within the specified time frame), Dover sole ( $F_{45\%}$ ), and Pacific ocean perch (70% probability of rebuilding within the specified time frame)(see Table 2.1-1). A preferred ABC and total catch OY alternative was not adopted for shortspine thornyhead.

Under this alternative, adequate protection would be provided to overfished and depleted groundfish stocks, and opportunities for commercial and recreational fishing on the continental shelf and slope would be available. The overall benefits to the groundfish resources would be greater than under the status quo and intermediate between Alternatives 1.1 and 1.2; impacts on commercial fishers, recreational fishers, and fishing communities would be intermediate to Alternatives 1.1 and 1.2. The recommendations attempt to strike a balance between the risks to the groundfish resources and the social and economic risks to the fishing industry.

## 2.2 Alternative Bycatch Rates

Assumed bycatch rates used in the management of the Pacific Coast groundfish fishery affect total mortality estimates of overfished groundfish stocks which, in turn, affect trip and cumulative landing limits specified for all sectors of the fishery where these stocks are caught. Landing limits are designed to attain, but not exceed, annual landed catch OYs specified for the various stocks and stock complexes caught in the fishery which are largely determined by the estimated bycatch of constraining stocks. Bycatch rates are determined for overfished stocks within the context of target fishing strategies. This EA/RIR analyzes a range of estimated bycatch rates for the limited entry trawl sector only. Data for the limited entry fixed gear and open access sectors are limited and insufficient for similar analytical treatment. **NOTE: A full explanation of the methodology, including data documentation, will be included in the Appendix, which will be a supplemental attachment to this draft and available prior to a final Council decision.**

Consideration of alternative bycatch rates estimated and applied to the 2002 Pacific Coast groundfish fishery resulted from scrutiny of status quo assumptions. While the Observer Program implemented in August and September of 2001 by the National Marine Fisheries Service is expected to eventually provide relevant and superior bycatch rate estimates than the alternatives considered for 2002 management decisions, it is recognized that this information will not be available in time for decision making this year. Therefore, until observer data is available, other data sources and methodologies need to be considered.

The analysis of alternative bycatch rates compares the low and high ends of a range of estimates developed using field observations in the mid-1980s, logbooks, fish tickets, and Enhanced Data Collection Project (EDCP) data (Appendix). These rates only apply to the limited entry trawl sector of the fishery and are specific to target fishing strategies where overfished stocks are caught, either targeted or caught incidentally. The constraining stocks that are analyzed in this EA/RIR (with the cited tables depicting the associated bycatch rates by trawl fishing strategy for these stocks parenthetically listed) are bocaccio, canary rockfish, darkblotched rockfish, lingcod, and Pacific ocean perch.

If bycatch rates assumed for the fishery are too low, then total mortality is underestimated which risks rebuilding strategies for depleted and overfished groundfish stocks. Chronic underestimation of total mortality risks future economic benefits to the industry due to further depletion of groundfish resources. If bycatch rates assumed for the fishery are too high, then total mortality is overestimated which overly restricts current groundfish fisheries resulting in less of an economic benefit to the industry in 2002, with possible long term deleterious effects to the industry's infrastructure.

### **2.3 Alternative Commercial Fishery Management Measures (Season Options)**

Alternative season options are being considered for the 2002 Pacific Coast commercial groundfish fishery because of the potential to realize higher trip limits and decreased regulatory discard with the total catch OYs available. The option of a year round season is compared to a coastwide six month season for most commercial groundfish fishery sectors to generally understand the relative effect of a seasonal structure. Trip and cumulative landing limits are depicted for the GMT-recommended year round season option as well as the Council-adopted coastwide (six month) season option under both ends of the range of estimated bycatch rates. The intent is not necessarily for the Council to choose one of these specific alternatives when deciding 2002 management measures, but to effectively bracket the range of alternatives, so a well informed decision can be made. Therefore, the Council is free to choose permutations of these alternatives that make sense in the context of the conservation constraints and market demands implicit in the fishery.

Other seasonal options not adopted by the Council in September 2001 for analysis were recommended by industry groups. Due to time constraints to develop this EA/RIR before the November Council decision and flaws in some of the options that would prohibit serious consideration for the 2002 groundfish fishery, these options will only be addressed qualitatively with the rationale for doing so provided. The judgement of the authors and those consulted in the development of this EA/RIR (see Section 10.0) is that the two commercial alternatives for management measures (Alternatives 3.1 and 3.2) provide an adequate range of options for decision making.

The recreational fishery alternatives that were proposed by the states in September 2001 are addressed in their entirety. Catch projections for key stocks and stock complexes are provided, as determined by the GMT in September 2001. The authors of this EA/RIR made assumptions regarding effort shifts and projections in recreational fisheries to provide a socioeconomic analysis of these options. Those assumptions are articulated to benefit decision making.

**Alternative 3.1 (Year Round GMT-Recommended Season):** This alternative is analogous to the 2001 year round season and would apply to all sectors of the commercial fishery coastwide. This alternative, as proposed for 2002, would be the same as for 2001 except for the newly specified ABCs and OYs for lingcod, yelloweye rockfish, and the six groundfish stocks addressed in Section 2.1. The trip and cumulative landing limits depicted for this year round season option were recommended by the GMT and modeled with both ends of the range of estimated bycatch rates described in Section 2.2 and in the Appendix. Table 2.3-1 provides trip limits under the year round GMT-recommended season option with trip limits for constraining target species without the restrictions needed for the bycatch species to compare the net effect of applied bycatch rates on trip limits. The trip limit tables (with the restrictions for bycatch species) for limited entry trawl, limited entry fixed gear, and open access gears, respectively, under the low end of the range of bycatch rates

alternative are labeled Table 2.3-2a, Table 2.3-2b, and Table 2.3-2c. Those under the high end of the range of bycatch rates alternative are labeled Table 2.3-3a, Table 2.3-3b, and Table 2.3-3c.

In general, the advantages to the year round season option include: a year round flow of product to maximize market opportunities, ability for different sectors of the fishery to satisfy market demands that may vary geographically, and the ability of fishermen to more safely fish during periods of calmer weather (also varies geographically). The processing sector has testified that year round product flow is necessary to keep skilled workers, such as filleters, employed. Without a year round product flow, markets may shift away from groundfish, reducing net demand and profitability. Periods of inclement weather vary geographically. A year round season allows geographically segregated fishermen equitable opportunity to attain their allocated portions of the coastwide OYs for stocks and stock complexes. There was a general sense from the industry and public comments that a "one size fits all" approach in determining a season structure doesn't provide the flexibility needed to prosecute the groundfish fishery coastwide.

**Alternative 3.2 (Coastwide Six Month Season):** In September 2001 the Council adopted a coastwide six month season option for analysis in the EA/RIR in order to better understand the relative difference of a seasonal structure to the commercial groundfish fishery. The thought behind advancing this option is that there was a potential to realize higher trip and cumulative landing limits and lesser regulatory discard by truncating the time spent harvesting groundfish. One of the qualifications discussed, but not necessarily adopted when this option was recommended, was the possibility of temporally staggering fishing sectors and strategies, so individual fishers could pursue one strategy/target species at one time of the year (i.e., crab in the winter) and another during a different period (i.e., Dover sole/thornyhead/trawl-caught sablefish complex (DTS) trawl in the summer). It is noted this alternative as adopted and modeled does not address the concept of staggering strategies, and it is clearly not a preferred alternative for many of the participants in the fishery. The results of the analysis of this alternative merely serve to illustrate a relative difference between a year round and a seasonal structure to the fishery and to open the door to consider seasonal options.

This alternative would apply to all commercial fisheries coastwide except for trawl whiting and would have the following season structure: open during January to March, closed during April to September, and open during October to December. Suboptions for the fixed gear sablefish season include: (1) closing during January to March, open during April and May, closed during June to August, open during September and October, and closed during November and December; and (2) same as #1 except open during June to August only in depths  $\geq 150$  fathoms for vessels equipped with a satellite vessel monitoring system. The fixed gear sablefish suboptions were in response to testimony (referring to recently published scientific reports (Olla *et al.* 1998, Davis *et al.* 2001)) at the September 2001 Council meeting regarding higher mortalities of incidentally caught sablefish during periods of elevated sea surface and air temperature. The trip limit tables for limited entry trawl, limited entry fixed gear, and open access gears, respectively, assuming bycatch rates at the low end of the range are labeled Table 2.3-4a, Table 2.3-4b, and Table 2.3-4c. Trip limit tables assuming the high end range of bycatch rates are labeled Table 2.3-5a, Table 2.3-5b, and Table 2.3-5c.

**Alternative 3.3 (Year Round GAP-Recommended Season- Council-Preferred OY Option):** In September 2001 the Groundfish Advisory Subpanel (GAP) recommended and the Council adopted for consideration a year round trawl season option with the Council-preferred total catch OY alternatives specified in Table 2.1-1. The trip and cumulative landing limits specified for this option are depicted in Table 2.3-6 for the 2002 limited entry trawl fishery. Since the GAP specified trip limits when recommending this option, alternative bycatch rates were not presented. The qualitative analysis of this alternative is presented in Section 4.3.3.

**Alternative 3.4 (Year Round GAP-Recommended Season-High OY Option):** In September 2001 the Groundfish Advisory Subpanel (GAP) recommended and the Council adopted for consideration a year round trawl season option with the high total catch OY alternatives specified in Table 2.1-1. The trip and cumulative landing limits specified for this option are depicted in Table 2.3-7 for the 2002 limited entry trawl fishery. Since the GAP specified trip limits when recommending this option, alternative bycatch rates were not presented. The qualitative analysis of this alternative is presented in Section 4.3.4.

## 2.4 Alternative Recreational Fishery Management Measures

Alternative recreational fishery management measures were proposed by the states of Washington, Oregon, and California at the September 2001 Council meeting to control recreational harvest of key overfished groundfish stocks and stock complexes. These options have only been analyzed with respect to projecting catch of key groundfish stocks and stock complexes. Recreational effort shifts are difficult to predict since

they are dependent not only on implementation of the proposed action, but also on the suite of other recreational pursuits available (i.e., opportunities to harvest other non-groundfish species) or completely unpredictable events such as weather. Therefore, the economic impacts and regulatory effectiveness of recreational fishery options should only be considered gross estimates of outcomes given the underlying assumptions. As always, controlling recreational harvest of overfished groundfish stocks is an evolving adaptive management process. These regulatory alternatives, which are more conservative than those for the 2001 fishery, should therefore be considered within that context.

### **Washington Recreational Fishery Alternatives**

The Washington Department of Fish and Wildlife (WDFW) proposed the following alternatives in response to the need to limit harvest of yelloweye rockfish in Washington waters:

1. Rockfish daily-bag-limit of 10 fish of which no more than one canary rockfish and one yelloweye rockfish can be retained; open year round.
2. Rockfish daily-bag-limit of 10 fish of which no more than one rockfish can be canary or yelloweye rockfish; open year round.
3. Option 1 with a prohibition on retaining yelloweye rockfish if Pacific halibut have been retained on the same fishing trip.
4. Option 2 with a prohibition on retaining yelloweye rockfish if Pacific halibut have been retained on the same fishing trip.

The WDFW will monitor the fishery and track recreational groundfish catch. If the Washington recreational yelloweye harvest guideline is projected to be exceeded, WDFW will take action to prohibit recreational groundfish fishing outside of 25 fathoms.

### **Oregon Recreational Fishery Alternatives**

The Oregon Department of Fish and Wildlife (ODFW) proposed the following alternatives in response to the need to limit harvest of yelloweye rockfish in Oregon waters:

1. Time and offshore closures: Open April 1-October 31. Rockfish will be open only within the 20 fathom curve during May and June. The period of time June is restricted to nearshore waters depends on the necessary reduction to achieve yelloweye constraints.

Bag limit: 10 rockfish with a 1 canary and 1 yelloweye sublimit, 2 lingcod with a 24 inch minimum length.

Time closures include all bottomfish species for ocean boat anglers. Angling from shore remains open. Angling from boats in inside waters remains open.

2. Offshore closure: Open January 1-December 31. Rockfish will be open only within the 20 fathom curve during May and part of August. The period of time August is restricted to nearshore waters depends on the necessary reduction to achieve yelloweye constraints.

Bag limit: 10 rockfish with a 1 canary and 1 yelloweye sublimit, 1 lingcod with a 24 inch minimum length.

### **California Recreational Fishery Alternatives**

The California Department of Fish and Game (CDFG) proposed the following alternatives in response to the need to limit harvest of canary and yelloweye rockfish in northern California waters and bocaccio in southern California waters:

Bag limit: 10 rockfish with a 2 bocaccio, 1 canary, 1 yelloweye (2 fish per vessel) sublimit; 2 lingcod with a 26 inch minimum length.

Northern California (Oregon border to Cape Mendocino): same as Oregon.

Central California (Cape Mendocino to Pt. Conception):



1. Open: July-August, November-December.
2. Open: September-October.
3. Open: January-February, November-December.

Southern California (Pt. Conception to Mexican border):

1. Open: July-October.
2. Open: May-August.

Nearshore rockfish and lingcod inside 20 fathoms:

Outside the rockfish and lingcod seasons (above), fishing may be considered inside 20 fathoms along the mainland coast and offshore islands (excluding rocks, banks, and reefs) for lingcod and nearshore rockfish (including sculpin), and ocean whitefish (state-managed), with a 5 to 10 fish bag limit for nearshore rockfish, cabezon, greenlings, and lingcod; not exceeding regular species bag limits. Also a provision for retention of 2 shelf rockfish per angler not including bocaccio, canary, cowcod, or yelloweye rockfish may be considered.

Cowcod Conservation Areas (CCAs): Same as 2001 except nearshore rockfish and lingcod closed when nearshore rockfish and lingcod closed outside CCAs. Special nearshore rockfish and lingcod regulations are in effect when nearshore rockfish and lingcod is open in adjacent waters.

Under these special regulations, fishing is not permitted outside 20 fathoms along the mainland coast and offshore islands with lingcod, nearshore rockfish, and ocean whitefish on board.

## 2.5 Alternative Tribal Fishery Management Measures

Executive Order 13175 is intended to ensure regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications, to strengthen the United States government-to-government relationships with Indian tribes, and to reduce the imposition of unfunded mandates upon Indian tribes.

The Secretary of Commerce recognizes the sovereign status and co-manager role of Indian tribes over shared Federal and tribal fishery resources. At Section 302(b)(5), the Magnuson-Stevens Act reserves a seat on the Council for a representative of an Indian tribe with Federally recognized fishing rights from California, Oregon, Washington, or Idaho.

The U.S. government formally recognizes that the four Washington Coastal Tribes (Makah, Quileute, Hoh, and Quinault) have treaty rights to fish for groundfish. In general terms, the quantification of those rights is 50 percent of the harvestable surplus of groundfish available in the tribes' usual and accustomed (U and A) fishing areas (described at 50 CFR 660.324). Each of the treaty tribes has the discretion to administer their fisheries and to establish their own policies to achieve program objectives. Accordingly, tribal allocations and regulations have been developed in consultation with the affected tribe(s) and, insofar as possible, with tribal consensus.

At the Council's September meeting the Council considered a treaty groundfish fishery request for 2002. After consideration of the tribal request and the comments of the public, the Council recommended adopting the treaty fishery proposal for public review.

The following tribal fishery management measures were proposed and adopted as preliminary options at the September 2001 Council meeting:

1. Sablefish allocation = 10% of the U.S. harvest guideline.
2. Whiting allocation according to the court-approved proposal in *United States v. Washington*, subproceeding 96-2.
3. Black rockfish harvest as per 50 C.F.R. § 660.324(j).
4. Slope rockfish: no limit on retention of incidental harvests of slope rockfish during fully competitive fisheries for halibut and sablefish. Trip limits on retention of slope rockfish in other fisheries to be determined on the basis of final harvest levels for these species, expected effort, and other relevant factors.

5. Shelf rockfish: same limits described in (4).
6. Nearshore rockfish: same limits described in (4).
7. Yellowtail and other midwater rockfish: aggregate trip limit of 30,000 pounds per 2 months with no carry over between cumulative landing limit periods; tribes to adjust trip limits to minimize incidental catches of canary and widow rockfish, provided the average aggregate trip limit per vessel per two month period does not exceed 30,000 pounds; canary trip limit = 300 pounds per trip; widow trip limit is same as the limited entry trip trawl limit for widow rockfish; trip limits will be adjusted inseason if treaty fishing effort exceeds the anticipated 3 to 4 trawl vessels.
8. Lingcod: 300 pounds per day, per vessel and 900 pounds per week, per vessel to allow retention of incidental harvest of lingcod.
9. Bottom trawl: sub-allocation of treaty sablefish will be made to the tribe's bottom trawl evaluation fishery. Bottom trawl fishery closes once the allocation is reached; treaty trip limits same as limited entry trip limits for Pacific cod, Petrale sole, English sole, Rex sole, arrowtooth flounder, and other flatfish; Council-approved bottom trawl gear will be used.
10. Observer program: tribe will develop and implement an observer program to monitor and enforce the limits proposed above.

### 3.0 AFFECTED ENVIRONMENT

The purpose of this section of the document is to describe the existing fishery and the resources that are affected by the action. All relevant physical, biological, social and economic features of the human environment are included in this section. The physical environment is addressed in section 3.1, the biological characteristics of the groundfish stocks and a description of other species that are affected by the fishery are addressed in section 3.2, and the human (socioeconomic) environment is addressed in section 3.3.

#### 3.1 Physical Environment

The groundfish fishery occurs in the U.S. EEZ from 3 to 200 miles off the coasts of Washington, Oregon, and California (WOC). 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 Amendment 11 to the Pacific Coast Groundfish Fishery Management Plan and the final Environmental Assessment/Regulatory Impact Review prepared for that amendment. Life history and habitat needs for the 82 species managed under the FMP are described in the EFH appendix to Amendment 11, which is available online at <http://www.nwr.noaa.gov/1sustfsh/efhappendix/page1.html>.

#### 3.2 Biological Environment

**Definitions:** This section evaluates the expected changes that would result from each alternative, including the status quo. The following terms are used throughout the discussion of biological condition and impacts. An acceptable biological catch (ABC) is an estimate of the amount of fish that could be taken from a stock at its current abundance without jeopardizing it. It is calculated by multiplying the calculated or assumed harvest rate that would produce the maximum sustainable yield, times the current biomass estimate. It is not a management target, but defines the harvest that constitutes overfishing of that stock. The optimum yield (OY) is the management target, which typically is a limit below ABC that prevents overfishing, addressing rebuilding requirements, or is intended to achieve other goals and objectives.

A stock that is at 40% of its unfished biomass is said to be at  $B_{40\%}$ .  $B_{MSY}$  is the stock biomass level required to achieve MSY. According to the Council's OY policy, if the stock biomass is larger than  $B_{MSY}$ , the OY may be set equal to or less than ABC. A stock with a current biomass between  $B_{25\%}$  and  $B_{40\%}$  (the precautionary threshold) is said to be in the "precautionary zone." The Council's default OY harvest policy reduces the standard fishing mortality rate when a stock is at or below its precautionary threshold. The farther the stock is below the precautionary threshold, the greater the reduction in OY will be relative to the ABC, until, at  $B_{10\%}$ , the OY could be set at zero. (The shorthand name for this policy is the "40-10 policy," referring to how the Council sets harvest rates for stocks between  $B_{40\%}$  and  $B_{10\%}$ ). However, the Council may recommend setting the OY higher than the default OY harvest policy specifies, if justified and as long as the OY does not exceed the ABC ( $F_{MSY}$ ) harvest rate and is consistent with the requirements of the Magnuson-Stevens Act and the NOAA National Standard Guidelines. Additional precaution may be added on a case-by-case basis at any level of current biomass that may be warranted by uncertainty in the data or by higher risks of being overfished. Stocks that are below  $B_{25\%}$  are considered overfished, and harvest for those stocks is managed under rebuilding plans. Rebuilding plans for overfished species have stock-specific allowable harvest rates, although those rates may still be consistent with this "40-10 default OY" policy.

##### 3.2.1 Groundfish Resources

The Pacific Coast Groundfish FMP manages over 80 species, many which are caught in multispecies 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. 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 has been assessed annually.

An ABC is established for every stock (a species or species group) where enough information is available. However, numerical OYs are not established for every stock, especially where harvest has been less than ABC. Species and species groups with OYs include bocaccio, canary rockfish, chilipepper rockfish, cowcod, darkblotched rockfish, Dover sole, lingcod, longspine thornyhead, the minor rockfish complexes (northern and southern for nearshore, continental shelf, and continental slope species), Pacific cod, Pacific ocean perch

(POP), Pacific whiting, sablefish, shortbelly rockfish, shortspine thornyhead, splitnose rockfish, widow rockfish, and yellowtail rockfish. For 2002, an OY will also be established for yelloweye rockfish. Seven species are believed to be above 40% of their unfished biomass (their precautionary thresholds): Petrale sole (trend unknown), shortbelly rockfish (trend unknown), longspine thornyhead (declining), black rockfish (declining), chilipepper rockfish (declining if recent recruitment is low), yellowtail rockfish (increasing), and blackgill rockfish (declining).

Species within the "precautionary zone" (25%-40% of the unfished biomass) include Dover sole (29%), Pacific whiting (37%), sablefish (27%-38%), and perhaps shortspine thornyhead (25%-50%). There are eight species below the overfishing threshold (<25% of the unfished biomass): bocaccio in California (about 2%), canary rockfish (7% in the south and 22% in the north), cowcod south of Point Conception (less than 10%), lingcod (15%), POP (13%), widow rockfish (25%), and yelloweye rockfish (7% in Northern California and 13% in Oregon). Of these, bocaccio, canary rockfish, cowcod, darkblotched rockfish, lingcod, POP, and widow rockfish have been declared overfished, and yelloweye rockfish will be so designated in 2002. The relative abundance and trends of Pacific cod, other flatfish, other rockfish, and other species categories are unknown. The relative abundance of arrowtooth flounder is unknown but believed to be increasing.

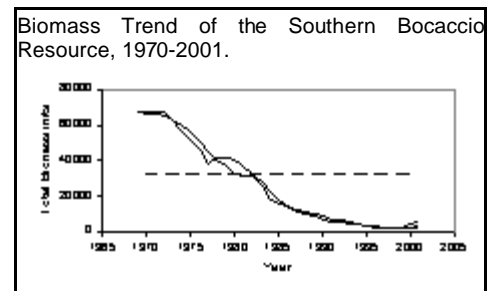
For further information on groundfish populations, see the 2000 Stock Assessment and Fishery Evaluation (SAFE) document and the Environmental Assessment for the Proposed 2001 Groundfish Acceptable Biological Catch and Optimum Yield Specifications for the Pacific Coast Groundfish Fishery, prepared by the Council (PFMC 2000).

### 3.2.1.1 Overfished Stocks

There are seven West Coast groundfish stocks that have been declared overfished as of October 2001 (bocaccio, canary rockfish, cowcod, darkblotched rockfish, lingcod, Pacific ocean perch, and widow rockfish) and one expected to be declared overfished (yelloweye rockfish) based on a 2001 stock assessment. These stocks and their associated rebuilding parameters are listed in Table 3.2.1.1-1.

#### **Bocaccio** (declared overfished in 1999)

There are two separate West Coast bocaccio (*Sebastes paucispinis*) populations, divided in the vicinity of Cape Mendocino, California. The northern stock has not been assessed. The southern stock has been assessed and apparently has suffered poor recruitment during the warm water conditions that have prevailed off southern California for the past several years. The stock assessment prepared in 1999 estimated current spawning output of the southern bocaccio stock to be 2.1% of its initial level, and 5.1% of the MSY level (MacCall et al. 1999). In the adjacent figure, the horizontal dotted line represents the MSY level. The 1999 rebuilding model



calculates the expected minimum time to rebuild is 20 to 76 years, depending in part on the size of the 1999 year class. Assuming a medium size 1999 year class, the rebuilding model calculates the minimum time to rebuild is 26 years. The rebuilding period set by the plan is 34 years, with a 67% chance of recovery to MSY in that time. The 2001 ABC was set at 122 mt and the OY at 100 mt; the same values are recommended for 2002. Given the biologically necessary long duration of the rebuilding period, this southern bocaccio OY is not expected to rise much above 100 mt for several years.

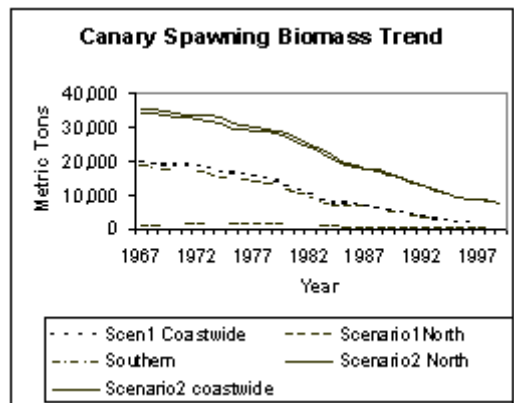
The southern bocaccio stock extends from about Cape Mendocino south as far as Sacramento Reef, Baja California. Bocaccio inhabit depths between 50 and 300 meters. Most common depths are 100 to 150 meters over the outer continental shelf. Larvae and small juveniles are pelagic; large juveniles and adults are semi-demersal. Larvae and small juveniles are commonly found in the upper 100 meters (m) of the water column, often far from shore. They are most often found in shallow coastal waters over rocky bottoms associated with algae. Newly settled larvae in central California are first observed associated with the giant kelp canopy, but are also seen throughout the water column. Adults are commonly found in eelgrass beds, or congregated around floating kelp beds. Young and adult bocaccio also occur around artificial structures, such as piers and oil platforms. Although juveniles and adults are usually found around vertical relief, adult aggregations also occur over firm sand-mud bottoms. All life stages of bocaccio are found in relatively salty waters, and may congregate in local areas of high salinity. Warm temperatures are preferred, at least by larvae.

Adult bocaccio may move more than 2 km per day and they are known to be transient near oil platforms around Santa Barbara, California; large aggregations may remain near a platform for months and then disappear suddenly. Large adults disappear from traditional commercial fishing grounds during winter spawning and reappear in the spring. Bocaccio move into shallow waters during their first year of life, then move into deeper water with increased size and age. Bocaccio are ovoviviparous; they produce eggs that develop within the female's body and hatch within or immediately after extrusion from the parent. The spawning season appears to last almost year-round. Parturition (birthing) occurs during November to March off northern and central California, and October to March off southern California. In California, bocaccio may become pregnant in October, give birth in November, and prepare immediately for a second brood to be born in March. Two or more broods may be born in a year in California. Male bocaccio mature at 3 to 7 years and females mature at 3 to 8 years. Adult bocaccio eat small fishes associated with kelp beds, including other species of rockfishes, and occasionally small amounts of shellfish. Bocaccio probably locate prey by sight and feed mostly at night. Bocaccio are eaten by sharks, salmon, other rockfishes, lingcod and albacore, as well as sea lions, porpoises, and whales. Bocaccio directly compete with chilipepper, widow, yellowtail, and shortbelly rockfishes for both food and habitat resources.

**Canary Rockfish** (declared overfished in 2000)

Canary rockfish (*Sebastes pinniger*) is an orange colored rockfish commonly inhabiting oceanic waters in depths from 91 to 274 meters. Historically, this species was fairly abundant throughout its range. The body of the canary rockfish is elongate, moderately deep and compressed. The head is large with an upper profile that is somewhat curved. Canary rockfish are distinguishable from other rockfish by their distinct orange color with three bright orange stripes across the head and a dark blotch on the posterior end of the spiny dorsal fin. Canary rockfish occur from northern Baja California (Mexico), to the western Gulf of Alaska. Adult canary rockfish are primarily restricted along the continental shelf from 250 fathoms (457 meters), inshore to 25 fathoms (46 m). Adult canary rockfish feed on small crustaceans as well as anchovies, sand dabs, and other small fishes. The canary rockfish, like all members of the genus *Sebastes*, produces live young. Female canary rockfish reach sexual maturity at roughly 8 years of age. Egg production is correlated with body size; the number of eggs increases from about 260,000 in a 19 inch female to about 1,900,000 in a female 26 inches long. Canary rockfish off the Pacific coast have a long spawning period from September through March, probably peaking in December and January off Washington and Oregon. Upon release from the female, larvae assume a planktonic life style in the upper 100 m of the water column. Very little is known about the early life history strategies of canary rockfish, but limited research indicates larvae are strictly pelagic (near the ocean surface) for a short period of time, begin to migrate to demersal (bottom) waters during the summer of their first year, and develop into juveniles around nearshore rock reefs, where they may congregate for up to three years. Canary rockfish tend to move to deeper waters as they age. Female canary rockfish generally grow faster and reach slightly larger sizes than males, but it appears males generally live considerably longer than females. Maximum ages indicate both sexes are capable of reaching nearly 70 years of age, but very few females greater than 30 years old have been observed in the sample data from Washington and Oregon.

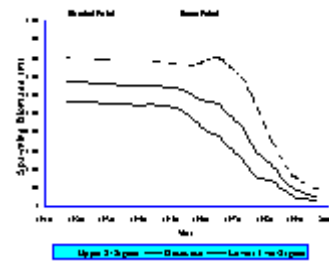
Two assessments of the canary rockfish resource off the coasts of Washington, Oregon, and California were prepared in 1999, addressing the northern and southern reaches of the population (STAT 1999, Williams et al. 1999). Each indicated the current spawning biomass has fallen to between about 7% and 20% of the unfished abundance. The minimum time necessary for this stock to recover to its maximum sustainable yield stock size, in the absence of all fishing-related mortality, ranges from 24 to 119 years. These estimates are based on a range of current biomass estimates and a range of future reproductive success. The optimistic estimate of 24 years is based on the assumption that either recruitment will immediately increase to an intermediate level (782 thousand fish), or that recruits per spawner (R/S) values over the rebuilding period will remain similar to those in 1996 to 1998.



The Council believes it is more realistic to expect some lower recruitment levels like those in the early 1990s. For example, if R/S levels over the rebuilding period are similar to the average levels observed over a longer historical period, rebuilding time frames of 74 to 119 years are likely. The Council chose a median recruitment

scenario between the high and low R/S scenarios. Under the median recruitment scenario, the northern stock would be expected to rebuild from its current level to the target level in 41 years with no fishing.

The mean generation time for canary rockfish is estimated to be 17 years. The National Standard Guidelines authorize establishment of rebuilding periods up to the minimum time (i.e. zero fishing) plus one mean generation. Thus, the maximum allowable time to rebuild is 58 years. In 52% of the simulations in the rebuilding analysis, a constant catch of 73 mt per year resulted in rebuilding of the northern portion of the stock in 57 years. The analysts advised the Council the southern portion of the stock could support an additional 20 mt harvest each year. The Council endorsed this analysis and specified the rebuilding period for canary rockfish to be 57 years, with a constant annual catch of 93 mt (which is the sum of 73 mt for the northern portion of the stock and 20 mt for the southern portion). The Council intends to reconsider this rebuilding strategy as soon as information on recent recruitment success becomes available from the next NMFS groundfish survey, probably in 2002. If recent recruitment is less than assumed in the median recruitment scenario, the annual catch limit will be reduced.



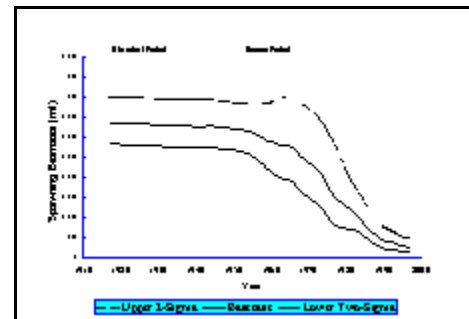
Cowcod Spawning Biomass Trend, 1910-1999.

**Cowcod** (declared overfished in 2000)

Cowcod (*Sebastes levis*) is one of the largest West Coast rockfish. The maximum recorded size is 37 inches (94 cm), but larger specimens have been reported. Adults are uniform pale pink to orange in color. Young fish have four dark vertical bands on their sides which gradually fade into dusky blotches as they increase in size. Their heads are large and spined, the dorsal fins are deeply notched, and there is an unusually wide space between the eye and the upper jaw. The diet of the cowcod includes mainly fishes, octopus, and squid. Juvenile cowcod eat small shrimp and crabs. New age and growth data indicate that cowcod are long lived, slow growing, and become sexually mature at the relatively old age of 12 years. The maximum age for this species is estimated to be 75 years, which corresponds to an estimated mean generation time of 37 years. As with other members of the genus *Sebastes*, fertilization is internal, and females give birth to planktonic larvae during the winter. The larvae are free floating and may be found in shallower water; however, as they grow larger they move to deep water rocky environment. Adults are usually associated with rocky bottoms, particularly where there are sharp, steep drop-offs. They typically inhabit the continental slope and upper continental shelf, from about 100-200 fathoms (fm) (about 150 meters to 350 meters). Larvae and juveniles are planktonic for up to three months and likely to disperse long distances before settling to the bottom.

The cowcod resource in the Conception area south of Point Conception is overfished, with the current spawning biomass estimated to have fallen to between 4% and 11% of the unfished abundance (Butler et al. 1999). The minimum time that would be required for this stock to recover to its maximum sustainable yield stock size, in the absence of all fishing-related mortality, is calculated to be 42 to 80 years, assuming constant average recruitment over the entire time span. The mean value is 61 years.

The Council adopted a rebuilding strategy that specifies the rebuilding period for cowcod in the Conception area to be 95 years. The harvest rate specified is 1% per year. Given the estimated current stock size of 238 mt in 2001, the initial fishing mortality was 2.4 mt (roughly 5,200 pounds), which is the same harvest level recommended for 2002. This is equivalent to only a few hundred fish. Such a low fishing mortality rate can only be achieved if no target fishing for this stock is allowed and significant bycatch reduction measures are imposed. The Council adopted no retention restrictions in 2001 to eliminate target fishing. The primary bycatch reduction provisions adopted by the Council in 2001 were area closures and gear restrictions. The Council chose to close two areas (about 6,000 nm<sup>2</sup>), specifying that all groundfish fishing is prohibited except in certain shallow areas where cowcod are unlikely to be encountered. Gear restrictions include mandating small footropes ( $\leq 8$  inches in diameter) in commercial trawls that land shelf rockfish, prohibiting chafing gear on trawls that land shelf rockfish, and reducing the number of hooks allowed by anglers in California waters.



### **Darkblotched Rockfish** (declared overfished in 2001)

The darkblotched rockfish (*Sebastes crameri*) resource extends from the Bering Sea to near Santa Catalina Island, California on soft bottom at 29-549 m, usually deeper than 76 m. Catches of darkblotched rockfish in NMFS surveys extend into Canada but few are caught in southern California. Darkblotched rockfish commercial fishery landings are highest in ports located centrally along the Pacific West Coast in northern California and Oregon. The depth range is primarily 50-200 fm. In the 1998 NMFS triennial survey, 99% of the estimated darkblotched rockfish biomass was in less than 200 fm. The 1999 NMFS slope survey found 91% of the darkblotched rockfish estimated biomass was in 100-200 fm, with the balance in 200-300 fm. There is no indication of the presence of more than one stock along the coasts of California, Oregon, and Washington. There are no distinct breaks in the survey catch distributions or the fishery landings distributions. The 2000 assessment treated the species as a unit stock from the Mexican border to the U.S./Canada border (Rogers et al. 2000). Darkblotched rockfish migrate to deeper waters with increasing size and age, and males are generally smaller than females at age and in the fishery. Darkblotched rockfish are caught almost entirely with commercial trawl gear as part of a complex of slope rockfish that includes POP, splitnose rockfish, yellowmouth rockfish, and sharpchin rockfish.

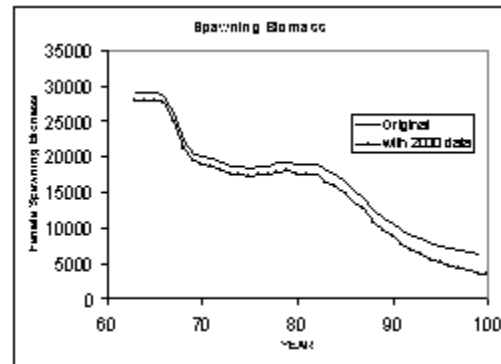
The 2000 assessment indicated the stock is overfished, with the best estimate of current biomass about 14% of the initial unexploited biomass. A major uncertainty in the assessment is the portion of the red rockfish catch in the Russian fishery from 1965-1978 that was darkblotched rockfish. Although the majority of the Russian catch was POP, some portion of the catch labeled as "red rockfish" was likely darkblotched rockfish. A retrospective analysis of foreign fleet catches is underway, the results of which are expected to be incorporated in the next assessment of darkblotched rockfish.

A revised rebuilding analysis for darkblotched rockfish was adopted by the Council in September 2001. The analysis indicated that darkblotched rockfish could reach target biomass in 14 years in the absence of fishing and, with a mean generation time of 33 years, the maximum time to rebuild the stock would be 47 years. The Council also adopted three preliminary rebuilding trajectories corresponding to 80%, 70%, and 60% probabilities of rebuilding within the specified time frame of 47 years. The respective total catch OYs recommended for 2002 based on these probabilities are 157 mt, 168 mt and 181 mt.

### **Lingcod** (declared overfished in 1999)

Lingcod (*Ophiodon elongatus*) are top order predators of the family Hexagrammidae. The species ranges from Baja California to Kodiak Island in the Gulf of Alaska and its center of abundance is near British Columbia and Washington. The West Coast portion of the lingcod resource is currently considered to be one continuous population that extends into British Columbia. Lingcod are demersal on the continental shelf, most abundant in waters less than 200 meters deep, and distributed in patches among areas of hard bottom and rocky relief. Lingcod are considered non-migratory, although some tagged individuals have moved exceptional distances and indirect evidence suggests a seasonal onshore movement associated with spawning.

Fishery and survey data indicate male lingcod tend to be more abundant than females in shallow waters, and the size of both sexes increases with depth. In late fall, male lingcod aggregate and become territorial in areas suitable for spawning. Mature females are rarely observed at the spawning grounds and it is assumed they move into spawning areas only long enough to deposit their eggs. After the females leave, the males remain and guard the nests until the eggs hatch, typically by April in Washington but as early as January and as late as June at the geographic extremes. Lingcod are about 27 cm at one year and 47 cm at two years. At this point, females begin to grow faster than males. Males begin maturing at about 2 years and 50 cm, whereas females mature at 3+ years and 76 cm. In the northern end of their range, fish mature at an older age and larger size. Maximum age is about 20 years.





In 1997, U.S. scientists assessed the size and condition of the portion of the stock in the Columbia and Vancouver areas (including the Canadian portion of the Vancouver management area), concluding the stock had fallen to below 10% of its unfished size (Jagiello et al. 1997). The Council responded by imposing substantial harvest reductions coastwide, reducing the harvest targets for the Eureka, Monterey and Conception areas by the same percentage as in the north. In 1999, scientists assessed the southern portion of the stock, concluding the condition of the southern stock is similar to the northern stock and thus confirming the Council had taken appropriate action to reduce harvest coastwide (Adams et al. 1999). A coastwide assessment prepared in 2000 concluded the total biomass increased from 6,500 mt in the mid-1990s to about 8,900 mt in 2000 (Jagiello et al. 2000). In the south, the population has also increased slightly from 5,600 mt in 1998 to 6,200 mt in 2000. In addition, the assessment concluded that previous aging methods portrayed an older population; whereas new aging efforts showed the stock to be younger and more productive. Therefore, the ABC and OY were increased in 2001 on the basis of the new assessment. A revised rebuilding analysis of coastwide lingcod was adopted by the Council in September 2001. It confirmed the major conclusions of the 2000 assessment and rebuilding analysis, but slightly modified recruitment projections to stay on the rebuilding trajectory that reaches target biomass in 2009. This modification resulted in a slight decrease in the 2002 ABC and OY (except for the status quo alternative).

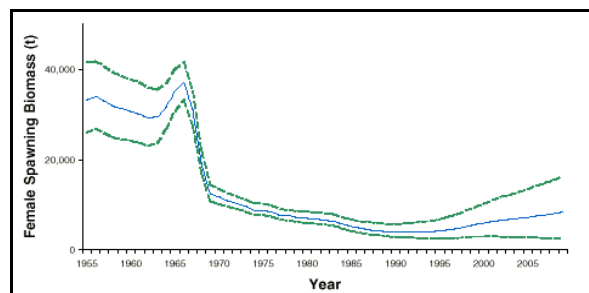
Figure 1. Time series of female spawning stock biomass (millions of mt). Source: Jagiello et al. 2000.



**Pacific ocean perch** (declared overfished in 1999)

Pacific ocean perch (POP) (*Sebastes alutus*) inhabit the continental slope from Japan and the Bering Sea to southern California. The West Coast stock extends from the U.S./Canada border to northern California. Typically, POP are light red above, whitish below, and have dark saddles along the back. There is often olive-green stippling below the soft dorsal fin. POP are slow-growing and long-lived with slower growth in males. The maximum age has been estimated at about 90 years. Largest size is about 54 cm and 2 kg. POP primarily inhabit waters of the upper continental slope and are found along the edge of the continental shelf. POP occur as deep as 825 m but usually are found at 100-450 m. Throughout its range, the species is generally associated with gravel, rocky or boulder type substrate found in and along gullies, canyons, and submarine depressions of the upper continental slope. During the summer POP primarily inhabit waters 180-220 m in depth, but during the winter they inhabit waters greater than 275 m. POP winter and spawn in deeper water (>275 m), then move to feeding grounds in shallower water (180 - 220 m) in the summer (June - August) to allow gonads to ripen. POP bear live young which are released as larvae in depths of 360-400 m. Juveniles are confined to shallow portions of the bathymetric range over rough or rocky bottoms. Most fish 10 years or younger are found in the shallow and intermediate portion of the bathymetric range. Adults form large schools 30 m wide, to 80 m deep, and as much as 1,300 m long. They also form spawning schools. Juvenile POP form ball-shaped schools near the surface or hide in rocks.

The POP resource off the West Coast was overfished by foreign vessels before implementation of the FMP. State and federal rebuilding efforts have been in place since the early 1980s, but POP stock levels remain low. In 1998, the POP stock assessment confirmed the stock is overfished (Ianelli and Zimmerman 1998). The 1998 assessment estimated the current biomass to be 13% of its initial level. A new assessment for POP was done in 2000 which indicated the stock was more productive than originally thought (Ianelli et al. 2000). A revised POP rebuilding analysis was completed and adopted by the Council in 2001. This analysis estimated a minimum time to rebuild in the absence of fishing of 12 years and a maximum time of 42 years. The Council-adopted preliminary total catch OYs for 2002 (and their respective probabilities of rebuilding the stock within the specified time period) were 290 mt (80%), 350 mt (70%), and 410 mt (60%). It was noted in the rebuilding analysis that the ongoing retrospective analysis of historic foreign fleet catches is likely to change projections of POP rebuilding downward.



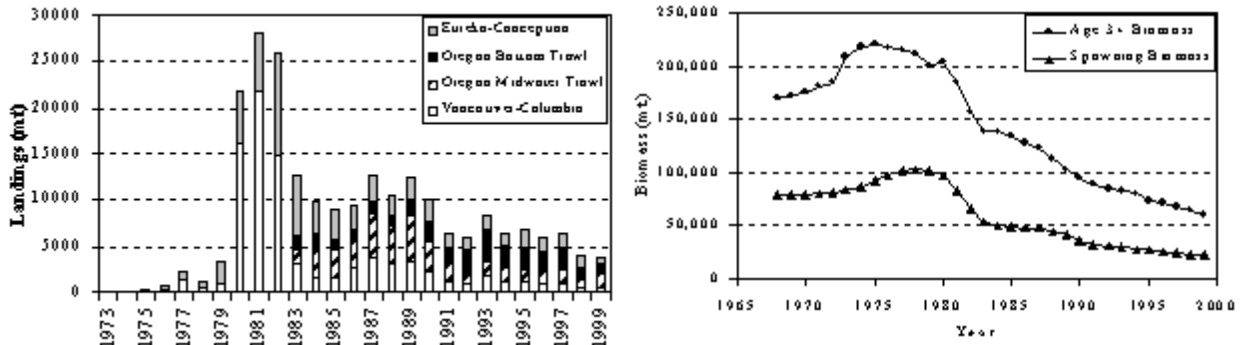
Distribution of POP spawning biomass estimates from the 1998 stock assessment model, including projections.



**Widow Rockfish** (declared overfished in 2001)

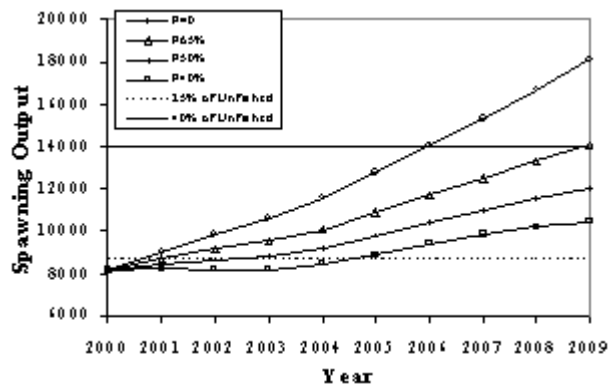
Widow rockfish (*Sebastes entomelas*) is an important commercial groundfish species belonging to the scorpionfish family (Scorpaenidae). It ranges from southeastern Alaska to northern Baja California, where it frequents rocky banks at depths of 25-370 m. In those habitats it feeds on small pelagic crustaceans and fishes. There is no evidence that separate genetic stocks of widow rockfish occur along the Pacific coast. Female widow rockfish attain a larger size compared to males, and fish in the northern part of the range tend to be larger at age compared to those in the south. Aggregations of this species form at night and disperse at dawn, an atypical pattern for rockfish.

Large concentrations of widow rockfish had evidently gone undetected prior to late 1972, when a midwater trawl fishery for the species developed. U.S. commercial catches of widow rockfish began in 1973 (117 mt)



and peaked in 1981 at 28,146 mt. Since then, landings of widow rockfish have declined steadily to 3,761 mt in 1999, due in large part to more restrictive OY specifications and management measures (trip limits). Since the fishery first developed, substantial landings of widow rockfish have been made in all three West Coast states. The dominant gear type historically has been midwater trawl, but in recent years bottom trawl catches have nearly matched the midwater trawl catches. A major factor in this has been the ever-decreasing trip limits that make it less economical to target widow rockfish with midwater gear, and easier to reach the limit merely by retaining incidental catch taken with bottom trawl gear. Management of the fishery began in 1982 when trip limits of 75,000 pounds were introduced in an effort to curb the rapid expansion of the fishery. Trip limits were reduced to 30,000 pounds in 1983 and the fishery was managed by alteration of trip limits within the fishing season. An ABC of 10,500 mt was instituted in 1983. In 1989, the Council set a 12,100 mt harvest guideline. From 1994-1997 the harvest guidelines were reduced to 6,500 mt and then further reduced to 5,090 mt. Stock biomass has shown a steady decline since 1975, soon after the fisheries for widow rockfish began.

The most recent assessment of the widow rockfish stock was done in 2000 (Williams et al. 2000). The spawning output level (8,223 mt), based on that assessment and a revised rebuilding analysis adopted by the Council in June 2001, was at 24.6% of the unfished level (33,490 mt) in 1999, which was computed using the average recruitment from 1968-79 multiplied by the spawning output-per-recruit at F=0. The analysis concluded that the rebuilding period in the absence of fishing is 22 years and, with a mean generation time of 16 years, the maximum allowable time to rebuild is 38 years.



The 2001 widow rockfish ABC (3,727 mt), which is proposed for 2002, is based on the current biomass and an F<sub>50%</sub> harvest rate. The preliminary 2002 OYs for widow rockfish adopted by the Council in September 2001 are 726 mt, 777 mt, and 856 mt. These OYs represent rebuilding trajectories with corresponding probabilities to achieve target biomass within the specified time frame of 80%, 70%, and 60%, respectively.

**Yelloweye Rockfish** (to be declared overfished in 2002)

Yelloweye rockfish (*Sebastes ruberrimus*) are a highly prized species in both commercial and recreational fisheries due to their large size and fillet quality. They have an orange-yellow color washed with pink on the back and sides. The fins are pink shaded, often with black on the tips. There is a marked change in coloration of yelloweye as they mature. Juveniles have two pale stripes running along their lateral surfaces, with only one pale stripe in adults that can disappear altogether in the oldest individuals. Yelloweye are distributed along the West Coast from Ensenada, Baja California to the Gulf of Alaska in high relief, rocky habitats at depths between 15 and 550 m. They are a large sized (up to 91 cm), long-lived (up to 118 years), late maturing, and relatively sedentary rockfish. These life history traits make yelloweye particularly susceptible to overfishing. Although they do tend to have a high fidelity to particular areas with little evidence of migration, there is no evidence of genetic stock structure throughout their range. Yelloweye are readily taken with line gear but are much less common in bottom trawl catches. Trawl catches of yelloweye have been further reduced with the small footrope restrictions put in place on the shelf since 2000. Decompression and temperature shock account for high rates of yelloweye mortality. Yelloweye have a varied diet of forage fish, other rockfishes, crustaceans, and have been known to eat lingcod spawn.

A yelloweye rockfish stock assessment was done for the first time in 2001 (Wallace 2001). This assessment incorporated two area assessments: one from northern California using CPUE indices constructed from Marine Recreational Fishery Statistical Survey (MRFSS) sample data and CDFG data collected on board Commercial Passenger Fishing Vessels, and the other from Oregon using ODFW sampling data. The assessment concluded that current yelloweye stock biomass is about 7% of unexploited biomass in northern California and 13% of unexploited biomass in Oregon. The assessment indicated a thirty year declining biomass trend in both areas with the last above average recruitment occurring in the late 1980s. The assessment conclusion that yelloweye rockfish biomass was well below the 25% of unexploited biomass threshold for overfished stocks led to this stock being separated from the rockfish complexes in which it was previously listed. Previously, yelloweye were listed in the "remaining rockfish" complex on the shelf in the Vancouver, Columbia, and Eureka INPFC areas and the "other rockfish" complex on the shelf in the Monterey and Conception areas. As with the other overfished stocks, yelloweye harvest will be tracked separately starting in 2002.

Although a rebuilding analysis has not yet been done for yelloweye, the assessment author and the GMT analyzed the recruitment data and projected a reasonable range of ABCs and OYs for 2002 fisheries. They recommended a coastwide ABC of 27 mt and a range of total catch OYs of 4-11 mt. In September the Council adopted a preliminary total catch OY of 11 mt for yelloweye in 2002.

### 3.2.1.2 "Precautionary Zone" Stocks

#### Dover sole

The Dover sole (*Microstomus pacificus*) is a deep water flatfish that ranges from northern Baja California to the Bering Sea and inhabits depths up to 800 fathoms. Dover sole have an extended pelagic larval phase that can last over one year. Larval dispersal is considered to be extensive due to the extended larval phase and the influence of Pacific Coast currents. Recruitment is probably correlated to variation in current patterns and ocean regime shifts. Adult Dover sole are relatively sedentary with no evidence of extensive latitudinal movements. They do, however, make seasonal migrations from the continental slope to the shelf in the spring and back to the slope in the fall to spawn. Harvest of Dover sole is done exclusively by trawl gear.

The 1997 Dover sole assessment north of the Conception area provided landed catch OYs based on the  $F_{40\%}$  harvest rate (Brodziak et al. 1997). The GMT recommended a 2001 total catch OY of 7,151 mt, which is the average of yields calculated for 2000-2002 at  $F_{40\%}$ , inflated to reflect 5% discard. The FMP set the original ABC for the Conception area at 1,000 mt based on average landings. For 1998, this was inflated to reflect 5% discard for a total catch ABC of 1,053 mt. The coastwide total catch ABC is 8,204 mt. To calculate the total catch OY (7,677 mt), the GMT reduced the Conception area's OY contribution by 50% (to 526 mt), consistent with the new harvest policy. The landed catch target was then calculated to be 95% of OY, or 7,293 mt.

The 1997 Dover sole stock assessment treated the entire population from the Monterey area through the U.S.-Vancouver area as a single stock based on recent research addressing the genetic structure of the population. The assessment author generated projections of spawning biomass and expected landings for 1998 to 2000 under a variety of harvest policies and three recruitment scenarios. The hypothetical harvest policies ranged from an immediate reduction to the  $F_{45\%}$  harvest rate to an increase up to the  $F_{20\%}$  harvest rate. In all cases, for each of the low, medium, and high projected recruitments, the expected spawning biomass increased from the estimated year-end level in 1997 through the year 2000 due to growth of the exceptionally large 1991 year class and to the lower catches observed in the fishery since 1991.

A new assessment of the Dover sole stock was done in 2001 indicating current spawning stock size to be about 29% of the unexploited biomass (Sampson and Wood 2001). Recent abundances appear to be without trend, but were preceded by a steady decline since the late 1950s. The last strong year class was the one produced in 1991, which confirms the findings of the 1997 assessment. Poor ocean conditions associated with the El Niños in the 1990s have likely affected Dover sole recruitment. The 2001 assessment authors projected five years of Dover sole harvest levels based on preferred, optimistic, and pessimistic projections of recruitment. These options varied the harvest rate from  $F_{40\%}$  (the current  $F_{MSY}$  proxy) to  $F_{50\%}$ . The Council adopted a range of preliminary ABCs and total catch OYs for Dover sole harvest in 2002 based on the preferred recruitment projections. These recommended harvest levels (with associated harvest rates) were an ABC of 6,142 mt and an OY of 5,520 mt ( $F_{50\%}$ ), an ABC of 7,221 mt and an OY of 6,410 mt ( $F_{45\%}$ ), and an ABC of 8,510 mt and an OY of 7,440 mt ( $F_{40\%}$ ). These harvest levels were calculated according to the Council's "40-10" policy consistent with the stock's status in the "precautionary zone". In September the Council chose the  $F_{45\%}$  harvest specifications as their preferred alternative.

#### Pacific Whiting

Pacific whiting, also known as hake (*Merluccius productus*), are a semi-pelagic roundfish distributed from the Gulf of California to the Gulf of Alaska and east to Asia in depths from 0-500 fathoms (usually in depths <125 fathoms). They are similar to true cods, but are in the family Merlucciidae due to some differences in internal and external structures. There are genetic differences between the West Coast whiting population and those found in the larger, semi-enclosed inlets of Puget Sound and the Strait of Georgia as well as the southern stock off Baja California. Only the main coastal population off the Pacific Coast waters of Washington, Oregon, and California are within Council purview and addressed here. The coastal Pacific whiting stock ranges from southern California to Queen Charlotte Sound. Spawning occurs off southern California during January to March and then the stock migrates northward to feed in the waters off the continental slope and shelf from northern California to Vancouver Island.

The Pacific whiting fishery on the West Coast started as a foreign fleet fishery in 1966 and evolved into a joint venture fishery in the 1980s. It became an entirely domestic fishery by 1989 and the largest and most profitable West Coast groundfish fishery after the advent of surimi production technology and development

of the process to inhibit myxozoan-induced proteolysis. The Pacific whiting fishery is annually assessed and managed jointly with the Canadian Department of Fisheries and Oceans. A total U.S./Canada ABC is determined from the assessment and the U.S. portion has been 80% of the ABC. The primary whiting fishery in the U.S. typically occurs from April through October (or until the OY is attained) with differential start and end dates for the shore-based, catcher/processor, and mothership sectors of the fishery. These sectors operate with their own allocations (42% shore-based, 34% catcher/processor, and 24% mothership) which are calculated after the tribal portion is taken off the top of the total catch OY. A "40-10" adjustment is made to the ABC to calculate the OY (with an  $F_{40\%}$  MSY proxy harvest rate) since this stock is in the "precautionary zone".

A 1998 assessment concluded the stock was at moderate abundance (Dorn et al. 1999). Stock biomass increased to a historical high of 5.7 million mt in 1987 due to exceptionally large 1980 and 1984 year classes, then declined as these year classes passed through the population and were replaced by more moderate year classes. Stock size has been relatively stable over the past four years at 1.7-1.8 million mt. The mature female biomass in 1998 was estimated to be 37% of an unfished stock. Although 1998 stock size was near a historical low, it was close to average stock size under current harvest policies. The exploitation rate was below 10% prior to 1993, then increased to 17% during 1994-98. An update of the 1999 assessment was prepared in 2000 (Helser et al. 2000). The fishery age composition and recruitment indices showed no indication of strong recruiting year classes, suggesting a continuing pattern of weak to moderate year classes consistent with the 1998 assessment. Yield projections from the 2000 assessment update for 2001 were within 5% of the projected yield for the 1998 model. The 1998 model projections were used to obtain the 2001 ABC. Whiting catch in 2000 will be approximately 75% of the ABC due to the scarcity of fishable aggregations of whiting off northern Washington and southeast Vancouver Island during the summer season. The 1999 and 2000 OYs were based on an average value for the two years as the stock declined in abundance. The 2001 OY (190,400 mt) was lower than the previous OY due to the current lower abundance. The GMT is recommending the same ABC (238,000 mt) and total catch OY for 2002 pending a new whiting stock assessment early next year.

### **Sablefish**

Sablefish, also known as blackcod (*Anoplopoma fimbria*), are a deep water roundfish highly prized in commercial markets for their taste and oil content. They range from southern Baja California to the central Bering Sea, west to Kamchatka and south to Hokkaido, Japan in depths usually from 150-500 fathoms, but have been found in waters 1,000 fathoms and deeper. Eggs and larvae are pelagic. They spawn in the winter months in deep water off the continental slope. Sablefish are highly migratory; tagging studies have documented migrations of up to 2,700 miles. There are at least three genetically distinct populations on the West Coast of North America: one south of Monterey characterized by slower growth rates and smaller average size, one that ranges from Monterey to the U.S./Canada border that is characterized by moderate growth rates and size, and one ranging off British Columbia and Alaska characterized by fast growth rates and large size. The second stock that ranges between California and Washington is the one actively assessed and managed within the Council purview.

The 2001 sablefish ABC (7,661 mt) was based on the  $F_{45\%}$  harvest rate, and the OY (6,895 mt) on application of the 40-10 harvest policy (the stock was estimated at 37% of the initial biomass). The OY applied north of 36° N latitude. A 25% trawl discard rate was based on discard rates observed in the mid to late 1980s. The GMT assumed an average mortality rate of 70% for discarded fish, which may have been too low for a predominantly summer fishery and too high for a winter fishery.

In 2001 two new stock assessments were done for the sablefish stock north of Monterey (Hilborn et al. 2001, Schirripa and Methot 2001). Both assessments confirmed the lack of recent recruitment in the stock with the last strong recruits coming from the 1990 year class. The resulting biomass trends were all downward with current estimated female spawning biomass ranging between 27% and 38% of unexploited biomass depending on the assessment and the recruitment scenario. Recruitment scenarios in both assessments hinged on competing hypotheses where sablefish recruitment was most affected by density dependence or environmental regime shifts. These different states of nature affecting recruitment and resulting projections of future biomass were most pessimistic under the density dependent hypothesis where the stock is projected to reach the overfishing threshold in the next few years according to either assessment. Even under the more optimistic regime shift hypothesis some projections indicated a risk of the stock slipping into overfishing status. Therefore, the assessment authors and the GMT recommend consideration for more conservative harvest rates for sablefish in the next few years as a further precaution against stock declines. Besides a status quo

$F_{45\%}$  harvest rate specification where the 40-10 adjustment is made relative to current biomass, an option of an  $F_{50\%}$  harvest rate, and an intermediate ramp down strategy where, beginning in 2002, the harvest rate is reduced successively from  $F_{45\%}$  to  $F_{50\%}$  in the next few years. Relative to these options, which the Council adopted for consideration in September, the ABCs/OYs would be 4,786 mt/4,500 mt ( $F_{45\%}$ ), 4,062 mt/3,200 mt ( $F_{50\%}$ ), and 4,786 mt/4,000 mt (ramp down). The Council specified the ramp down OY option (4,000 mt) as its preferred option. These harvest levels would apply for the assessed area north of Point Conception to the U.S./Canada border. Sablefish 2002 harvest specifications recommended for south of Point Conception are the same as 2001 with the ABCs and OYs adjusted for the area south of Point Conception. It is noted that the Council is free to specify harvest levels for any part of the coast and may consider boundary changes while doing so. However, changing the area boundaries where fixed gear permit stacking is allowed (Amendment 14 of the FMP) would require an FMP amendment. It is expected that further survey results, such as those from the 2001 NMFS shelf and slope surveys, could resolve the issue of the competing states of nature hypotheses affecting sablefish recruitment. Confirmation of great relative abundance of juvenile sablefish, as has been reported by many West Coast fishermen this summer, might support the more optimistic environmental regime shift hypothesis as the principal dynamic affecting recruitment.

### **Shortspine Thornyhead**

Shortspine thornyhead (*Sebastolobus alascanus*) is a major component of the deepwater fishery on the continental slope, especially the trawl fishery for Dover sole, thornyheads and sablefish (referred to as the DTS complex). Shortspine thornyhead are widely distributed from northern Baja California to the Bering Sea at depths of 50-800 fathoms. The status of this stock is subject to substantial public debate; the species is one of the most numerous components of the slope ecosystem. However, this is an especially long-lived species and cannot sustain aggressive harvest rates. It is taken coincidentally with Dover sole, sablefish, and longspine thornyhead, especially in the upper slope and lower shelf; in deeper water, longspine thornyhead is a more predominate species. The two thornyhead species are often difficult to distinguish, and historical landings data combine the two into a single category. Shortspine thornyhead is a "constraining species" in the deepwater fishery; that is, coincidental catch of this species prevents full harvest of Dover sole and sablefish.

The individual assessments for shortspine thornyhead and longspine thornyhead in 1997 covered the area from central California at 36° N latitude (the southern boundary of the Monterey management area) to the U.S./Canada border (the northern boundary of the U.S.-Vancouver management area) (Rogers et al. 1997). The STAR Panel expressed concern that current management requires more detailed information on thornyheads than can be obtained from the available data. Given the kinds and quality of data, there are major uncertainties in the assessments regarding: 1) growth and natural mortality for shortspine thornyhead, 2) problems with separating longspine and shortspine thornyheads in the historic landings, 3) difficulties estimating year class strength, and 4) unknown discard rates.

The 2001 shortspine thornyhead ABC (757 mt) is based on a synthesis of two stock assessments prepared in 1998 (NMFS STAT and OT STAT 1998, Rogers et al. 1998) and application of the  $F_{50\%}$  harvest rate. The 2001 shortspine thornyhead ABCs and OYs were separately specified north and south of 36° N latitude, which is the northern boundary of the Conception area. The stock size was estimated to be 32% of the unfished abundance in 1999. The 2001 OY (689 mt) was based on  $F_{50\%}$  and the 40-10 policy. The landed catch equivalent reflected a 20% reduction for discard.

A new assessment of shortspine thornyhead in 2001 was also fraught with uncertainty, not the least of which is the current biomass (Piner and Methot 2001). The assessment was extended south to Point Conception (past surveys were to the Monterey/Conception area boundary at 36° N. latitude). The authors concluded that the current spawning biomass ranges between 25% and 50% of unexploited spawning biomass. The uncertainty in current abundance largely revolved around the uncertainty in recruitment and survey Q, or catchability, of shortspine thornyhead in slope surveys. The authors also concluded that the trend in stock biomass is increasing and that the stock was currently not overfished. Based on the current biomass and application of the GMT-recommended  $F=0.75M$  principle (which approximates an  $F_{50\%}$  proxy harvest rate for shortspine thornyhead), the assessment authors and GMT recommended a slight increase in the ABC and OY for 2002 and combining the previous Monterey area north and Conception area specifications to a coastwide one. Despite the uncertainty in biomass estimates and determination of whether shortspine thornyhead should be treated as a "precautionary zone" stock, these recommendations did treat the stock as such by applying a "40-10" adjustment. The GMT-recommended coastwide ABC is 1,004 mt and the associated total catch OY is 955 mt. In September the Council adopted the GMT recommendation as an

option, but also adopted last year's ABC and OY as an option (the combined ABC and OY for 2001 was 880 mt and 751 mt, respectively). The Council did not specify a preferred option.

### 3.2.1.3 Stocks at or Above Target Levels

#### Yellowtail Rockfish

An assessment of yellowtail rockfish (*Sebastes flavidus*) in the Eureka, Columbia, and Vancouver areas was prepared in 2000, indicating the stock appears substantially more abundant than the previous assessment. The stock is now estimated to be at 63% of its pristine level. The 2001 ABC (3,146 mt) applies to the U.S. portion of the assessed area and is proposed for 2002 as well. Although the estimate of stock size has increased, the ABC is less than in 2000 due to application of the  $F_{50\%}$  harvest rate. Because the stock appears to be larger than the MSY size, OY may equal ABC. However, the stock is expected to continue declining in the near future due to poor recruitment in recent years.

The Council manages the U.S. yellowtail rockfish fishery as two stocks separated at Cape Mendocino, California (40°30' N latitude.). The assessment evaluates four separate stock groupings: a coast-wide stock extending from Cape Mendocino to approximately 49°N. latitude, and three subarea stocks. Subarea stocks include: the Eureka/south Columbia stock extending from 40°30' N. latitude (Cape Mendocino) to 45°46' N. latitude (Cape Falcon); the northern Columbia stock extending north from Cape Falcon to 47°20' N. latitude (Cape Elizabeth); and, the southern Vancouver stock reaching north from Cape Elizabeth to approximately 49°N. latitude.

U.S. yellowtail rockfish catch increased from 1,200 mt in 1967 to 9,500 mt in 1983. After imposition of specific yellowtail rockfish trip limits in 1985, catch declined markedly. Over the past five years, 1995-1999, annual U.S. catch has averaged 4,300 mt. Coast-wide catch (including Canada) increased from 5,000 to 7,800 mt or 56% from 1991 to 1992, then gradually declined to 6,900 mt in 1995. In 1996, landings rose sharply to 8,300 mt due to a strong Canadian catch. Severe restrictions on the U.S. fishery dropped coast-wide landing to 2,900 mt in 1997. Since then, landings have gradually increased to 4,500 mt in 1999.

The 2001 assessment estimated coast-wide biomass was 69,400 mt. Estimated 1997 biomass was 80,800 mt compared with 56,700 mt estimated in the prior assessment. The revised estimates of biomass are higher than those estimated in the 1997 assessment reflecting the sensitivity of the model to the trawl survey biomass index and assumptions about increases in effective effort of the fleet. Biomass trend in the 2000 assessment shows a period of stability in the mid-to-late 1980s extending through 1995, with recent biomass trending down. Year 2000 biomass was 50% of the 1967 estimated biomass and spawning biomass was estimated to be 158% of the target spawning biomass ( $SPB_{40\%}$ ).

There is no obvious spawner/recruit relationship. Median (1967-2000) annual recruitment is 11.0 million fish at age 4, with average recruitment reaching 13.6 million. The 1989 and 1990 year classes (age 4 in 1993 and 1994) were the last to be above average. The 1995 through 1998 recruitment estimates are about half the median estimate. The 2000 assessment suggests that recruitment is more volatile than depicted in the 1997 assessment, particularly for recent years.

Fishing mortality peaked in 1983 the last year of essentially unconstrained removals. After imposition of trip limits on the "Sebastes Complex", fishing mortality declined to a low in 1985, and then increased until 1996. Following the 1996 stock assessment, more severe catch restrictions were imposed and fishing mortality dropped to a modern era low in 1997. Since 1997 fishing mortality has climbed back to the 1985 level. Over the last 18 years yellowtail rockfish trip limits have been ineffective at constraining catch within the harvest guideline set for the US fishery. In 14 of the last 18 years, total catch (including estimated discard) exceeded the harvest guideline by more than 10%. Since 1983 annual estimated catch has averaged 51% greater than the HG. In the last 10 years catch has exceeded the HG by 26% and over the last 5 years by 11%. Total catch has exceeded the Council ABCs an average of 53%, 29% and 24% over the last 18, 10 and 5 years, respectively. Moreover, total catch has always exceeded the assessment's low estimate of ABC and has exceeded the high ABC 44% of the time since 1983.

Total stock biomass is projected to decline. This is consistent with the low level of recruitment experienced between 1995 and 1998 and the fact that the stock is above the target level biomass. Over the next two years recruitment from these below average year classes will form the heart of the fishery, which remains dependent on 7 to 14 year old fish. Spawning biomass in year 2003 is projected to be 112% to 125% of the  $SPB_{40\%}$ .

depending on the model used. Based on stock specific yield projections, the assessment authors estimated that 14% of the yield should be harvested in the Eureka/ southern Columbia area, 42% in the northern Columbia area, and 44% in the southern Vancouver area. The assessment authors recommended the Council consider expected harvest by Canadian fishers in setting the ABC and OY for U.S. waters. From 1995 to 1999 the U.S. fisheries took on average 81% of the coast-wide catch of yellowtail rockfish.

The assessment authors suggested a more risk-averse harvest strategy could be selected by requiring a higher level of certainty in the projected yield. Cumulative probability profiles of projected yield facilitate such an estimate. For the coast-wide reference case model, and the  $F_{50\%}$  SPR rate, the 3-year mean projected yield, consistent with a 75% probability that yield is no less than projected, is 3,600 mt, and the estimate consistent with a 25% probability that it is no more than projected is 5,400 mt. The lower estimate (3,600 mt) is approximately 80% of the mean point estimate (4,500 mt). The GMT is recommending the 2001 yellowtail rockfish harvest specifications for 2002.

### **Other Groundfish Stocks**

As indicated at the beginning of Section 3.2.1, several other groundfish stocks are believed to be at or above their MSY biomass levels. This includes two flatfish species (English sole and petrale sole) and four rockfish species (shortbelly, chilipepper and yellowtail rockfish, and longspine thornyhead). These stocks have been assessed in previous years and are not discussed in this document. Information on these stocks is available in the Stock Assessment and Fishery Evaluation (SAFE) document (PFMC 2000). The majority of groundfish stocks have never been assessed in a quantitative manner and their status is unknown.

### **3.2.2 Endangered Species**

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 effects of the groundfish fishery on chinook salmon (Puget Sound, Snake River spring/summer, Snake River fall, upper Columbia River spring, lower Columbia River, upper Willamette River, Sacramento River winter, Central Valley, California coastal), coho salmon (Central California coastal, southern Oregon/northern California coastal, Oregon coastal), chum salmon (Hood Canal, Columbia River), sockeye salmon (Snake River, Ozette Lake), and steelhead (upper, middle and lower Columbia River, Snake River Basin, upper Willamette River, central California coast, California Central Valley, south-central California, northern California, southern California). The biological opinions have 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. NMFS has re-initiated consultation on the Pacific whiting fishery associated with the Biological Opinion issued on December 15, 1999. During the 2000 whiting season, the whiting fisheries exceeded the chinook bycatch amount specified in the Biological Opinion's incidental take statement's incidental take estimates, 11,000 fish, by approximately 500 fish. The re-initiation will focus primarily on additional actions that the whiting fisheries would take to reduce chinook interception, such as time/area management. NMFS is gathering data from the 2001 whiting fisheries and expects that the re-initiated Biological Opinion will be complete by February 2002. During this initiation, fishing under the FMP is within the scope of the December 15, 1999 Biological Opinion, so long as the annual incidental take of chinook stays under the 11,000 fish bycatch limit. The biological opinions have 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 action is within the scope of these consultations.

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 the number of salmon in landings. In 2000, 23% of the whiting landings were monitored by state samplers. Since 1991, all at-sea processors carried at least one NMFS-trained observer to collect data used to estimate total catch of salmonids by species. For 2000, it is estimated that 11,516 chinook, 86 coho, 18 pink, and 15 chum salmon were taken in the whiting fishery. Observer program data for the 2001 bottom trawl fishery is not available at this time. The incidental take statement permits an annual bycatch of 9,000 salmon in the non-whiting groundfish fisheries; but this figure is based on a fishery with significantly higher groundfish landings than will be available in 2002. Incidental salmon take in groundfish fisheries managed under the current overfished species rebuilding regime is likely to be lower than permitted in the incidental take statement.

### 3.2.3 Marine Mammals

The waters off Washington, Oregon, and California support a wide variety of marine mammals. Approximately thirty species, including seals and sea lions, sea otters, and whales, dolphins, and porpoise, occur within the EEZ. Many marine mammal species seasonally migrate through West Coast waters, while others are year round residents.

There is limited information documenting the interactions of groundfish fisheries and marine mammals, but marine mammals are probably affected by many aspects of groundfish fisheries. The incidental take of marine mammals, defined as any serious injury or mortality resulting from commercial fishing operations, is reported to NMFS by vessel operators. In the West Coast groundfish fisheries, incidental take is infrequent and primarily occurs in trawl fisheries (Forney et al. 2000) (Table 3.2.3-1). Indirect effects of groundfish fisheries on marine mammals are more difficult to quantify due to a lack of behavioral and ecological information about marine mammals. However, marine mammals may be affected by increased noise in the oceans, change in prey availability, habitat changes due to fishing gear, vessel traffic in and around important habitat (areas used for foraging, breeding, raising offspring, hauling-out), at-sea garbage dumping, and diesel or oil discharged into the water associated with commercial fisheries.

The Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA) are the federal legislation that guide marine mammal species protection and conservation policy. Under the MMPA on the West Coast, NMFS is responsible for the management of cetaceans and pinnipeds, while the U.S. Fish and Wildlife Service (FWS) manages sea otters. Stock assessment reports review new information every year for strategic stocks (those whose human-caused mortality and injury exceeds the potential biological removal (PBR)) and every three years for non-strategic stocks. Marine mammals whose abundance falls below the optimum sustainable population (OSP) are listed as “depleted” according to the MMPA. Under the ESA, a species is listed as “endangered” if it is in danger of extinction throughout a significant portion of its range and “threatened” if it is one that is likely to become an endangered species within the foreseeable future throughout all, or a significant portion, of its range.

Under the ESA, threatened species occurring off the West Coast include:

- Steller sea lion (*Eumetopias jubatus*) Eastern Stock,
- Guadalupe fur seal (*Arctocephalus townsendi*), and
- Southern sea otter (*Enhydra lutris*) California Stock.

Under the MMPA, depleted species occurring off the West Coast include:

- Sperm whale (*Physeter macrocephalus*) WOC Stock,
- Humpback whale (*Megaptera novaeangliae*) WOC - Mexico Stock,
- Blue whale (*Balaenoptera musculus*) Eastern North Pacific Stock, and
- Fin whale (*Balaenoptera physalus*) WOC Stock.

Fisheries that interact with species listed as depleted, threatened, or endangered may be subject to management restrictions under the MMPA and ESA. NMFS publishes an annual list of fisheries in the *Federal Register* separating commercial fisheries into one of three categories, based on the level of serious injury and mortality of marine mammals that occurs incidentally in that fishery. The categorization of a fishery in the list of fisheries determines whether participants in that fishery are subject to certain provisions of the MMPA, such as registration, observer coverage, and take reduction plan requirements. The WOC groundfish fisheries are in Category III, indicating a remote likelihood of or no known serious injuries or mortalities to marine mammals.

Of the marine mammal species incidentally caught in WOC groundfish fisheries, the Steller sea lion is listed as threatened under the ESA, the Northern elephant seal may be within their OSP range, and there is insufficient data to determine the status of the harbor seal, California sea lion, Dall's porpoise, and Pacific white-sided dolphin relative to their OSP. None of these species are classified as strategic stocks under the MMPA. Based on its Category III status, the incidental take of marine mammals in the WOC groundfish fisheries does not significantly impact marine mammal stocks.

### 3.2.4 Seabirds

Over sixty species of seabirds occur in waters off the coast of Washington, Oregon, and California within the EEZ. These species include: loons, grebes, albatross, fulmars, petrels, shearwaters, storm-petrels, pelicans,



cormorants, frigate birds, phalaropes, skuas, jaegers, gulls, kittiwakes, skimmers, terns, guillemots, murrelets, auklets, and puffins. The migratory range of these species includes commercial fishing areas; fishing also occurs near the breeding colonies of many of these species.

Interactions between seabirds and fishing operations are wide-spread and have led to conservation concerns in many fisheries throughout the world. Abundant food in the form of offal (discarded fish and fish processing waste) and bait attract birds to fishing vessels. Of the gear used in the groundfish fisheries on the West Coast, seabirds are occasionally taken incidentally by trawl and pot gear but they are most often taken by longline gear. Around longline vessels, seabirds forage for offal and bait that has fallen off hooks at or near the water's surface, and are attracted to baited hooks near the water's surface, during the setting of gear. If a bird becomes hooked while feeding on bait or offal, it can be dragged underwater and drowned. Of the incidental catch of seabirds by longline groundfish fisheries in Alaska, northern fulmars represented about 66% of the total estimated catch of all bird species, gulls contributed 18%, Laysan albatross 5%, and black-footed albatross about 4% (Stehn et al. 2001). Longline gear and fishing strategies in Alaska are similar to some, but not all, of those used in WOC longline fisheries.

Besides entanglement in fishing gear, seabirds may be indirectly affected by commercial fisheries in various ways. Change in prey availability may be linked to directed fishing and the discarding of fish and offal. Vessel traffic may affect seabirds when it occurs in and around important foraging and breeding habitat and increases the likelihood of bird storms. In addition, seabirds may be exposed to at-sea garbage dumping and the diesel and oil discharged into the water associated with commercial fisheries.

The FWS is the primary federal agency responsible for seabird conservation and management. Under the Magnuson-Stevens Act, NMFS is required to ensure that fishery management actions comply with other laws designed to protect seabirds. NMFS is also required to consult with FWS if fishery management plan actions may affect seabird species that are listed as endangered or threatened. Under the ESA, a species is listed as "endangered" if it is in danger of extinction throughout a significant portion of its range and "threatened" if it is one that is likely to become an endangered species within the foreseeable future throughout all, or a significant portion, of its range.

Under the ESA, endangered species occurring off the West Coast include:

Short-tail albatross (*Phoebastria (=Diomedea) albatrus*),  
California brown pelican (*Pelecanus occidentalis*), and  
California least tern (*Sterna antillarum browni*).

Under the ESA, a threatened species occurring off the West Coast is the marbled murrelet (*Brachyramphus marmoratus*).

Information on the incidental take of seabirds by WOC groundfish fisheries is limited, but NMFS observers have been collecting seabird data in the at-sea processing Pacific whiting fishery since 1996 (Table 3.2.4-1). The recently implemented WOC groundfish observer program should supply additional information about the incidental take of seabirds in 2002 and beyond (NMFS 2001).

In response to increased concerns about the incidental take of seabirds, NMFS, FWS, and the Department of State (DOS) collaborated in 2001 to develop the U.S. National Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries. The purpose of this plan is to provide national-level policy guidance on reducing the incidental take of seabirds in U.S. longline fisheries and to require NMFS, in cooperation with FWS, to conduct an assessment of all U.S. longline fisheries to determine whether an incidental take problem exists. This plan further requires NMFS, in cooperation with FWS, to work through the regional fishery management council process in partnership with longline fishery representatives to develop and implement mitigation measures in those fisheries where the incidental take of seabirds is a problem. During 2002, NMFS intends to assess seabird interactions with longline gear and evaluate the need for seabird incidental take mitigation and management measures.

### 3.2.5 Sea Turtles

Sea turtles are highly migratory; four of the six species found in U.S. waters have been sighted off the West Coast. Under the ESA, a species is listed as "endangered" if it is in danger of extinction throughout a significant portion of its range and "threatened" if it is one that is likely to become an endangered species within the foreseeable future throughout all, or a significant portion, of its range. The green turtle (*Chelonia*

*mydas*), the leatherback turtle (*Dermochelys coriacea*), and the olive ridley turtle (*Lepidochelys olivacea*) are listed as endangered and the loggerhead turtle (*Caretta caretta*) is listed as threatened. The management and conservation of sea turtles is shared between NMFS and FWS.

Little is known about the interactions between sea turtles and West Coast commercial fisheries. The directed fishing for sea turtles in WOC groundfish fisheries is prohibited because of their ESA listings, but the incidental take of sea turtles by longline or trawl gear may occur. Sea turtles are known to be taken incidentally by the California-based pelagic longline fleet and the California halibut gillnet fishery. Because of differences in gear and fishing strategies between those fisheries and the WOC groundfish fisheries, the expected take of sea turtles by groundfish gear is minimal.

Sea turtles may be also indirectly affected by commercial fisheries. Sea turtles are vulnerable to collisions with vessels and can be killed or injured when struck, especially if struck with an engaged propeller. Entanglement in abandoned fishing gear can also cause death or injury to sea turtles by drowning or loss of a limb. The discard of garbage at sea can be harmful for sea turtles because the ingestion of such garbage may choke or poison them. Sea turtles have ingested plastic bags, beverage six-pack rings, styrofoam, and other items commonly found aboard fishing vessels. The accidental discharge of diesel and oil from fishing vessels may also put sea turtles at risk, as they are sensitive to chemical contaminants in the water.

The recently implemented WOC groundfish observer program should supply additional information about the incidental take of sea turtles in 2002 and beyond.

### **3.2.6 Salmon**

Salmon caught in the US West Coast fishery have life cycle ranges that include coastal streams and river systems from central California to Alaska and oceanic waters along the United States and Canada seaward into the north central Pacific Ocean, including Canadian territorial waters and the high seas. Some of the more critical portions of these ranges are the freshwater spawning grounds and migration routes.

Chinook or king salmon (*Oncorhynchus tshawytscha*) and coho or silver salmon (*O. kisutch*) are the main species caught in Council-managed ocean salmon fisheries. In odd-numbered years, catches of pink salmon (*O. gorbuscha*) can also be significant, primarily off Washington and Oregon. Ocean salmon are caught with commercial and recreational troll gear. No other gears are allowed to take and retain salmon in the ocean fisheries. Small amounts of rockfish and other groundfish are taken as incidental catch in salmon troll fisheries. Troll gear is considered open access gear for the purpose of groundfish fishing regulations. Canary rockfish is the principle groundfish species of principle taken in the salmon troll fisheries.

### **3.2.7 Pink Shrimp**

Pacific pink shrimp (*Pandalus jordani*) are found from Unalaska in the Aleutian Islands to San Diego, California, at depths of 25 - 200 fathoms (46 - 366 m). Off the U.S. West Coast these shrimp are harvested with trawl gear from northern Washington to central California between 60 and 100 fathoms (110-180 m). The majority of the catch is taken off the coast of Oregon. Concentrations of pink shrimp are associated with well-defined areas of green mud and muddy-sand bottom. Canary rockfish is the principle groundfish species of principle taken in the pink shrimp fishery. Pink shrimp fisheries are managed by the states of Washington, Oregon and California.

## **3.3 Human (Socioeconomic) Environment**

The purpose of this section is to provide the context for the proposed fishery management actions. It is from this context that the reader can begin to extrapolate the impacts of the various fishery management alternatives under consideration by the Council.

Humans use fish in a variety of ways including as a food source, a resource base for businesses and jobs, recreation, and religious symbols. For some people, even the knowledge and certainty that a species or type of human community will continue to exist constitutes a valued part of their environment. Various types of values that humans place on fish and on human economic and social structures associated with fishing are affected by changes in fishing policy.

The impacts on the human environment may be assessed at a number of levels including:

1. Individuals that participate directly in fishing and fishery support activities.
2. Communities of association among fishery participants and related waterfront support activities (e.g. processors and gear manufacturers).
3. The geographic range of the social communities.
4. Individuals who value visiting the human communities or partake in non-consumptive observation of the natural environment.
5. Individuals outside the geographic area that have no direct interaction with the fish or communities but value the existence of the fish, the fishing community, or the ensemble of communities of association that make up the geographic area.
6. Individuals affected by the role of fish as an economic commodity (broad market level effects).

The primary form of information on the socioeconomic environment is harvest related statistics. There is little information available about the characteristics of the individual participants and their social relationships other than harvest. Information on the characteristics of the participants would allow a closer look at communities of association and how those communities fit within geographic communities. Examples include the Ballard community in Seattle with heavy Scandinavian influences, a Vietnamese fishing community of San Francisco Bay, and an Italian fishing community of southern California. Also included in these considerations are the Native American communities with an interest in the groundfish fisheries. These tribal communities are primarily found along the northwest coast. In most areas, fishers with a variety of ethnic backgrounds come together to form the fishing communities within local areas, drawn together by their common interests in economic and physical survival in an uncertain and changing ocean and regulatory environment. The following information on West Coast fisheries provides a simple look at the aggregated activities of individuals.

A variety of tables are provided on the commercial harvesting and processing of groundfish. Some of these tables are produced from a vessel perspective (e.g. displaying only the harvest of a certain group of vessels) and others are produced from a processor or community perspective (e.g. displaying all landings of seafood product on fish tickets). The following outline of tables by section provides a guide to assist the reader in quickly locating tables of particular interest. **Tables and figures are identified using the section number under which they are discussed followed by a number indicating the order of their appearance in that section (e.g. "TABLE 3.3.1.1-1a" is the first table in section 3.1.1.1).** All tables and figures appear at the end of this document.

Sub section	Species (spp) Categories (Cats)	Areas	Gear/User Cats	Temporal	Time Period	Data
<b>3.3.1 Harvesters</b>						
3.3.1.1 Overview	All (5 cats of Groundfish and 6-7 cats of other spp)	Coastal Total, (All West Coast Landings on Fish Tickets)	No Gear or User Divisions	Monthly and Annual	1986 and 1996 2000	Exvessel Value (Table 3.3.1.1-1; Figures 3.3.1.1-1 & 2)
	"	Region (All West Coast Landings on Fish Tickets)	"	"	2000	Exvessel Value (Tables 3.3.1.1-1; Figure 3.3.1.1-3)
	"	Region (Ocean Area Catch Only)	Limited Entry Vessels Only	"	2000	Exvessel Value (Table 3.3.1.1-2; Figure 3.3.1.1-4)
	"	"	Open Access Vessel Only	"	2000	Exvessel Value Tables and Figures Supplemental
	Pink Shrimp	Coast Total	Shrimp Trawl	Annual	1996-2000	Landings, exvessel revenue and vessels (Table 3.3.1.1-3)
	Salmon	Coast Total	Salmon Troll	Annual	1996-2000	Landings, exvessel revenue and vessels (Table 3.3.1.1-4)

Sub section	Species (spp) Categories (Cats)	Areas	Gear/User Cats	Temporal	Time Period	Data
3.3.1.2 Gear Group	All Groundfish Aggregated	Coastal Total and Regional (Council Managed)	By 8 Major Gear Groups(no LE/OA division)	Annual	1996 1999 2000	Exvessel Value, Metric Tons and Proportions. (Table 3.3.1.2-1, with whiting; Table 3.3.1.2-2, without whiting)
	Whiting	Coastal Total and Regional (Council Managed)	All (Predominantly Trawl)	Annual	1996 1999 2000	Landings and exvessel revenue (Table 3.3.1.2-3)
3.3.1.3 Seasonal Rounds	16 Cats of Groundfish and All West Coast Spp Aggregated (GF and nonGF)	Coastal Total and Regional. (Ocean Area Catch Only)	Groundfish divided between LE Trawl; LE Fixed Gear; OA Trawl & Troll; Other OA Gears	Monthly and annual	2000	Groundfish spp cats as a percent of total West Coast landings of all species, total exvessel value of groundfish aggregated by gear/user cat, total value of all West Coast landings (GF and nonGF). Tables 3.3.1.3-1 and 2.
3.3.1.4 Ports	All (3-6 Cats of Groundfish and 7 Cats of Other Spp)	Port Areas	" " (except Open Access vessel aggregated as one category)	Annual	2000	Exvessel Value and Vessel Counts (Tables 3.3.1.4-1 and 2)
3.3.1.5 Harvest Complex	Each species complex	Major Regions	Each fishing strategy	Rate	Parameter Estimates	Exvessel value of complex per pound of rebuilding species Any Tables or Figures will be Supplemental
3.3.1.6 Trawler Costs	None	Example	Large Trawler	Annual	2000	Cost schedule Any Tables or Figures will be Supplemental
3.3.1.7	Multiple	Coastal Total	Trawl, longline, fishpot	5 year period	1984-1998	Vessel counts and revenue totals by frequently used spp/gear combinations (Tables 3.3.1.7-1 through 3)
3.3.2 Processors						
	All (3-6 Cats of Groundfish and 7 Cats of Other Spp)	Port Areas	" " (except Open Access vessel aggregated as one category)	Annual	2000	Buyer Counts (Table 3.3.2-1)
3.3.3 Recreational Fishers						
	All and Groundfish	Major Regions	N/A	Annual	1996-2000	Trips (Table 3.3.3-1)
	All	Major Regions	N/A	Annual	2001	Number of Charter Vessels (Table 3.3.3-2)
	All	Major Regions	N/A	Annual	2000	Trips and Local Income Impact Estimates (Table 3.3.3-3)
	Groundfish	Major Regions	N/A	Annual	2000	Trips and Local Income Impact Estimates (Table 3.3.3-4)
3.3.4 Tribal Fisheries						None
3.3.5 Communities						Commercial income impacts to be provided supplemental

### **3.3.1 Commercial Harvesters**

#### **3.3.1.1 Overview of West Coast Fisheries and Seasonality**

The Pacific Coast commercial 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 segment of the groundfish fishery. The limited entry program was established in 1994. All vessels that land groundfish without groundfish limited entry permits are classified as open access vessels. 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, troll, pot, setnet, trammel net, shrimp and prawn trawl, California halibut trawl, sea cucumber trawl, and other gears.

In 1996 groundfish comprised over 20% of the exvessel value of all marine and anadromous fish landed on West Coast landings receipts (Table 3.3.1.1-1 a, b and c). In 1996 the exvessel value of groundfish landings were up 17% as compared to 1986. By 2000, the exvessel value of groundfish landings had fallen 28% from the 1996 level (from \$85.0 million to \$61.3 million) and was 15% below the 1986 exvessel value. As a whole, exvessel value of West Coast landings dropped 24% between 1986 and 2000 (note: these values are adjusted for inflation and do not include at-sea whiting deliveries).

By value, West Coast landings tend to peak in the winter and late summer months (Table 3.3.1.1-1 and Figure 3.3.1.1-1). The height of the summer peak is largely influenced by the fixed gear sablefish fishery. In 1986 the groundfish fishery tended to occur at a more even rate on a year round basis. Landings by limited entry vessels comprise a large portion of the total groundfish landings (Table 3.3.1.1-2 and Figure 3.3.1.1-2).

From the Oregon/Washington border to Cape Mendocino groundfish comprises the vast majority of the commercial fishing value (Figure 3.3.1.1-3). When the activities of limited entry vessels are isolated from other commercial fishing opportunities, a similar pattern is seen for the Washington coast (Figure 3.3.1.1-4).

Coastwide, in terms of numbers of limited entry vessels participating in any fishery (including non-groundfish vessels), the lowest participation levels occurred in March and November in 2000 (Table 3.3.1.1-3). This pattern is dominant north of Cape Mendocino. South of Cape Mendocino, February and April participation tends to be lower than March participation and October and December participation tends to be lower than the November participation.

Two of the non-groundfish fisheries in which groundfish are taken as bycatch are the salmon and shrimp fisheries.

**Salmon:** The commercial salmon fleet, which is classified as part of the groundfish open access sector, has been on a declining trend in recent years (Table 3.3.1.1-3). However, in 1999 salmon fishing improved substantially, resulting in substantial increases in total and average revenue per vessel. In 2001 salmon fishing was expected to improve substantially.

**Pink Shrimp:** The pink shrimp fishery is also classified as part of the open access sector (Table 3.3.1.1-4), and the open access share of groundfish north of Cape Mendocino was based primarily on historical groundfish catch in this fishery. Many vessels that participate in the shrimp trawl fishery have groundfish limited entry permits. When participating in the pink shrimp fishery, they must abide by the same rules as vessels that do not have limited entry permits. In 1981, the three coastal states established uniform coastwide regulations for the pink shrimp fishery. The season runs from April 1 through October 31. Pink shrimp may be taken for commercial purposes only by trawl nets or pots. Most of the pink shrimp catch is taken with trawl gear with minimum mesh size of 1-3/8 inches between knots.

#### **3.3.1.2 Groundfish Catch and Exvessel Value by Gear Group**

Trawlers take the vast majority of the groundfish harvest by weight (96%-98%) and 73% by volume (Table 3.3.1.2-1, includes at-sea whiting). Trawling is substantially more dominant north of Cape Mendocino (US-Vancouver, Columbia, and Eureka INPFC areas) than south of Cape Mendocino (Monterey and Conception areas). While hook and line vessels take only a few percent of the coastwide groundfish harvest by weight (1%-3%), their harvest accounts for about 20% of the exvessel value. When whiting is excluded from the

totals, hook and line landings are in the 10%-12% range by weight and in the 25%-27% range by value (percent of coastwide total groundfish excluding whiting) (Table 3.3.1.2-2).

Whiting landings are predominantly trawl with the majority of the harvest occurring in the Columbia INPFC area and a substantial portion of the harvest also occurring in the US portion of the Vancouver INPFC area.

### 3.3.1.3 Seasonal Rounds By Gear Groups

The Council has managed most groundfish species for year round harvest. Tables 3.3.1.3-1 and 3.3.1-2a-f (see addendum) display harvest of groundfish by month for gear and species groups closely related to the structure of Council management measures (see Section 2). The tables display exvessel revenue of groundfish as a percent of total exvessel revenue for all species (groundfish and non-groundfish) for the specified month of the year 2000. Zero values represent amounts that are less than one-half of one percent. The presence of a dash indicates that no landings were made. There is a substantial amount of information that may be gleaned from these tables. Of particular note is that in August 2000, by value, 23% of the landings of all species were attributable to the fixed gear sablefish fishery. Toward the bottom of the table, percentages are summed by limited entry group and total exvessel revenues are shown by group. The importance of groundfish to particular communities, processors or vessels is likely to be more important than might be inferred from this table.

### 3.3.1.4 Harvesters and Landings By Port

In order, Astoria, Newport, Coos Bay, and Eureka stand out as the port areas with the greatest amount of groundfish landings, by exvessel value. These port areas are followed, in order, by the Inside Puget Sound port area, Fort Bragg, and San Francisco (Table 3.3.1.4-1). Ports had to be aggregated into port areas in order to protect confidentiality. A finer geographic break down is provided for the number of vessels making landings in each port (Table 3.3.1.4-2). In terms of numbers of trawl groundfish vessels, Crescent City moves into the upper echelon in importance as a groundfish port, on a par with Eureka. Greater numbers of groundfish open access vessels tend to land in more southern areas.

### 3.3.1.5 Values by Harvest Complex

The Council will have significant allocational decisions to make when it comes to determining the gear/species complex in which rebuilding and other constraining stocks will be taken. The expected gross value of the gear/species complex per pound of constraining species may be useful in making these allocational decisions. Information such as this is expected to be available for the Council during the week of the Council meeting.

### 3.3.1.6 Trawler Crew, Cost Schedules, and Recent Profitability

Between 1997 and 1998 **total reported costs** for a group of large groundfish trawlers<sup>3</sup> decreased by 6.5% while **revenues** were reported to have declined by 26.6%, from \$308,000 to \$226,600 (Economics Data Program, 2001). Expenses reported as variable comprised about 50% of total annual expenses. Of the **variable costs**, about 58% would be expected to vary with the value of the landed catch (crew and skipper shares, and landings taxes) and 42% would be indirectly related to amount of catch (42% would be expected to vary based on duration of the trip, with a substantial portion being fixed for the trip (e.g. fuel to transit to and from the fishing grounds). On this basis, and for the 1997 and 1998 values, the 26.6% decline in revenue would be expected to result in a 21% decline in **variable costs**. Actual reported **variable costs** declined by 17%. The **ratio of variable costs to revenue** was 1.38 in 1997 and 1.22 in 1998. Survey results indicate that for 1997 and 1998 the average vessel was probably having difficulty covering its fixed and variable costs. Additional work can be done with this data to assess the profit status of the fleet. Data on per trip fixed and variable costs needs to be developed in order to provide a better assessment of the impact of changes in trip limits on vessel profitability. Additional information may be provided in supplemental materials during the Council meeting.

### 3.3.1.7 Fishing Strategies

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<sup>3</sup> Large groundfish trawlers at those with over \$100,000 of exvessel revenue and over 33% of the revenue from groundfish.

Most groundfish vessels participate in a range of other fishing activities on the West Coast and other areas such as Alaska. The following descriptive information does not distinguish between open access and limited entry vessels.

From 1994 through 1998, vessels with the highest annual average gross revenues were groundfish trawl vessels that participated in both the whiting and other groundfish fisheries, the Dungeness crab fishery, the shrimp/prawn fishery, followed by vessels taking part in a similar suite of fisheries with the exception of the shrimp/prawn fishery (Table 3.3.1.7-1, a key to the fishing strategy abbreviations in this table is provided below). During this period, groundfish trawl vessels comprised 4 percent of all vessels active on the West Coast and, by exvessel value, made 25% of all landings.

From 1994-1998, groundfish hook-and-line vessels comprised 30 percent of the West Coast fishing fleet and, by exvessel value, made 15% of all landings (Table 3.3.1.7-2). Groundfish hook-and-line vessels with the greatest average revenue per year fished also participated in the Dungeness crab, trawl groundfish, and trawl pink shrimp fisheries. The category of groundfish hook-and-line vessels with the second greatest average revenue per year were those that also participated in the Dungeness crab and pot groundfish fisheries. For groundfish hook-and-line vessels, the most frequent combination of strategies was groundfish hook-and-line and salmon and the second most frequent combination was groundfish hook-and-line and Dungeness crab.

From 1994-1998, groundfish pot vessels comprised 3 percent of the West Coast fishing fleet and, by exvessel value, made 5% of all landings (Table 3.3.1.7-3). Groundfish pot vessels with the greatest average revenue per year fished also participated in the troll albacore and Dungeness crab fisheries. The category of groundfish hook-and-line vessels with the second greatest average revenue per year were those that also participated in the troll albacore, Dungeness crab, and salmon fisheries. For groundfish pot vessels, the most frequent combination of strategies was groundfish pot and groundfish hook-and-line, and the second most frequent combination was groundfish pot, groundfish hook-and-line, and salmon.

### **Assignment of Fishing Strategies**

Vessels were assigned to unique fishing strategies using the following data and decision rules:

Data:

Annual PacFIN vessel summary files for West Coast ocean area landings 1994-1998 were used with interpretative flags and groundfish permit information added by Dr. James Hastie, economist with National Marine Fisheries Service (NMFS) Northwest Fisheries Science Center. The flags distinguish catch from incidental catch for groundfish and shrimp landings (groundfish landings are identified as those with more than 50% groundfish; and shrimp landings are identified as those with more than 500 pounds of shrimp). PacFIN data includes data on state landings receipts (fish tickets) for marine and anadromous species.

For landings of non-West Coast ocean area catch (i.e., Puget Sound, inside the Washington coast, the Columbia River, Canada, and Alaska), annual PacFIN data without the flags was used.<sup>4</sup>

Decision Rules for Fishery Participation:

Fishery types were identified based on an analysis of major area/gear/species combinations on an annual basis. These area-gear-species combinations are identified below (see "Key to Fishing Strategy Abbreviations"). Certain species gear combinations were excluded from being classified as a "fishery" if the total landings by the species-gear combination were less than about \$1 million and the average landings per participating vessel tended to be less than about \$5,000. West Coast fish tickets include some harvest landed on the West Coast, but caught in Alaska, Canada, and other non-West Coast areas. These landings from non-West Coast catch areas are not included in the typing of vessel strategies because the inclusion of partial information from these areas would make it difficult to interpret the data. However, revenue from West Coast landings of fish from fisheries outside the West Coast are included in the revenue totals for the vessels.

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<sup>4</sup> Landings of Canadian and Alaskan catch are included only when West Coast fish tickets were filled out for the landing (generally when the first port of landings is a Washington, Oregon, or California port).

Vessels were classified as a participant in a fishery only if more than 5% of their gross revenue for a particular year was derived from that fishery in at least one year during the 5-year period. The 5% rule was intended to reduce the influence of incidental catch of species and gear miscoding on the classification system.

For West Coast ocean catch areas, landings were classified as groundfish landings only if more than 50% of the landing was groundfish and classified as shrimp landings only if more than 500 pounds of the landing was shrimp.

A minimum of 10,000 pounds of whiting was required for a year in order for a vessel to be classified as participating in the whiting fishery (10,000 pounds per vessel is the maximum amount of whiting that can be landed per day when the regular whiting season is closed).



## Key to Fishing Strategy Abbreviations

The general format used to abbreviate fishing strategies is to indicate the gear used, then species caught, and finally areas of catch. Landings included are non-Indian landings made to West Coast ports for which state landings receipts (fish tickets) are available.<sup>5</sup> Area of catch is 0-200 miles off the West Coast (Washington, Oregon, and California), unless otherwise specified.

Abbreviation	Description
Excluded	Vessels that took part only in fishing strategies (gear/species/area combinations) not included in this key are listed in the tables as "Excluded". A description of excluded categories follows this table.
AllGr Ech&Mol	Echinoderms and mollusks (except squid) taken by any gear in the ocean from 0-200 miles off the West Coast and first landed on the West Coast.
AllGr Herr All	Herring caught by any gear anywhere on the West Coast (including Puget Sound and other inside areas).
CR&WACoast Salmon	All salmon landed out of the Columbia River and from bays and estuaries along the Washington coast (generally this will be fish caught with gillnet gear).
EntNet GF	All groundfish caught with entanglement nets such as gillnets.
EntNet Swdf&Shks All	All swordfish and sharks considered to be highly migratory caught with entanglement nets such as gillnets.
HKL GF&Halbs	All groundfish and halibuts (California and Pacific) caught with hook-and-line gear.
HKL TropT-Swdf&Shks All	All species considered to be highly migratory (except albacore) caught by hook-and-line gear.
Net Salmon PS	Salmon caught with seine and other net gear in Puget Sound.
OthGr Swdf&Shks	All species considered to be highly migratory (except albacore) caught by gears other than hook-and-line and seine or entanglement net (e.g. spears)
Pot DCrb Oc&PS	Dungeness crab caught with pot gear in Puget Sound or the ocean (0-200 miles).
Pot GF	Groundfish caught with pot gear.
Pot Lob	Lobster caught with pot gear.
Pot OthCrb	Crabs other than Dungeness caught with pot gear.
Pot Sh&Pr Oc&PS	Shrimp and prawns taken by pots in Puget Sound or the ocean (0-200 miles).
Sn&Onet CPS-ff	Finfish that are included as a coastal pelagic species in the Council fishery management plan (FMP), taken with round haul, seine, and other net gears.
Sn&Onet CPS-sqd	Squid included as a coastal pelagic species in the Council FMP taken with round haul, seine, and other net gears.
Sn&Onet TropTun	Tropical tuna species (highly migratory tuna other than albacore) taken with seine and other net gear, all catch areas.
Trl Alb All	Troll albacore tuna taken in all catch areas with troll gear.
Trl Salm	Salmon taken with troll gear.
Twl CAHalb	California halibut caught with trawl gear.
Twl GF(xWHT)	Groundfish (except whiting) caught with trawl gear.
Twl ShPr	Shrimp and prawns caught with trawl gear.
Twl Wh	Whiting caught with trawl gear.
Twl ShPr-GF-Ec PS	Species caught with trawl gear in Puget Sound (shrimp, prawns, groundfish, echinoderms).

<sup>5</sup> Indian landings are not included because vessel identifiers for Indian landings are not available through PacFIN.

### 3.3.2 Commercial Fish Buyers/Processors

In most port areas on the West Coast there are generally six or fewer buyers purchasing from limited entry vessels. In the north, the primary exception is Astoria and, in the south, the exceptions are San Francisco, Monterey, and San Luis Obispo (Table 3.3.2-1). In San Francisco and from San Luis Obispo south there tend to be more buyers of fixed gear rockfish and other groundfish than there are buyers of trawl caught species.

There are thousands of entities with permits to buy fish on the West Coast; however, a relatively few of these handle fish in large quantities and, in particular, make purchases from limited entry trawl vessels. Information on the numbers of processors buying from different segments of the groundfish fleet, the degree to which processors buy from multiple segments of the fleet, and the degree to which processors are active year round would be useful for decisions coming before the Council at its November meeting. Some of this information may be provided to the Council in supplemental materials at that time.

***On the next two pages, information is provided in sidebars on processing capacity trends and processing costs. This information was provided to the Council by the West Coast Seafood Processors***

***Association (WCSPA). Comment is sought from the industry and general public on the degree to which the economic survey data on processing capacity is representative of trends on the West Coast and the degree to which the reported processing costs and recovery rates appear reasonable and reflect costs experienced by others along the West Coast.***

#### Processor Capacity

In an effort to collect data for this EA, port biologists were asked to report their observations on the number of fillet and cutting stations in the plants from which they sampled. A census of this measure of capacity and the ratio of this capacity to available product, over time, might provide an indicator of trends and economic health of the industry.

<b>WCSPA ECONOMIC SURVEY</b>			
(partial data)			
<b>PROCESSING CAPACITY</b>			
	1997	2000	% Difference
Total number filleting stations	259	224	-13.5%
Number filleting stations used	215	115	-46.5%
<b>COST</b>			
	1997	2000	% Difference
Average cost per pound for finished groundfish product	\$1.55	\$1.89	21.90%
<b>LABOR FORCE</b>			
	1997	2000	% Difference
Number of employees (skilled)	412	259	-37.1%
Number of employees (unskilled)	566	464	-18.0%
DATA SUPPLIED BY: Alioto-Lazio Fish Co.; Bandon Pacific Seafood; Bornstein Seafoods - Bellingham, Newport; Depoe Bay Fish Co.; Eureka Fisheries - Brookings, Crescent City, Fields Landing, Fort Bragg; Hallmark Fisheries; Olde Port Fisheries; Pacific Choice - Eureka; Qualy-Pak; Washington Crab Producers			

Area	Processing Capacity
Puget Sound	Four fillet lines (44 stations on two lines) and four cutting tables
Washington Coast (Westport and Ilwaco)	27 fillet stations (26 in storage)
Northern California (Crescent City to Fort Bragg)	130 fillet stations

## Processing Costs

Information on processing costs is being collected by the Pacific States Marine Fisheries Commission Economic Fishery Information Network project. It is hoped that some of this information will soon be available for economic analysis. In the mean time, the WCSPA has provided information on costs and exprocessor prices from members of their organization. Comment is sought on this information, as noted above.

The WCSPA notes that when fish must be frozen, associated profits decline substantially. The association also notes that the profitability of rockfish is greater (\$0.38-\$0.73 per pound based on the ranges provided by WCSPA) than the profitability of Dover sole (\$0.42-\$0.60 per pound). As an additional note and, given the information as provided, while the profitability of Dover sole appears to be somewhat less than for rockfish, the degree of loss that occurs when Dover sole must be frozen (a loss of \$0.18-\$0.43 per pound) appears to be less than the degree of loss when rockfish must be frozen (a loss of \$0.19-\$0.54 per pound) .

### 3.3.3 Recreational Fishery

Recreational fishing has been part of the culture and economy of West Coast fishing communities for more than 50 years. Along the northern coast, most recreational fishing targeted salmon, but the abundant rockfish often provided a bonus to anglers. Recreational fisheries have contributed substantially to fishing communities, bringing in outside dollars and contributing to tourism in general.

Recreational fishing in the open ocean appears to have been on a downward trend for a number of years but seems to have increased in the year 2000 (Table 3.3.3-1). Part of this decline is likely the result of shorter salmon seasons and smaller bag (retention) limits. Some effort shift from salmon to groundfish likely occurred. Groundfish are taken as target catch and as incidental catch in fisheries targeted on other species. The degree to which the opportunity to harvest groundfish contributes to incentive for non-groundfish trips is uncertain; however, there is likely some relationship to the frequency of groundfish catch on the trip. In Table 3.3.3-1, groundfish effort is calculated as total groundfish catch divided by the CPUE for trips targeted on groundfish as well as other species (e.g. salmon, tuna, halibut, etc.). Using this method, relatively little weight will be given to trips targeted on non-groundfish species for which the groundfish bycatch is low and substantial weight will be given to groundfish where the groundfish catch is high, regardless of whether the nominal target for the trip was groundfish or some other species. More recreational trips are taken in southern California than in northern California, Oregon,

West Coast Seafood Processors Association

### COMPARISON OF COST VS. PRICES FOR SELECTED MAJOR GROUND FISH SPECIES

In order to provide some economic data that would be useful for analysis of 2002 management options, we surveyed processing plants to determine their cost per pound of producing Dover sole and rockfish fillets and then determined the range of prices for which those fillets were sold. We chose Dover sole because it is the most common, most available, and most valuable (other than petrale sole at certain times of the year) of the flatfish species. We did not specify which species of rockfish we were collecting data on but instead asked the plants to give us the most common values.

The table below shows aggregated data from seven plants located in California and Oregon (we were unable to obtain data from Washington in time to provide the information). In 2000, these plants processed 55% of the non-whiting groundfish landed on the west coast (plant data from WCSPA records; total groundfish landings from PacFIN); thus we believe they can provide a representative sample.

We did not try to distinguish between trawl and fixed gear landings, but the prices and costs shown are from trawl-caught fish.

Because the values used in the table (price, recovery rate, etc.) vary among plants, we used an average. Prices for the two product types are expressed as a range, which was averaged over the ranges provided by the plants.

#### Discussion

As the data show, plants make more money on rockfish than on Dover sole and lose money (especially when fixed costs are included) on frozen product. This suggests that, to maximize economic benefits within the bounds of this fishery, there is a need for rockfish supplies year round to offset losses (or at best minimal profits) on Dover sole. It also suggests that management measures which result in product gluts at plants (and hence a requirement to freeze fillets) will result in economic losses.

#### **DOVER SOLE**

Avg Price	Avg% Recov	Avg Raw Cost	Avg Oth Cost	TOT	Avg Price Frzn	Avg Price Fresh
\$0.36	25	\$1.44	\$0.72	\$2.16	\$1.73-\$1.98	\$2.58-\$2.76

#### **ROCKFISH**

Avg Price	Avg% Recov	Avg Raw Cost	Avg Oth Cost	TOT	Avg Price Frzn	Avg Price Fresh
\$0.47	34	\$1.38	\$0.59	\$1.97	\$1.43-\$1.78	\$2.35-\$2.70

**NOTE:** "Other Cost" does *not* include fixed costs such as overhead, utilities, taxes, etc. It *does* include labor, packaging, and shipping. If fixed costs are included, the total cost would increase by an estimated \$0.36, based on fixed cost data obtained from some of the sources.

or Washington. The distribution of recreational charter vessels coincides with the geographic distribution of trips (Table 3.3.3-2).

### **3.3.4 The Tribal Fishery**

Members of the Makah, Quileute, 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.

Sablefish is one of the most valuable stocks for the commercial fishery and one of only two species with sector-specific allocations. The other is Pacific whiting. Portions of the harvest for both of these species are allocated or set aside for the tribes. In 2001 tribal sablefish longline fisheries<sup>6</sup> were allocated 10% of the total catch OY (690 mt) and then were discounted 3% of that allocation for discard mortality, for a landed catch allocation of 669 mt. In 1999 and 2000 32,500 mt of whiting was set aside for treaty Indian tribes on the coast of Washington state, resulting in a commercial OY of 199,500 mt for 2000. In 2001 the landed catch OY declined to 190,400 mt and the tribal allocation was reduced to 27,500 mt.

Commercial groundfish fisheries are managed by a cooperative state-tribal-federal effort at the Council level, with Council recommendations then implemented as federal, state, and tribal regulations.

### **3.3.5 Fishing Communities**

Fishing communities, as defined in the Magnuson-Stevens Act, include not only the people who actually catch the fish, but also those who share a common dependency on directly related fisheries-dependent services and industries. In commercial fishing this may include boatyards, fish handlers, processors, and ice suppliers. In recreational fishing this may include tackle shops, small marinas, lodging facilities that cater to out-of-town anglers, and tourism bureaus that advertise charter fishing opportunities. Another component of fishing communities is the people employed in fishery management and enforcement.

Fishing communities of the West Coast depend on commercial and/or recreational fisheries for many species. Participants in these fisheries employ a variety of fishing gears and combinations of gears. Naturally, community patterns of fishery participation vary coastwide and seasonally based on species availability, the regulatory environment, and oceanographic and weather conditions. Each community is characterized by its unique mix of fishery operations, fishing areas and habitat types, seasonal patterns, and target species. While each community is unique, there are many similarities. For example, all face danger, safety issues, dwindling resources, and a multitude of state and federal regulations.

Individuals make up unique communities with differing cultural heritages and economic characteristics. Examples include a Vietnamese fishing community of San Francisco Bay, and an Italian fishing community of southern California. Also included in these considerations are the Native American communities with an interest in the groundfish fisheries (however, there are no tribal communities in the area of concern). In most areas, fishers with a variety of ethnic backgrounds come together to form the fishing communities within local areas, drawn together by their common interests in economic and physical survival in an uncertain and changing ocean and regulatory environment.

Demographic information on geographic communities at the county level has been compiled for a general baseline description of West Coast fishing communities. This information may be downloaded from the Council web site ([www.pcouncil.org](http://www.pcouncil.org)).

Preceding sections have provided numbers of commercial vessels, fish buyers, and charter vessels for various geographic regions. To the extent allowed by constraints on confidentiality (commercial) and data validity (recreational), information is also provided on the value of product landed and amount of recreational effort, respectively.

Estimates of community income impacts for the recreational fishery is provided at a regional level in Section 3.3.3. Precision of the MRFSS data, on which the trip estimates are based, do not allow estimates for

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<sup>6</sup> Washington coast treaty tribes (Makah, Quileute, Hoh, and Quinault).

substantially smaller geographic areas on an annual basis. For the commercial fisheries income impact estimates will be provided in supplemental materials during the Council meeting.

## 4.0 IMPACTS OF THE ALTERNATIVES

An EA/RIR 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/RIR 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/RIR 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 of this document, the management alternatives were discussed in Section 2, and the list of preparers is provided in Section 10.0.

### 4.1 Impacts of Alternative Harvest Levels

#### 4.1.1 Overview of Impacts of Alternative Harvest Levels

Specific alternative harvest levels are considered for the 2002 Pacific Coast groundfish fishery relative to the 2001 specifications (status quo alternative) for seven stocks. Otherwise, no changes in harvest levels from the 2001 specifications were sent out for public review. The reason darkblotched rockfish, Dover sole, Pacific ocean perch, sablefish, shortspine thornyhead, widow rockfish, and yelloweye rockfish harvest levels are being considered is either new stock assessments or new rebuilding analyses (for those stocks that have been declared overfished) were developed and approved this year. Alternative 1.3 would separate yelloweye rockfish from the "remaining rockfish" complex in the north and the "other rockfish" complex in the south and adopt a dramatically lower OY in 2002 based on the 2001 assessment of its depressed status and the expectation that it would be declared overfished next year. The following sections contrast new alternative harvest levels to the status quo alternative for the affected stocks.

#### 4.1.2 Biological Impacts of Alternative Harvest Levels

##### Darkblotched Rockfish

Under Alternative 1.1, the total catch OY of 157 mt is about 14% less than Alternative 1.2, making it the most conservative alternative relative to the status quo alternative (the 2001 total catch OY) and the other alternatives considered. The total catch OY under Alternative 1.1 is predicted to have an 80% chance of rebuilding within the allowable time frame of 47 years and a median rebuilding year (average year target biomass is attained) of 2030. Under Alternative 1.2, the total catch OY of 181 mt is about 14% higher than Alternative 1.1, making it the most liberal alternative considered. The total catch OY under Alternative 1.2 is predicted to have a 60% chance of rebuilding within the allowable time frame and a median rebuilding year of 2040. The Council-preferred total catch OY for darkblotched rockfish in 2002 (Alternative 1.3) is intermediate to the low and high OY alternatives considered. The total catch OY of 168 mt is about 7% higher than Alternative 1.1, about 7% lower than Alternative 1.2, and about 23% higher than last year's OY. The total catch OY under Alternative 1.3 is predicted to have a 70% chance of rebuilding within the allowable time frame and a median rebuilding year of 2034. These alternative harvest levels are higher than the status quo alternative because the revised rebuilding analysis indicated the stock could not be rebuilt within ten years as thought in November 2000 when the 2001 OY was recommended. Therefore, the rebuilding trajectories considered are extended beyond ten years to lessen the economic impacts associated with the specified magnitude of harvest in 2001.

##### Dover sole

Alternative harvest levels being considered for Dover sole all assume the intermediate recruitment scenarios presented in the 2001 assessment and vary only by harvest rates that entail varying degrees of risk. The risk is that, if recruitment assumptions are overly optimistic, higher harvest rates could be too aggressive. Dover sole, which is currently estimated to be at 29% of unexploited biomass, could then decline past the overfishing threshold of 25% in the near future.

Under Alternative 1.1, the ABC of 6,142 mt is determined by the current biomass estimate with an  $F_{50\%}$  harvest rate applied. The total catch OY of 5,520 mt is 26% lower than the high OY alternative being considered by the Council and 28% lower than last year's OY. Under Alternative 1.2, the ABC of 8,510 mt is determined by the current biomass estimate with an  $F_{40\%}$  harvest rate (the current  $F_{MSY}$  proxy) applied. The total catch OY of 7,440 mt is 26% higher than the low OY alternative being considered by the Council and 3%

lower than last year's OY. Under Alternative 1.3, the ABC of 7,221 mt is determined by the current biomass estimate with an  $F_{45\%}$  harvest rate applied. The total catch OY of 6,410 mt is about 4% higher than the low OY alternative being considered by the Council, about 14% lower than the high OY alternative, and about 16% lower than last year's OY. Of the alternative harvest levels being considered for Dover sole for 2002, Alternative 1.1 entails the least risk, Alternative 1.2 entails the most risk, and Alternative 1.3 entails an intermediate degree of risk of further decline.

### **Pacific ocean perch**

Under Alternative 1.1, the total catch OY for POP is 290 mt, which is 29% lower than Alternative 1.2 and only 4% lower than the status quo alternative. The total catch OY under this alternative is projected to have an 80% probability of rebuilding the stock within the allowable time frame of 42 years and the lowest median rebuilding period (19.5 years) of the alternatives considered. Under Alternative 1.2, the total catch OY for POP is 410 mt, which is 26% higher than the status quo alternative. The total catch OY under this alternative is projected to have a 60% probability of rebuilding the stock within the allowable time frame and the highest median rebuilding period (31.8 years) of the alternatives considered. Under the Council-preferred Alternative 1.3, the total catch OY for POP is 350 mt, which is about 17% higher than Alternative 1.1, about 15% lower than Alternative 1.2, and about 13% higher than the status quo alternative. The total catch OY under Alternative 1.3 is projected to have a 70% probability of rebuilding the stock within the allowable time frame and an intermediate median rebuilding period (24.8 years) of the alternatives considered.

### **Sablefish**

The sablefish ABCs and OYs that vary from the status quo alternative (2001 specifications) apply only for the portion of the stock north of Point Conception. The 2001 assessment indicated that, even under the most optimistic recruitment assumptions, the sablefish stock north of Point Conception was at risk of declining further and being declared overfished in the next few years. Relative to status quo, all the alternative harvest levels considered would decrease this risk given our current understanding of potential productivity and future recruitment of the sablefish stock. Relative to the alternatives to status quo, Alternative 1.1 has the least risk, Alternative 1.2 the most risk, and Alternative 1.3 has an intermediate risk of further declines. The GMT is recommending the same specifications as in 2001 for the portion of the stock south of Point Conception (see section 3.2.1.2).

Under Alternative 1.1, the ABC is based on an  $F_{50\%}$  harvest rate applied to the 2001 estimated biomass. The total catch OY of 3,200 mt is about 29% lower than Alternative 1.2 and 54% lower than the status quo alternative. The sablefish ABC under Alternative 1.2 is based on an  $F_{45\%}$  harvest rate. The total catch OY of 4,500 mt is about 29% higher than Alternative 1.1 and 36% lower than the status quo alternative. The ABC under the Council-preferred Alternative 1.3 is also based on an  $F_{45\%}$  harvest rate. However, the total catch OY of 4,000 mt is intermediate Alternatives 1.1 and 1.2 and represents the first year of a "ramp down" strategy designed to attain an OY corresponding to an  $F_{50\%}$  harvest rate in the next three years. The total catch OY under Alternative 1.3 is 20% higher than Alternative 1.1, about 11% lower than Alternative 1.2, and about 43% lower than the status quo alternative.

### **Shortspine thornyhead**

The 2002 ABC for shortspine thornyhead would be 880 mt and applies coastwide under Alternative 1.1. This is the same as the total 2001 ABC north and south of the Conception/Monterey INPFC boundary at 36° N. latitude and therefore corresponds to the status quo. The combined total catch OY would be 751 mt under this alternative. The ABC and total catch OY under Alternative 1.2 is 1,004 mt and 955 mt, respectively. The Alternative 1.1 total catch OY is about 21% lower than Alternative 1.2 and is therefore less likely to have biological impacts on the stock. However, it is noted that it is uncertain whether this stock is above its  $B_{40\%}$  abundance or in the "precautionary zone" where potential biological impacts are more of a concern. The Council did not specify a preferred harvest level alternative for shortspine thornyhead for 2002.

### **Widow Rockfish**

The widow rockfish ABC would remain at 3,727 mt (same as the status quo alternative) for all the alternatives considered, but the total catch OY varies. The total catch OY of 726 mt under Alternative 1.1 is 68% lower than the status quo alternative and 15% lower than Alternative 1.2. This OY has an estimated 80% probability of rebuilding within the allowable period of 38 years and the lowest median time to rebuild (34 years) of the alternatives considered. The total catch OY under Alternative 1.2 is 856 mt, which is 63% lower than the

status quo alternative. This OY has an estimated 60% probability of rebuilding within the allowable period and the highest median time to rebuild (37 years) of the options considered. The Council specified Alternative 1.2 as its preferred harvest level alternative for widow rockfish in 2002.

#### **4.1.3 Physical Impacts of Alternative Harvest Levels**

Between 1999 and 2000, it is likely the amount of physical contact between groundfish bottom trawl gear and the seafloor was substantially reduced due to the requirement that small footrope trawl gear without chafing gear must be used in order to land most groundfish species that reside on the continental shelf. Physical impacts to rocky shelf areas in particular have probably been reduced most because only large footrope trawls with chafing gear to protect the net from abrasion are necessary for fishing in such areas. Initial 2000 ODFW logbook data show a significant decrease in trawl activity in rocky areas of the continental shelf. All the alternative harvest levels continue these requirements and all of the alternative harvest levels for the affected stocks decrease the level of fishing activity relative to the status quo alternative, which would, in turn, incrementally reduce potential habitat impacts. Of the harvest level alternatives considered for 2002, Alternative 1.1 entails the lowest level of fishing and therefore should have the least potential to impact benthic habitats. Conversely, Alternative 1.2 should have the greatest potential and Alternative 1.3 should have an intermediate potential to impact the physical structure of the environment.

#### **4.1.4 Social and Economic Impacts of Alternative Harvest Levels**

The relative change in harvest levels of each alternative from 2001 and 2000, with the 2000 exvessel revenues from landings is displayed in Table 4.1.4-1 for stocks for which OYs may be changed in 2002 (with the exception of yelloweye rockfish). Further comparison of the economic effects of altering harvest levels for these stocks in 2002 can be inferred from Table 4.1.4-2 which displays the landings, exvessel values, and price by gear group of these stocks in 2000. Under Alternative 1.1 harvest levels would decline for nearly all of the stocks for which alternative harvest levels are identified, as compared to status quo. For Alternatives 1.2 and 1.3, harvest levels would decline for about half of the stocks for which potential changes have been identified and increase for the other half (see Table 2.1-1). The stocks declining generally have substantially larger declines than the stocks for which there are increases. Additionally, the stocks for which there are declines (sablefish, widow rockfish and Dover sole) are particularly significant with respect to the Council's general disposition for maintaining a year round fishery. Tables 3.3.1.3-1 and 3.3.1.3-2a through 2f (see attached addendum) show that these three species, along with thornyheads are the some of the most significant components of the year round fishery (note: in these tables "0" indicates more than zero but less than one half of one percent, a dash indicates no landings were made). On the other hand, some of the species for which harvest levels would increase may relieve some constraints in achieving total landings OYs.

#### **4.2 Impacts of Alternative Bycatch Rates**

*This information will be provided as a supplemental attachment to the Council prior to decision making.*

#### **4.3 Impacts of Alternative Commercial Fishery Management Measures (Season Options)**

Alternative commercial fishery management measures represent various season options with trip and landing limits specified. This analysis compares a year round alternative developed by the GMT which is consistent with the alternative harvest levels and bycatch rates considered for 2002 fisheries. The intent of this analysis is to generally compare a year round fishery to a coastwide six month seasonal fishery for relative socioeconomic effects. Two year round season options with their specified trip and landing limits are analyzed with respect to whether they are within specified landed catch OYs for constraining stocks given the range of bycatch rates considered. Biological effects were analyzed in Section 4.1 and are not addressed in the context of alternative commercial fishery management measures. Alternative bycatch rates are considered in this analysis since trip and landing limits with implied rates of discard are sensitive to variable bycatch rate assumptions.

##### **4.3.1 Impacts of Alternative Commercial Fishery Management Measure 3.1 (Year Round GMT-Recommended Season)**

*This information will be provided in supplemental attachments to the Council prior to decision making.*

##### **4.3.2 Impacts of Alternative Commercial Fishery Management Measure 3.2 (Coastwide Six Month Season)**



*This information will be provided in supplemental attachments to the Council prior to decision making.*

#### **4.3.3 Impacts of Alternative Commercial Fishery Management Measure 3.3 (Year Round GAP-Recommended Season- Council-preferred OY Option)**

*This information will be provided in supplemental attachments to the Council prior to decision making.*

#### **4.3.4 Impacts of Alternative Commercial Fishery Management Measure 3.3 (Year Round GAP-Recommended Season- High OY Option)**

Alternative management measure 3.3 was discussed by the GMT in September. The GMT determined that the specified landing limits failed to stay within the landed catch OYs for various constraining stocks given the range of bycatch rates considered for 2002. No further analysis of this alternative will be done in this EA/RIR.

### **4.4 Impacts of Alternative Recreational Fishery Management Measures**

In September the Council adopted for public comment recreational fishery management measure alternatives proposed by Council representatives from the states of Washington, Oregon, and California. The Council also adopted preliminary recreational set asides recommended by the Ad Hoc Allocation Committee in August as well as preliminary recreational catch allocations by area. The GMT projected the recreational catches of constraining stocks and complexes associated with these recreational alternatives. The potential biological and socioeconomic impacts of recreational fishery management alternatives are addressed in this section. Biological impacts are assessed relative to how well the recreational fishery management measures meet the proposed recreational set asides and allocations based on the GMT catch projections.

#### **4.4.1 Biological Impacts of Alternative Recreational Fishery Management Measures**

Recreational catch estimates of groundfish from the RecFIN database for Washington, Oregon and California are displayed for the years 1996-2000 in Table 4.4.1-1. Catch estimates for Washington, Oregon, northern California, and southern California are depicted in Table 4.4.1-2 through Table 4.4.1-5, respectively. Despite the recreational fishery restrictions implemented for bocaccio and canary rockfish in 2000, these catch estimates do not indicate a significant decrease in the catch of these stocks in 2000. The 2001 recreational groundfish catch estimates are not yet available; however preliminary catch estimates of bocaccio and canary rockfish indicate recreational catches will likely exceed the yields set aside for the 2001 recreational fisheries. Rebuilding strategies for these stocks depend on effective management measures to reduce harvest. Reducing recreational yelloweye rockfish harvest in 2002 will be an additional challenge.

The preliminary recreational set asides and allocations adopted by the Council in September are displayed in Table 4.4.1-6. These are the standards against which recreational fishery management measures will be judged relative to their predicted efficacy. Note that the recreational set aside for bocaccio south of Cape Mendocino may be in error. The Council originally allocated 48 mt of bocaccio to the recreational fishery and 52 mt to the commercial fishery south of Cape Mendocino in November 2000. The Council needs to decide whether the recreational set aside of 52 mt of bocaccio for 2002 was an intentional recommendation by the Ad Hoc Allocation Committee or a mistaken transposition of the original allocations set in 2000.

Projected recreational catches of key groundfish stocks associated with the recreational fishery management alternatives are noted in Table 4.4.1-7. Comparing the various recreational fishery set asides and allocations (Table 4.4.1-6) for each state and area to the associated catch projections made by the GMT in September (Table 4.4.1-7) leads to the following conclusions:

1. Alternative 2 for southern California exceeds the recreational set aside for bocaccio under any circumstance.
2. Any combination of state recreational fishery management alternatives stays within 1 mt of the recreational set aside for canary rockfish.
3. Alternatives 1 and 2 for Washington exceed the recreational set aside (and meet or exceed the entire coastwide total catch OY) for yelloweye rockfish.
4. The lack of a catch projection for minor nearshore rockfish in California precludes an analysis for that stock complex.
5. The lack of a catch projection for lingcod in California precludes an analysis for that stock.

By far, the most constraining groundfish stock in 2002 caught in recreational fisheries is yelloweye rockfish. In all of the Washington recreational fishery alternatives, there is the caveat that "WDFW will monitor the fishery and track recreational groundfish catch. If the Washington recreational yelloweye harvest guideline is projected to be exceeded, WDFW will take action to prohibit recreational groundfish fishing outside of 25 fathoms". This "insurance policy" should address any uncertainty in Washington yelloweye rockfish catch projections and ensure Washington management measures stay within harvest guidelines.

#### **4.4.2 Socioeconomic Impacts of Alternative Recreational Fishery Management Measures**

The general trend in West Coast recreational groundfish fisheries has been increasing restrictions due mainly to the need to protect overfished lingcod and rockfish stocks. In 1996 recreational groundfish fisheries in Washington, Oregon, and California were open year round with relatively liberal rockfish and lingcod bag limits (Figure 4.4.2-1). By 2000 the fishery was limited by decreased bag and size limits as well as time and area closures (Figure 4.4.2-2). Individual species bag limits were also imposed for bocaccio in California and canary rockfish in all three states. In 2001 limits became even more restrictive for rockfish in general, and particularly canary rockfish in Oregon and California (Figure 4.4.2-3). Additionally, a yelloweye rockfish limit was added in Washington and California prohibited retention of cowcod. This trend of increasingly restrictive regulations will continue for 2002 recreational groundfish fisheries as the states' proposals indicate (Table 4.4.1-2, Figure 4.4.2-4). Recreational proposals for 2002 groundfish fisheries in Washington, Oregon, and California (north and south of Point Conception) are further displayed in Figures 4.4.2-5 through 4.4.2-8. Superimposed on these figures are 2000 effort estimates by month for the private and charter (Commercial Passenger Fishing Vessels in California) recreational fishing sectors in these areas. A sense of the expected changes in recreational fishing effort due to proposed management measures may be inferred by comparing 2000 groundfish regulations (Figure 4.4.2-2) and 2000 effort profiles to the 2002 recreational fishery management alternatives (Figures 4.4.2-5 through 4.4.2-8). In projecting the effects of management regulations on total effort and local communities, account must be taken of anglers' opportunities to shift effort from one time period to another or from one area to another in response to a closure. Effort shifts from one groundfish time-area opening to another will reduce the harvest reductions achieved by time-area closures. At the same time some of the benefits to communities from tourism activity involving fishing may continue to flow to communities, depending on the degree to which fishing was a significant factor in attracting tourists to the community, i.e. all else equal in the economy, tourists will likely spend their vacation dollars. The main questions are where and on what economic activities vacation dollars will be spent.

#### **4.5 Impacts of Alternative Tribal Fishery Management Measures**

The Council adopted preliminary tribal fishery management measures for 2002 in September. Also in September the Makah tribe provided groundfish catch projections consistent with the proposed management measures (Table 4.5-1). The tribes announced their intention to pursue some midwater trawl, bottom trawl using small footropes, halibut long line, and fixed gear sablefish strategies. A new bottom trawl evaluation fishery will be implemented by the tribes in 2002. A suballocation of sablefish will be made for that fishery and small footropes will be required. Treaty trip limits in this fishery will be the same as limited entry trip limits for Pacific cod, petrale sole, English sole, rex sole, arrowtooth flounder, and other flatfish. The fishery will close once the sablefish suballocation is attained. Tribal allocations of sablefish and whiting are the same as for 2001 and specified by negotiated agreements with 10% of the U.S. harvest guideline of sablefish allocated to the tribes and a whiting allocation consistent with the court-approved proposal in *United States v. Washington*, subproceeding 96-2. The tribes also announced their intent to pursue fully competitive fisheries for halibut and sablefish with no limit on retention of incidental harvests of slope rockfish. Trip limits for slope rockfish will be specified for other tribal fisheries and will be determined on the basis of final harvest levels for these species, expected effort, and other relevant factors. The same criteria will be used to set tribal trip limits on shelf and nearshore rockfish. Tribal midwater trawl fisheries will operate with a cumulative landing limit of 30,000 lbs of yellowtail and other midwater rockfish per 2 month period with no carry-over between landing limit periods. The tribes will adjust trip limits to minimize landings of widow and canary rockfish; canary will start out with a 300 lbs/trip limit. Lingcod landing limits will be 300 lbs/day/vessel and 900 lbs/week/vessel to allow retention of incidental harvest. The expected effort for the Makah Tribe is 3- 4 vessels, which is similar to the effort observed in 2001. If more Makah vessels enter the fishery in 2002, the Tribe will reduce trip limits accordingly. The Makah Tribe will develop and implement an observer program to monitor and enforce the limits proposed above and, as in 2001, implement a voluntary full retention program to obtain more sampling information beyond what is derived from the observer program. The Makah Tribe also expected to improve their shoreside sampling program to improve species composition of their landings. This was judged particularly important to better estimate landings of darkblotched rockfish.

## 5.0 SUMMARY OF IMPACTS OF THE ALTERNATIVES

The choice of harvest levels for 2002 involves a tradeoff between levels of risk to the resources and severe short term negative economic impacts to the users. On one side is the need to reduce human impacts (harvest) in order to achieve a timely recovery of overfished stocks (to ensure long-term benefits related to production, ecosystem services and existence values). On the other side, the imposition of severe short-term negative economic effects on commercial and recreational fisheries, along with the businesses and communities that depend on those fisheries, must be considered. The risks of overfishing and the consequent reduction of long-term benefits from the fishery are greatest under Alternative 1.2. The opposite is true of Alternative 1.1; Alternative 1.3 is, for the most part intermediate with respect to risk and economic benefit. Given this year's stock assessments and risk averse policies, the Council has made a preliminary assessment that Alternative 1.3 would best balance conservation risks and economic costs. Currently, the groundfish fishing and processing sectors are severely overcapitalized. Given fixed business expenses and general economies of scale that come with greater levels of production under the current situation, it is likely that net commercial fishery benefits will decline at a greater rate than exvessel value. Income impact estimates take into account the values to the greater community, including not just fishers but also those dependent on income generated by the fishery. Income impacts provide a sense for the scale of the economic impacts. They are a better indicator of potential dislocational effects from changes in the fishery than they are an indicator of overall economic benefits. Historic estimates and income impacts are provided in Section 3.0. Estimates for the alternatives will be developed as bycatch assumptions are established so that catch projections can be made.

	Net Economic Benefits	
	Short-term	Long-term
Alt 1.1	Lowest	Lowest risk of reduced benefits
Alt 1.2	Highest	Likely Negative
Alt 1.3	Medium	Moderate risk of reduced benefits

The risks of overfishing and the consequent reduction of long-term benefits from the fishery are greatest under Alternative 1.2. The opposite is true of Alternative 1.1; Alternative 1.3 is, for the most part intermediate with respect to risk and economic benefit. Given this year's stock assessments and risk averse policies, the Council has made a preliminary assessment that Alternative 1.3 would best balance conservation risks and economic costs. Currently, the groundfish fishing and processing sectors are severely overcapitalized. Given fixed business expenses and general economies of scale that come with greater levels of production under the current situation, it is likely that net commercial fishery benefits will decline at a greater rate than exvessel value. Income impact estimates take into account the values to the greater community, including not just fishers but also those dependent on income generated by the fishery. Income impacts provide a sense for the scale of the economic impacts. They are a better indicator of potential dislocational effects from changes in the fishery than they are an indicator of overall economic benefits. Historic estimates and income impacts are provided in Section 3.0. Estimates for the alternatives will be developed as bycatch assumptions are established so that catch projections can be made.

*[Description of effects of alternative bycatch rates- in Appendix]. This information will be provided in supplemental attachments to the Council prior to decision making.*

Cumulative limit and trip limit management have been used to maintain a year round fishery. The expected benefit of year round fishing is the maintenance of fish harvesting and processing activities. The benefit of maintaining local fishing industry operations is a social benefit and does not necessarily imply greater net economic benefit for the nation as a whole. Year-round opportunity may be important to the local industry because short term closures during the year make it difficult for local processors to maintain workforces and justify the expenses of waterfront processing plants. When product flow from all fisheries (including groundfish) is not sufficient to maintain local processors, larger more diversified processors gain advantage, product is shipped out of the local communities to centralized sites that draw fish from a variety of fisheries and locations along the coast. Given that product is to be shipped out of the local ports, buyers may potentially gain additional advantage by locating processing facilities in areas where labor and facilities can be shared with other more stable segments of the food processing industry (e.g. agricultural areas). Economic impacts can be severe to some local port communities when processors become more centralized.

Counter to the arguments for maintaining a year round commercial seasonal structure are the theoretical benefits of a shorter seasonal option where trip and landing limits can potentially be increased and discards minimized. There is a potential benefit to fishermen, especially those who can employ their boats and gear to prosecute other fishing opportunities such as crab, shrimp, salmon, or other sectors of the groundfish fishery. It may be possible to logically stagger opportunities to optimize commercial fishing opportunities for individual fishermen. These opportunities certainly vary coastwide necessitating a complex matrix of fishing seasons to maximize economic benefits to fishermen. The ability of commercial fish buyers and processors to flexibly process and market product under a staggered season approach will largely determine the economic effect for that sector of the industry and the associated community effects. The transition to such a fishing structure might be expected to result in reduced active processing capacity, especially in those ports that tend to rely on limited fisheries. Prior to a final Council decision, additional information will be provided to assess the trade-offs made between year round and shorter seasonal management measures.

In conjunction with a new assessment of the status of the yelloweye rockfish resource, substantial restrictions on the recreational groundfish fishery were proposed by the states for consideration in 2002. These will result in shorter fishing seasons and reduced catch allowances for several species, primarily rockfish. The economic impact of these recreational fishery alternatives will largely depend on other recreational opportunities such as salmon, tuna, other target recreational fisheries, and non-fishing activities in the coastal

communities. The amount of effort targeted on shelf rockfish and, in the case of Washington anglers, Pacific halibut, may dictate the total recreational fishing-induced mortality of yelloweye rockfish and therefore the potential to rebuild the stock.

## 6.0 CONSISTENCY WITH THE FMP AND OTHER APPLICABLE LAWS

### 6.1 Consistency with the FMP

The Pacific Coast Groundfish FMP states that

“each fishing year, the Council will assess the biological, social, and economic condition of the Pacific coast groundfish fishery and update MSY estimates or proxies for specific stocks (management units) where new information on the population dynamics is available... Based upon the best scientific information available, the Council will evaluate the current level of fishing relative to the MSY level for stocks where sufficient data are available. Estimates of the ABC for major stocks will be developed, and the Council will identify those species or species groups which it proposes to be managed by the establishment of numerical harvest levels (OYs, harvest guidelines, or quotas). For those stocks judged to be below their overfished/rebuilding threshold, the Council will develop a stock rebuilding management strategy.”

All management actions recommended by the Council are evaluated for consistency with the goals, objectives and procedures of the FMP.

#### 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 1.1, 1.2, and 1.3 are consistent with FMP goal 1 and objective 2 under that goal (emphasis added). All three alternatives are consistent with objective 5.

Goal 1 - Conservation: **Prevent overfishing by managing for appropriate harvest levels**, and prevent any net loss of the habitat of living marine resources.

Objective 2. **Adopt harvest specifications and management measures consistent with resource stewardship responsibilities for each groundfish species or species group.** Alternatives 1.1, 1.2, and 1.3 would establish OYs and management measures to achieve them that are consistent with current scientific knowledge. The Status Quo harvest alternative would allow harvest in excess of scientific standards for several species.

Objective 5. Describe and identify essential fish habitat (EFH), adverse impacts on EFH, and other actions to conserve and enhance EFH, and **adopt management measures that minimize, to the extent practicable, adverse impacts from fishing on EFH.** Deleterious impacts of fishing gear on groundfish EFH have not been documented. However, each alternative would reduce the magnitude of contact between on-bottom groundfish trawl gear and the ocean floor, compared to years prior to 2000. Alternative 1.1, which is the most restrictive, would reduce that contact more than the other alternatives.

Each of the alternatives is consistent with Goal 2 - Economics, in particular objectives 7 and 8 under that goal:

Objective 7. 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.** The commercial trip limits, recreational bag limits, seasons and other measures are designed to allow recreational and commercial fishing as long as possible through the 2002 fishing year without exceeding the specified OYs. The Council will also assess the trade-offs of potentially higher OYs and reduced discards with a shorter seasonal structure. A staggered season approach across the various groundfish and non-groundfish fishery sectors may optimize landed catch OYs for individual stocks that are more cleanly targeted during portions of the year as well as provide extended or year round fishing and marketing opportunities.

Objective 8. **Gear restrictions to minimize the necessity for other management measures** will be used whenever practicable. All alternatives use restrictions on the type of bottom trawl gear (footrope and chafing gear) and recreational hook limits, which reduce the need for other management measures.

All alternatives are consistent with Goal 3 - Utilization, in particular objectives 10 and 11..

**Objective 10.** Recognizing the multispecies nature of the fishery and establish a concept of **managing by species and gear or by groups of interrelated species**. Each alternative combines the minor rockfish into groups of interrelated species, and sets trip limits in proportion to how the fish are caught.

**Objective 11.** 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. Each alternative sets trip limits for related species in roughly the proportions they are expected to be caught. However, the basic trip limit management approach requires fishers to discard all fish in excess of the specified limits. That basic management approach encourages discard, especially if compared to a management system that would require fishers to retain all fish they catch. The shorter seasonal structure alternative may result in minimized bycatch and regulatory discards.

## **6.2 Likely Impacts on Other Management Measures and Other Fisheries**

Harvest reductions that would be imposed by Alternatives 1.1-1.3 would continue the trend of reduced groundfish fishing opportunities for the commercial fishing sector. As these stocks become more constraining in fisheries where these stocks are incidentally caught, trip and landing limits will need to be decreased accordingly. Fishers are likely to respond by searching for alternative fishing opportunities. Three primary alternatives are the pink shrimp trawl fishery, the Dungeness crab pot (trap) fishery, and the albacore hook-and-line fishery. Increased participation in the pink shrimp fishery could easily result in increased bycatch of canary rockfish.

## **6.3 Economic Impacts, Particularly on the Cost to the Fishing Industry**

The economic impacts and costs to the industry have been addressed in sections 4.1.4, 4.3, 4.4.2, and 5.0.

## **6.4 Magnuson-Stevens Fishery Conservation and Management Act**

The Magnuson-Stevens Act provides parameters and guidance for federal fisheries management, requiring that the Councils and NMFS adhere to a broad array of policy ideals. Overarching principles for fisheries management are found in the Act's National Standards. In crafting fisheries management regimes, the Councils and NMFS must balance their recommendations to meet these different national standards.

For the 2002 specifications and management measures, the Council's recommendations will be driven by Section 304 (e) of the Act, which requires that Councils rebuild species that have been designated as overfished. As discussed above, seven groundfish stocks have been designated as overfished (lingcod, bocaccio, POP, canary rockfish, cowcod, darkblotched rockfish, and widow rockfish) and one additional stock will likely be designated as overfished in January 2002 (yelloweye rockfish). Managing to protect these stocks while also allowing the fisheries to have access to healthy stocks has been a challenging goal for the Council and has illustrated some of the conflicts that arise from trying to meet several different National Standards in one regulatory package. The following National Standards will be of particular concern to the Council as it works on the 2002 specifications and management measures:

National Standard 1 requires that "Conservation and management measures shall prevent overfishing while achieving on a continuing basis, the optimum yield from each fishery for the United States fishing industry." The Status Quo alternative would not prevent overfishing, the primary reason for its rejection. Alternatives 1.1, 1.2, and 1.3 would prevent overfishing, but Alternative 1.3 is the most balanced alternative for achieving the optimum yield from healthy stocks while still protecting overfished stocks.

National Standard 2 requires the use of the best available scientific information. Again, the Status Quo Alternative would not use the best available information, and Alternatives 1.1-1.3 would calibrate 2002 harvest levels consistent with the updated information obtained in 2001.

National Standard 4 requires that "Conservation and management measures shall not discriminate between residents of different States." All alternatives are intended to meet this standard, as is particularly evident in the state-specific management measures for recreational fisheries. Each state brings recreational fishery management measures to the Council that are designed to match the needs of the fisheries in those states, and to recognize the different effects that different State fisheries have on overfished species. Commercial management measures have also been designed to account for the differences in fishing activities in various parts of the coast.

National Standard 6 requires that "Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches." While the Council's primary goal in crafting specifications and management measures for 2002 will be to protect overfished species, it will do so with an eye to how those measures will affect the various fisheries that incidentally take overfished species. Protecting overfished stocks, particularly yelloweye rockfish, from incidental capture will be particularly challenging, as these species can be taken in almost every West Coast fishery: at-sea whiting, state-managed pink shrimp trawl fisheries, salmon troll fisheries, directed commercial groundfish fisheries, and recreational fisheries. Management measures for 2002 are intended, in part, to distribute the burdens of overfished groundfish protection among these fleets, while still ensuring that these fleets have some access to the their target stocks, where those stocks are viable. Considerations for a more in depth look at bycatch and discard assumptions and a shorter seasonal structure address the dual objectives of accounting for and managing total mortality of overfished stocks while maximizing equitable economic opportunities for West Coast coastal communities.

National Standard 8 provides protection to fishing communities: "Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities." Implementing rebuilding measures for West Coast groundfish has been difficult on the socioeconomic structure of fishing communities. In January 2000, the Secretary of Commerce declared West Coast groundfish fisheries to be a "federal fishery failure." There are two components that need protection in a federal fishery failure, the depleted fish stocks and the fishing communities that have traditionally depended on those stocks. For fishing communities to survive and thrive, West Coast groundfish stocks must be healthy. Where fish stocks are not healthy, the Council must consider even more carefully the economic burdens created by its policies. The 2002 annual specifications and management measures are intended to provide as much access to healthy groundfish and non-groundfish stocks as possible while protecting overfished stocks. Numerous management measures have been recommended to soften the burden of rebuilding on fishing communities, including area-specific regulations for recreational fisheries and for some of the smaller commercial fisheries.

National Standard 9 requires that conservation and management measures minimize bycatch and minimize the mortality of bycatch. As discussed above, measures to protect overfished species are essentially designed to prevent vessels from directed and incidental catch of those species, and where incidental catch is unavoidable, to allow some minimal retention. Recreational and commercial hook-and-line fisheries for lingcod and shelf rockfish have recently been closed for several months in central and southern California to protect those species from incidental capture. Further restrictions are contemplated coastwide to achieve the same objectives. For all groundfish sectors, the Council is considering updated bycatch rates for constraining stocks. These updated rates are expected to better reflect the actual encounter rates in the fishery. All of these measures are expected to either minimize bycatch and bycatch mortality, or to better account for unavoidable bycatch.

#### Essential Fish Habitat (EFH)

The Magnuson-Stevens Act defines EFH 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 adopted measure that allows commercial fishers to land several groundfish species only if they use trawl gear that is ineffective in rocky areas inhabited by canary rockfish, yelloweye rockfish, and other depleted species has resulted in reduced impacts on the physical environment, particularly the rocky shelf strata. In addition, the Cowcod Conservation Areas closed a large area and small area off southern California to all groundfish fishing except in shallow water which has also resulted in reduced impacts in essential fish habitats. No adverse impacts on EFH are expected from any of the alternatives considered for 2002 fisheries.

### **6.5 Paperwork Reduction Act**

None of the alternatives require collection-of-information subject to the PRA.

### **6.6 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 effects of the groundfish fishery on chinook salmon (Puget Sound, Snake River spring/summer, Snake River fall, upper Columbia River spring, lower Columbia River, upper Willamette River, Sacramento River winter, Central Valley, California coastal), coho salmon (Central California coastal, southern Oregon/northern California coastal, Oregon coastal), chum salmon (Hood Canal, Columbia River), sockeye salmon (Snake River, Ozette Lake), and steelhead (upper, middle and lower Columbia River, Snake River Basin, upper Willamette River, central California coast, California Central Valley, south-central California, northern California, southern California). The biological opinions have 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. NMFS has re-initiated consultation on the Pacific whiting fishery associated with the Biological Opinion issued on December 15, 1999. During the 2000 whiting season, the whiting fisheries exceeded the chinook bycatch amount specified in the Biological Opinion's incidental take statement's incidental take estimates, 11,000 fish, by approximately 500 fish. The re-initiation will focus primarily on additional actions that the whiting fisheries would take to reduce chinook interception, such as time/area management. NMFS is gathering data from the 2001 whiting fisheries and expects that the re-initiated Biological Opinion will be complete by February 2002. During their initiation, fishing under the FMP is within the scope of the December 15, 1999 Biological Opinion, so long as the annual incidental take of chinook stays under the 11,000 fish bycatch limit. The biological opinions have 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 action is within the scope of these consultations.

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 the number of salmon in landings. In 2000, 23% of the whiting landings were monitored by state samplers. Since 1991, all at-sea processors carried at least one NMFS-trained observer to collect data used to estimate total catch of salmonids by species. For 2000, it is estimated that 11,516 chinook, 86 coho, 18 pink, and 15 chum salmon were taken in the whiting fishery. Observer program data for the 2001 bottom trawl fishery is not available at this time. The incidental take statement permits an annual bycatch of 9,000 salmon in the non-whiting groundfish fisheries; but this figure is based on a fishery with significantly higher groundfish landings than will be available in 2002. Incidental salmon take in groundfish fisheries managed under the current overfished species rebuilding regime is likely to be lower than permitted in the incidental take statement.

## **6.7 Marine Mammal Protection Act**

The Marine Mammal Protection Act (MMPA) of 1972 is the principle federal legislation that guides marine mammal species protection and conservation policy in the United States. Under the MMPA, NMFS is responsible for the management and conservation of 153 stocks of whales, dolphins, porpoise, as well as seals, sea lions, and fur seals while the FWS is responsible for walrus, sea otters, and the West Indian manatee.

In the WOC region, the Steller sea lion (*Eumetopias jubatus*) Eastern stock, Guadalupe fur seal (*Arctocephalus townsendi*), and Southern sea otter (*Enhydra lutris*) California stock are listed as threatened under the ESA and the sperm whale (*Physeter macrocephalus*) WOC Stock, humpback whale (*Megaptera novaeangliae*) WOC - Mexico Stock, blue whale (*Balaenoptera musculus*) Eastern north Pacific stock, and Fin whale (*Balaenoptera physalus*) WOC Stock are listed as depleted under the MMPA. Any species listed as endangered or threatened under the ESA is automatically considered depleted under the MMPA.

The WOC groundfish fisheries are considered a Category III fishery, indicating a remote likelihood of or no known serious injuries or mortalities to marine mammals, in the annual list of fisheries published in the Federal Register. Based on its Category III status, the incidental take of marine mammals in the WOC groundfish fisheries does not significantly impact marine mammal stocks.

None of the proposed management alternatives are likely to affect the incidental mortality levels of species protected by the MMPA. Implementation of the NMFS West Coast groundfish observer program should provide additional information about the incidental take of marine mammals in groundfish fisheries.

## **6.8 Migratory Bird Treaty Act**



The Migratory Bird Treaty Act of 1918 was designed to end the commercial trade of migratory birds and their feathers that, by the early years of the 20th century, had diminished populations of many native bird species. The Act states that it is unlawful to take, kill, or possess migratory birds and their parts (including eggs, nests, and feathers) and is a shared agreement between the United States, Canada, Japan, Mexico, and Russia to protect a common migratory bird resource.

The Migratory Bird Treaty Act prohibits the directed take of seabirds, but the incidental take of seabirds does occur. Only limited information exists quantifying the incidental take of seabirds in WOC groundfish fisheries. However, none of the proposed management alternatives are likely to affect the incidental take of seabirds protected by the Migratory Bird Treaty Act. Implementation of the NMFS West Coast groundfish observer program should provide additional information about the incidental take of seabirds in groundfish fisheries.

## **6.9 Coastal Zone Management Act**

Section 307(c)(1) of the Federal Coastal Zone Management Act (CZMA) of 1972 requires all federal activities which directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. Under the CZMA, each state develops its own coastal zone management program which is then submitted for federal approval. This has resulted in programs which vary widely from one state to the next. Because the proposed action is to prevent overfishing and achieve the OY for the available groundfish resource, the Council believes that it is consistent with each state's coastal management program.

### **6.10 Executive Orders 12866 and 13132**

None of the recommended changes to annual specifications and management measures for 2002 would be a significant action according to E.O. 12866. This action will not have a cumulative effect on the economy of \$100 million or more nor will it result in a major increase in costs to consumers, industries, government agencies, or geographical regions. No significant adverse impacts are anticipated on competition, employment, investments, productivity, innovation, or competitiveness of U.S.-based enterprises.

None of the alternative actions would have federalism implications subject to E.O. 13132.

### **6.11 Executive Order 13175**

Executive Order 13175 is intended to ensure regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications, to strengthen the United States government-to-government relationships with Indian tribes, and to reduce the imposition of unfunded mandates upon Indian tribes.

The Secretary of Commerce recognizes the sovereign status and co-manager role of Indian tribes over shared Federal and tribal fishery resources. At Section 302(b)(5), the Magnuson-Stevens Act reserves a seat on the Pacific Fishery Management Council for a representative of an Indian tribe with Federally recognized fishing rights from California, Oregon, Washington, or Idaho.

The U.S. government formally recognizes that the four Washington Coastal Tribes (Makah, Quileute, Hoh, and Quinault) have treaty rights to fish for groundfish. In general terms, the quantification of those rights is 50 percent of the harvestable surplus of groundfish available in the tribes' usual and accustomed (U and A) fishing areas (described at 50 CFR 660.324). Each of the treaty tribes has the discretion to administer their fisheries and to establish their own policies to achieve program objectives. Accordingly, tribal allocations and regulations have been developed in consultation with the affected tribe(s) and, insofar as possible, with tribal consensus.

At the Council's September meeting the Council considered a treaty groundfish fishery request for 2002. After consideration of the tribal request and the comments of the public, the Council recommended adopting the treaty fishery proposal for public review.

## 7.0 CONCLUSIONS OR FINDINGS OF NO SIGNIFICANT IMPACT

This action would set 2002 fishery specifications and the management measures that are designed to rebuild overfished stocks through constraining direct and incidental mortality, to prevent overfishing, and to achieve as much of the OYs as practicable for healthier groundfish stocks managed under the FMP. Seven stocks managed under the FMP have been determined by NMFS as overfished: lingcod, bocaccio, POP, canary rockfish, cowcod, darkblotched rockfish, and widow rockfish. The Council expects that NMFS will declare one additional stock (yelloweye rockfish) overfished in January 2002. Under Magnuson-Stevens Act requirements for protecting overfished species, managing to keep directed and incidental catch of overfished species at levels that will allow those species to rebuild their populations has become the Council's first priority for setting annual specifications and management measures for all West Coast groundfish. For 2002, commercial landings limits and recreational bag limits are recommended to be reduced to protect overfished species. These fisheries have been operating under protective measures for several years.

Based on the biological, physical, and socioeconomic impacts of the alternatives that have been assessed in this document, it has been determined that implementation of the management alternatives 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.

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Assistant Administrator for Fisheries, NOAA

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Date

## 8.0 REGULATORY IMPACT REVIEW (RIR)

The RIR analysis has many aspects in common with EAs. Much of the information required for the RIR analysis has been provided above in the EA. Table 8.1 identifies where previous discussions relevant to the EA can be found in this document. In addition to the information provided in the EA, above, a basic economic profile of the fishery is provided annually in the Council's SAFE document.

**Table 8.1 Regulatory Impact Review**

<b>RIR Elements of Analysis</b>	<b>Corresponding Sections in EA</b>
Description of management objectives	1.0, 6.1
Description of the Fishery	3.3
Statement of the Problem	1.0
Description of each selected alternative	2.0
An economic analysis of the expected effects of each selected alternative relative to status quo	4.1, 4.3, 4.4, 5.0

The RIR is designed to determine whether the proposed actions could be considered a "significant regulatory actions" according to E.O. 12866. Table 8.2 identifies E.O. 12866 test requirements used to assess whether or not an action would be a "significant regulatory action", and identifies the expected outcomes of the proposed management alternatives. Regulatory actions are judged as significant if they: 1. have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; 2. create a serious inconsistency or otherwise interfere with action taken or planned by another agency; 3. materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or 4. raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order. For the purposes of E.O. 12866, none of the proposed alternatives would meet the E.O.'s criteria for a significant regulatory action.

**Table 8.2 Summary of E.O. 12866 Test Requirements**

E.O 12866 Test of "Significant Regulatory Actions	Alternative 1.1 Low OYs	Alternative 1.2 High OYs	Alternative 1.3 Preferred OYs
1) Have a annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities;	No	No	No
2) Create a serious inconsistency or otherwise interfere with action taken or planned by another agency;	No	No	No
3) Materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or	No	No	No
4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.	No	No	No

## **9.0 PUBLIC NOTICE AND COMMENT**

In 1997 the Council implemented a new stock assessment review process in an attempt to improve public participation in the process, to increase the level of scientific peer review, and to provide a greater separation between the scientific and management processes. The terms of reference for the process are revised each year to better accomplish the stated goals. In 2001 a pre-assessment public workshop was held to review and evaluate data and identify problems and modeling assumptions. This year, as in the past, all assessments were reviewed by Stock Assessment Review (STAR) Panels at public workshops. The Council's GMT then met in August 2001 to develop ABC and OY recommendations based on the "best scientific information" forwarded by the STAR Panels. The proposed actions were developed at the Council's September 10-14, 2001 meeting in Portland, Oregon and announced to the public in its September news brief. Opportunity for testimony was provided at the September meeting. Written public comment was accepted between the meetings. Final action will be taken at the Council's October 29 -November 2, 2001 meeting in Millbrae, California.

## **10.0 PREPARERS, CONTRIBUTORS, AND AGENCIES AND PERSONS CONSULTED**

This document was prepared by John DeVore, and Jim Seger of the Pacific Fishery Management Council. Daniel Waldeck, Charles Tracy, Kerry Aden, and Renee Heyden of the Pacific Fishery Management Council, Jim Hastie and John Harms of the National Marine Fisheries Service NW Fishery Science Center, Dr. Alec MacCall of the National Marine Fisheries Service SW Fishery Science Center, and Carrie Nordeen and Yvonne deReynier of the National Marine Fisheries Service NW Regional Office made significant contributions.

Representatives of the following agencies, tribes, and industry groups were consulted:

California Department of Fish and Game  
The Makah Indian Nation  
National Marine Fisheries Service  
Northwest Indian Fisheries Commission  
Oregon Department of Fish and Wildlife  
Pacific States Marine Fisheries Commission  
Washington Department of Fish and Wildlife  
West Coast Seafood Processors Association

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## 12.0 APPENDIX

*This section will comprise a description of alternative bycatch and discard rates, including methodology and data documentation, considered for the 2002 Pacific Coast groundfish fishery. Alternative trip limits for Council adopted commercial season alternatives that vary by the range of alternative bycatch and discard rates will also be included. This information will be provided as a supplemental attachment to the Council prior to decision making.*

TABLE 2.1-1. Acceptable biological catch (ABC) and total catch optimum yield (OY) alternatives for 2002 for the Washington, Oregon, and California region (metric tons) under the proposed alternatives. (Overfished stocks in CAPS). (Page 66 of 1)

	Status Quo Alternative 2001 ABCs/OYs		Alternative 1.1 2002 Low ABCs/OYs		Alternative 1.2 2002 High ABCs/OYs		Alternative 1.3 2002 Preferred ABCs/OYs	
	ABC	OY	ABC	OY	ABC	OY	ABC	OY
<b>LINGCOD</b>	1,119	611					745	577
Pacific Cod	3,200	3,200					3,200	3,200
Whiting	238,000	190,400					238,000	190,400
Sablefish	7,895	7,011	4,062	3,200	4,786	4,500	4,786	4,000
S. of Pt. Conception	191	96					191	96
<b>PACIFIC OCEAN</b>	1,541	303	640	290	640	410	640	350
Shortbelly Rockfish	13,900	13,900					13,900	13,900
<b>WIDOW ROCKFISH</b>	3,727	2,300	3,727	726	3,727	856	3,727	856
<b>CANARY ROCKFISH</b>	223	93					223	93
Chilipepper Rockfish	2,700	2,000					2,700	2,000
<b>BOCACCIO</b>	122	100					122	100
Splitnose Rockfish	615	461					615	461
Yellowtail Rockfish	3,146	3,146					3,146	3,146
Shortspine Thornyhead	880	751	880	751	1,004	955	See text	
Longspine Thornyhead	2,461	2,461					2,461	2,461
Conception area	390	195					390	195
<b>COWCOD (S. Concep)</b>	2.4	2.4					2.4	2.4
N. Concep & Monterey	19	2.4					19	2.4
<b>DARKBLOTCHED</b>	349	130	187	157	187	181	187	168
<b>YELLOWEYE - Coastwide</b>							27	11
Monterey							5	2-3
N. of 40°10'	29	22					22	8-9
Minor Rockfish N	4,823	3,137					4,794	3,115
Minor Rockfish S	3,556	2,040					3,506	2,015
Remaining Rockfish	2,755						2,755	
Black	1,115						1,115	
Bocaccio	318						318	
Chilipepper - Eureka	32						32	
Redstripe	576						576	
Sharpchin	307						307	
Silvergrey	38						38	
Splitnose	242						242	
Yellowmouth	99						99	
Remaining Rockfish	854						854	
Bank	350						350	
Blackgill	343						343	
Sharpchin	45						45	
Yellowtail	116						116	
Other rockfish North	2,068						2,068	
South	2,702						2,652	
Dover Sole	8,204	7,677	6,142	5,520	8,510	7,440	7,221	6,410
English Sole	3,100						3,100	
Petrale Sole	2,740						2,740	
Arrowtooth Flounder	5,800						5,800	
Other Flatfish	7,700						7,700	
Other Fish	14,700						14,700	

TABLE 2.3-1. Trip limits for constraining target species landings in the limited entry trawl for 2002, under the GMT year round fishery season alternative. These do NOT reflect restrictions needed for bycatch species. (Page 1 of 2)

Species/Groups	Landed Catch	January-February	March-April	May-June	July-August	September-October	November-December
<b>Minor Slope Rockfish</b>							
North of Cape Mendocino	low	1,500 lb/2 months					
	med	1,800 lb/2 months <sup>ar</sup>					
	high	2,000 lb/2 months					
South of Cape Mendocino		25,000 lb/2 months					
Splitnose-South Pacific Ocean		1,000 lb/2 months		2,000 lb/2 months		1,000 lbs/2 months	
	244	1,800 lb/month		3,600 lb/month		1,800 lb/month	
	294	2,000 lb/month a/		4,000 lb/month a/		2,000 lb/month a/	
	344	2,500 lb/month		4,500 lb/month		2,500 lb/month	
<b>Dover Sole/Thornyhead/Trawl-Caught Sablefish</b>							
Dover sole	5,244	13,500 lb/2 months					
	6,090	17,000 lb/2 months a/					
	7,068	22,000 lb/2 months					
Sablefish	1,180	2,800 lb/2 months					
	1,476	3,600 lb/2 months a/					
	1,660	4,500 lb/2 months					
Shortspine	614	1,700 lb/2 months					
	759	2,000 lb/2 months a/					
Longspine	low	7,000 lb/2 months					
	high	9,000 lb/2 months a/					
Arrowtooth		20,000 lb/trip		Sm. Footrope: 7,500 lb/trip, up to 30,000 lb/mo		20,000 lb/trip	
Petrale sole		No restriction		Small Footrope: 45,000 lb/mo for all non-Dover flatfish species combined using small footrope, no more than 15,000 lb of which may be petrale		No restriction	
Rex sole		No limit				No limit	
All Other Flatfish		Small Footrope: 45,000 lb/m				Small Footrope: 45,000 lb/mo	
		Large Footrope: 1,000 lb/trip				Large Footrope: 1,000 lb/trip	
Shoreside Whiting <sup>br</sup>		20,000 lb/trip		Open		20,000 lb/trip	
<b>Use of Small Footrope Required for Landing All Shelf and Near-shore Rockfish</b>							
<b>Minor Shelf Rockfish</b>							
North of Cape Mendocino		300 lb/month		1,000 lb/month		300 lb/month	
South of Cape Mendocino		500 lb/month		1,000 lb/month		500 lb/month	
Canary-Coastwide		100 lb/month		300 lb/month		100 lb/month	
Widow-Coastwide (mid-water only)	low	Closed		with >=10,000 lb whiting, 2,500 lb/mo; combined widow+yellowtail of 500 lb/trip		Evaluate remaining widow OY	
	high	10,000 lb/2 months	Closed	with >=10,000 lb whiting, 1,500 lb/mo; combined widow+yellowtail of 500 lb/trip a/		Evaluate remaining widow OY	
Small Footrope	low	1,000 lb/month					
	high	800 lb/month a/					
Yellowtail-North (mid-water only)	low	Closed		with >=10,000 lb whiting, 2,500 lb/mo; combined widow+yellowtail of 500 lb/trip		Evaluate remaining widow OY	
	high	20,000 lb/2 months	Closed	with >=10,000 lb whiting, 2,000 lb/mo; combined widow+yellowtail of 500 lb/trip a/		Evaluate remaining widow OY	
Small Footrope		1,000 lb/month					
(as flatfish bycatch)		Up to 33% of all flatfish (excluding arrowtooth) plus 10% of weight of Arrowtooth not to exceed:					
		2,500 lbs/trip		7,500 lb/trip		2,500 lb/trip	
		----- and 20,000 lb/2 months ----->					
Bocaccio-South		300 lb/month		500 lb/month		300 lb/month	
Chilipepper-South (mid-water only)		25,000 lb/2 months					
Small Footrope		7,500 lb/2 months					
Cowcod		No retention					
<b>Minor Nearshore Rockfish</b>							
North of Cape Mendocino		300 lb/month		1,000 lb/month		300 lb/month	
South of Cape Mendocino		300 lb/month		1,000 lb/month		300 lb/month	

TABLE 2.3-1. Trip limits for constraining target species landings in the limited entry trawl for 2002, under the GMT year round fishery season alternative. These do NOT reflect restrictions needed for bycatch species. (Page 3 of 2)

Species/Groups	Landed Catch	January-February	March-April	May-June	July-August	September-October	November-December
Lingcod		No retention		400 lb/month		No retention	

TABLE 2.3-2a. GMT-recommended option for 2002 limited entry trawl trip limits assuming the low end of the range of bycatch rates of overfished stocks.

*This table will be provided in a supplemental attachment to the Council prior to decision making.*

TABLE 2.3-2b. GMT-recommended option for 2002 limited entry fixed gear trip limits assuming the low end of the range of bycatch rates of overfished stocks.

*This table will be provided in a supplemental attachment to the Council prior to decision making.*

TABLE 2.3-2c. GMT-recommended option for 2002 open access (other than exempted trawl) trip limits assuming the low end of the range of bycatch rates of overfished stocks.

*This table will be provided in a supplemental attachment to the Council prior to decision making.*

TABLE 2.3-3a. GMT-recommended option for 2002 limited entry trawl trip limits assuming the high end of the range of bycatch rates of overfished stocks.

*This table will be provided in a supplemental attachment to the Council prior to decision making.*



TABLE 2.3-3b. GMT-recommended option for 2002 limited entry fixed gear trip limits assuming the high end of the range of bycatch rates of overfished stocks.

*This table will be provided in a supplemental attachment to the Council prior to decision making.*

TABLE 2.3-3c. GMT-recommended option for 2002 open access (other than exempted trawl) trip limits assuming the high end of the range of bycatch rates of overfished stocks.

*This table will be provided in a supplemental attachment to the Council prior to decision making.*

TABLE 2.3-4a. Coastwide six month season option for 2002 limited entry trawl trip limits assuming the low end of the range of bycatch rates of overfished stocks.

*This table will be provided in a supplemental attachment to the Council prior to decision making.*

TABLE 2.3-4b. Coastwide six month season option for 2002 limited entry fixed gear trip limits assuming the low end of the range of bycatch rates of overfished stocks.

*This table will be provided in a supplemental attachment to the Council prior to decision making.*

TABLE 2.3-4c. Coastwide six month season option for 2002 open access (other than exempted trawl) trip limits assuming the low end of the range of bycatch rates of overfished stocks.

*This table will be provided in a supplemental attachment to the Council prior to decision making.*

TABLE 2.3-5a. Coastwide six month season option for 2002 limited entry trawl trip limits assuming the high end of the range of bycatch rates of overfished stocks.

*This table will be provided in a supplemental attachment to the Council prior to decision making.*

TABLE 2.3-5b. Coastwide six month season option for 2002 limited entry fixed gear trip limits assuming the high end of the range of bycatch rates of overfished stocks.

*This table will be provided in a supplemental attachment to the Council prior to decision making.*

TABLE 2.3-5c. Coastwide six month season option for 2002 open access (other than exempted trawl) trip limits assuming the high end of the range of bycatch rates of overfished stocks.

*This table will be provided in a supplemental attachment to the Council prior to decision making.*



TABLE 2.3-6. GAP-recommended limited entry trawl trip limits for 2002 with the Council preferred total catch OY alternatives. (Page 1 of 1)

Species/Groups	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
<b>Minor Slope Rockfish</b>						
North	1,500 lb / 2 months					
South	25,000 lb / 2 months					
Splitnose-South	25,000 lb / 2 months					
Darkblotched	??? lb / 2 months					
POP	4,000 lb / month		4,000 lb / month		4,000 lb / month	
Sablefish	4,000 lb / 2 months		6,000 lb / 2 months		4,000 lb / 2 months	
Longspine	8,500 lb / 2 months		8,500 lb / 2 months		8,500 lb / 2 months	
Shortspine	2,100 lb / 2 months		2,100 lb / 2 months		2,100 lb / 2 months	
Dover Sole	40,000 lb / 2 months		20,000 lb / 2 months		40,000 lb / 2 months	
Sablefish	5,000 lb / 2 months		5,000 lb / 2 months		5,000 lb / 2 months	
Longspine	8,500 lb / 2 months		8,500 lb / 2 months		8,500 lb / 2 months	
Shortspine	2,100 lb / 2 months		2,100 lb / 2 months		2,100 lb / 2 months	
Dover Sole	30,000 lb / 2 months		30,000 lb / 2 months		30,000 lb / 2 months	
Arrowtooth	30,000 lb / trip		small footrope required		30,000 lb / trip	
Petrale Sole	No restriction		small footrope required		No restriction	
Rex Sole	No restriction		small footrope required		No restriction	
All Other Flatfish	No restriction		small footrope required		No restriction	
Shoreside Whiting a/	20,000 lb / trip		Open		20,000 lb / trip	
<b>Use of Small Footrope Required for Landing All Shelf and Near-shore Rockfish</b>						
<b>Minor Shelf Rockfish</b>						
North	300 lb / month		1000 lb / month		300 lb / month	
South	500 lb / month		1000 lb / month		500 lb / month	
Canary-Coastwide	100 lb / month		300 lb / month		100 lb / month	
Widow (mid-water only)	??? lb / 2 months (coastwide)					
Small Footrope	1,000 lb / month		1,000 lb / month		1,000 lb / month	
Yellowtail-North b/ (mid-water only)	30,000 lb / 2 months		15,000 lb / 2 months		20,000 lb / 2 months	
Small Footrope	1,500 lb / month		1,500 lb / month c/		1,500 lb / month	
Bocaccio-South	300 lb / month		500 lb / month		300 lb / month	
Chilipepper-South (mid-water only)	25,000 lb / 2 months 7,500 lb / 2 months					
Small Footrope						
Cowcod	No retention					
<b>Minor Nearshore Rockfish</b>						
North	200 lb / month		200 lb / month		200 lb / month	
South	200 lb / month		200 lb / month		200 lb / month	
Lingcod	No retention		400 lb / month		No retention	

a/ Whiting limit in the Eureka area for catch inside 100 fathoms is 10,000 lb/ trip throughout the year.

b/ Yellowtail up to 33% of weight of flatfish (excluding Arrowtooth) plus 10% of weight of Arrowtooth not to exceed 7,500 lbs per trip or 30,000 lbs per 2 months.

c/ 5,000 lbs with large footrope.

TABLE 2.3-7. GAP-recommended limited entry trawl trip limits for 2002 with the high total catch OY alternatives. (Page 1 of 1)

Species/Groups	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
Minor Slope Rockfish						
North			1,500 lb / 2 months			
South			25,000 lb / 2 months			
Splitnose-South			25,000 lb / 2 months			
Darkblotched			??? lb / 2 months			
POP	4,000 lb / month		4,000 lb / month		4,000 lb / month	
Sablefish	5,000 lb / 2 months		7,500 lb / 2 months		4,000 lb / 2 months	
Longspine	8,500 lb / 2 months		8,500 lb / 2 months		8,500 lb / 2 months	
Shortspine	2,100 lb / 2 months		2,100 lb / 2 months		2,100 lb / 2 months	
Dover Sole	50,000 lb / 2 months		20,000 lb / 2 months		40,000 lb / 2 months	
Sablefish	6,200 lb / 2 months		6,200 lb / 2 months		6,200 lb / 2 months	
Longspine	8,500 lb / 2 months		8,500 lb / 2 months		8,500 lb / 2 months	
Shortspine	2,100 lb / 2 months		2,100 lb / 2 months		2,100 lb / 2 months	
Dover Sole	35,000 lb / 2 months		35,000 lb / 2 months		35,000 lb / 2 months	
Arrowtooth	30,000 lb / trip		small footrope required		30,000 lb / trip	
Petrals Sole	No restriction		small footrope required		No restriction	
Rex Sole	No restriction		small footrope required		No restriction	
All Other Flatfish	No restriction		small footrope required		No restriction	
Shoreside Whiting a/	20,000 lb / trip		Open		20,000 lb / trip	

**Use of Small Footrope Required for Landing All Shelf and Near-shore Rockfish**

Minor Shelf rockfish						
North	300 lb / month		1000 lb / month		300 lb / month	
South	500 lb / month		1000 lb / month		500 lb / month	
Canary-Coastwide	100 lb / month		300 lb / month		100 lb / month	
Widow (mid-water only)			??? lb / 2 months (coastwide)			
Small Footrope	1,000 lb / month		1,000 lb / month		1,000 lb / month	
Yellowtail-North b/ (mid-water only)	30,000 lb / 2 months		15,000 lb / 2 months		20,000 lb / 2 months	
Small Footrope	1,500 lb / month		1,500 lb / month <sup>c/</sup>		1,500 lb / month	
Bocaccio-South	300 lb / month		500 lb / month		300 lb / month	
Chilipepper-South (mid-water only)			25,000 lb / 2 months			
Small Footrope			7,500 lb / 2 months			
Cowcod			No retention			
Minor Nearshore Rockfish						
North	200 lb / month		200 lb / month		200 lb / month	
South	200 lb / month		200 lb / month		200 lb / month	
Lingcod	No retention		400 lb / month		No retention	

a/ Whiting limit in the Eureka area for catch inside 100 fathoms is 10,000 lb / trip throughout the year.

b/ Yellowtail up to 33% of weight of flatfish (excluding Arrowtooth) plus 10% of weight of Arrowtooth not to exceed 7,500 lbs per trip or 30,000 lbs per 2 months.

c/ 5,000 lbs with large footrope.

TABLE 3.2.1.1-1. Rebuilding plan matrix for groundfish species declared overfished (parameters to be determined by the Council in bold italic). (Page 1 of 2)

Criteria	Species			
	Canary	Cowcod	Bocaccio	POP
% Unfished Spawning Biomass	7%-20%	4%-11%	2.1% (Southern portion of stock)	13% (1998)
Years to Rebuild w/ No Fishing ( $F_0$ )	41 years	61 years	26 years	12 years
Max. Rebuilding Time ( $F_0 + 1$ mean generation)	58 years	98 years	38 years	42 years
Council-Adopted Rebuilding Time	57 years	95 years	34 years	42 years
Probability of Rebuilding Within Designated Timeframe	52%	55%	67%	<b>60-80% (range adopted in Sept 2001)</b>
Management Actions to Rebuild	Constant harvest (93 mt), 2001-02 Time/gear/bag limit restrictions	Constant harvest rate (E=0.01)  Area closures  Retention prohibited Sport gear restrictions	Constant harvest (100-103 mt), 2000-02 Constant harvest rate (E=0.03), 2003-33 Time/gear/bag limit restrictions Area closures (cowcod closures)	Constant harvest rate
Year Rebuilding Management Measures First Implemented	2000	2000	2000	2000
Target Rebuilding Year	2056	2094	2033	2041
2001 OY	93 mt	4.8 mt	100 mt	303 mt
2002 OY	<b>93 mt</b>	<b>4.8 mt</b>	<b>100 mt</b>	<b>290-410 mt</b>
Stock Assessment Used in Rebuilding Plan	1999	1999	1999	1998
Most Recent Stock Assessment	1999	1999	1999	2000
Next Stock Assessment	<b>2002</b>	<b>2004</b>	<b>2002</b>	<b>2003</b>
Next Council Review	2003	2003	2003	2001

TABLE 3.2.1.1-1. Rebuilding plan matrix for groundfish species declared overfished (parameters to be determined by the Council in bold italic). (Page 2 of 2)

Criteria	Species			
	Lingcod	Widow	Darkblotched	Yelloweye
% Unfished Spawning Biomass	15% (1999)	24.6%	14%	7% (N. Cal.)-13% (OR) (2001)
Years to Rebuild w/ No Fishing ( $F_0$ )	10 years	22 years	14 years	<b>To be determined</b>
Max. Rebuilding Time ( $F_0 + 1$ mean generation)	10 years	38 years	47 years	<b>To be determined</b>
Council-Adopted Rebuilding Time	10 years	38 years	47 years	<b>To be determined</b>
Probability of Rebuilding Within	60%	<b>60-80% (range adopted in June 2001)</b>	<b>60-80% (range adopted in Sept 2001)</b>	<b>To be determined</b>
Designated Timeframe				
Management Actions to Rebuild	Constant harvest rate ( $F_{45\%}$ ) Time/gear/bag limit restrictions	Constant harvest rate ( <b><math>E=0.23-0.27</math></b> )	Constant harvest rate ( $F_{50\%}$ )	<b>To be determined</b>
Year Rebuilding Management Measures First Implemented	2000	2002	2002	<b>2002</b>
Target Rebuilding Year	2009	2039	2048	<b>To be determined</b>
2001 OY	611 mt	2300 mt	130 mt	Stock not specified
2002 OY	<b>577 mt</b>	<b>726-856 mt</b>	<b>157-181 mt</b>	<b>11 mt</b>
Stock Assessment Used in Rebuilding Plan	1999	2000	2000	2001
Most Recent Stock Assessment	2000	2000	2000	2001
Next Stock Assessment	<b>2003</b>	<b>2003</b>	<b>2003</b>	<b>2005</b>
Next Council Review	2001	2001	2001	<b>2004</b>

TABLE 3.2.3-1. Mortality levels of marine mammals incidentally caught by at-sea processing trawl vessels in the Pacific whiting fishery. (Page 1 of 1)

Species	Year	Observed Mortality	Estimated Annual Mortality
California sea lion ( <i>Zalophus californianus</i> )	1994	1	2
	1995	0	0
	1996	0	0
	1997	0	0
	1998	1	1
	1999	2	2
Pacific white-sided dolphin ( <i>Lagenorhynchus obliquidens</i> )	1994	0	0
	1995	0	0
	1996	0	0
	1997	0	0
	1998	1	1
	1999	0	0
Dall's porposie ( <i>Phocoenoides dalli</i> )	1994	0	0
	1995	0	0
	1996	0	0
	1997	5	27
	1998	2	3
	1999	1	2
Northern elephant seal ( <i>Mirounga augustirostris</i> )	1994	a/	a/
	1995	a/	a/
	1996	a/	a/
	1997	0	0
	1998	1	1
	1999	1	a/
Stellar sea lion ( <i>Eumetopias jubatus</i> )	1994	a/	a/
	1995	a/	a/
	1996	a/	a/
	1997	2	11
	1998	0	0
	1999	0	0
Harbor seal ( <i>Phoca vitulina</i> )	1994	0	0
	1995	0	0
	1996	1	0
	1997	1	5
	1998	0	0
	1999	0	0

a/ These data were not available from the sources used to complete this table.

Sources: U.S. Pacific Marine Mammal Stock Assessments: 2000; Implementation of an Observer Program for the At-sea Processing Vessel in the Pacific Coast Groundfish Fishery, 2001; M. Perez, biologist, NMML, July 24, 2000.

TABLE 3.2.4-1. Mortality levels of seabirds incidentally caught by at-sea processing trawl vessels in the Pacific whiting fishery (based on observer data, 1996 - 2000). (Page 1 of 1)

Species	Year	Number of Birds in Sample
Unidentified puffin ( <i>Fratercula spp.</i> )	1996	1
Northern fulmar ( <i>Fulmarus glacialis</i> )	1997	1
Unidentified shearwater ( <i>Puffinus spp.</i> )		1
Unidentified tubenose ( <i>Procellariiformes</i> )		1
Unidentified seabird	1999	1
Unidentified petrel/shearwater ( <i>Procellariidae</i> )	2000	1

TABLE 3.3.1.1-1a. Exvessel value of **all commercial fishery landings** made on the West Coast, in various fisheries stratified by month and port group, **2000**. (In \$1,000, not adjusted for inflation.) (Page 1 of 3)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>Region</b>													
<b>Washington (Inside Marine Waters)</b>													
Sablefish		5				230		1,165					1,399
Whiting										0			0
Flatfish	0	70	15	42	17	50	0	345	36	119	24	20	739
Rockfish	1	89	21	22	11	66	68	134	204	20	118	39	793
Other GF		116				20	0	46		2	10		194
Shrimp/Prawns	7	12	16	413	219	242	209	129	38	15	9	8	1,319
Crab/Lobster	1,650	1,189	831	675	918	1,749	816	880	2,131	2,905	1,136	922	15,804
Salmon	8	0	0		2	6	751	3,092	1,067	1,480	437	64	6,908
HMS	5	0					3	17	25	28	93		172
CPS													
Other	1,272	1,131	1,726	1,813	2,669	3,044	4,351	3,208	3,524	2,738	1,943	1,247	28,664
GF Total	2	278	36	64	28	365	69	1,690	240	142	152	58	3,126
Non GF Total	2,942	2,332	2,574	2,902	3,808	5,041	6,131	7,327	6,785	7,165	3,618	2,242	52,867
Region Total	2,944	2,611	2,610	2,965	3,836	5,406	6,200	9,017	7,026	7,307	3,770	2,300	55,992
<b>Coastal Washington (and Columbia River)</b>													
Sablefish			178	689		51	793	1,386	779	276	75	57	4,286
Whiting						220	347	429	124				1,120
Flatfish	84	88	66	3	39	17	3	34	53	51	23	57	517
Rockfish	11	40	29	34	28	74	155	58	137	119	103	76	863
Other GF			2	7	6	11	14	9	7	1			57
Shrimp/Prawns	0	1	3	29	195	729	563	291	283	136	32	5	2,268
Crab/Lobster	7,087	3,129	1,668	987	1,053	540	618	605	528	415	1,083	4,684	22,396
Salmon	50	39	22	3	237	92	360	660	676	572	42	69	2,823
HMS							405	3,237	1,673	437	16		5,766
CPS						15	151	312	214	22	0		713
Other	636	645	860	1,528	1,367	1,097	867	936	568	684	676	519	10,383
GF Total	95	128	275	732	73	372	1,312	1,916	1,100	448	201	190	6,843
Non GF Total	7,774	3,814	2,552	2,548	2,852	2,473	2,963	6,040	3,942	2,265	1,849	5,277	44,349
Region Total	7,869	3,942	2,827	3,280	2,926	2,846	4,276	7,956	5,042	2,713	2,050	5,466	51,193
<b>Oregon North of Yachats</b>													
Sablefish	109	109	160	131	329	157	302	3,422	378	330	331	243	6,000
Whiting				0	0	471	1,687	2,528	1,381	0	0	0	6,070
Flatfish	429	441	365	399	366	306	368	310	261	229	267	355	4,096
Rockfish	255	194	238	217	586	307	623	400	647	627	606	405	5,104
Other GF	1	1	0	1	19	20	27	15	7	3	2	0	97
Shrimp/Prawns	8	11	25	98	342	1,703	2,126	1,382	1,530	549	61	11	7,845
Crab/Lobster	5,285	2,197	1,098	627	562	297	186	79	1	14	11	4,822	15,187
Salmon	0	31	4	110	237	250	188	617	705	377	0		2,519
HMS						57	855	2,823	1,839	1,154	77		6,805
CPS						18	277	513	320	46	0	0	1,175
Other	75	100	45	157	112	67	388	458	40	116	47	11	1,615
GF Total	794	746	764	749	1,300	1,261	3,006	6,674	2,673	1,189	1,206	1,005	21,367
Non GF Total	5,368	2,338	1,171	991	1,254	2,392	4,021	5,871	4,444	2,256	197	4,844	35,146
Region Total	6,162	3,084	1,935	1,739	2,554	3,653	7,027	12,545	7,117	3,444	1,403	5,850	56,514

TABLE 3.3.1.1-1a. Exvessel value of **all commercial fishery landings** made on the West Coast, in various fisheries stratified by month and port group, **2000**. (In \$1,000, not adjusted for inflation.) (Page 2 of 3)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>Region</b>													
<b>Coos Bay-C. Mendocino</b>													
Sablefish	92	131	184	224	410	195	521	2,039	478	480	387	235	5,378
Whiting	0			36	417	165	158	0		0			776
Flatfish	857	496	278	527	386	185	341	204	309	315	307	494	4,701
Rockfish	221	240	299	587	363	213	381	320	467	448	513	282	4,336
Other GF	6	6	8	36	86	58	104	46	59	43	15	15	483
Shrimp/Prawns	1	2	2	66	289	886	917	1,334	517	99	16	4	4,134
Crab/Lobster	4,629	1,895	900	1,226	794	387	299	80	4	3	3	7,652	17,870
Salmon				30	56	53	358	610	363	116	50	15	1,650
HMS		0			0	7	82	357	580	477	16		1,520
CPS				0	0	0	0		0				2
Other	59	53	74	180	215	132	244	98	123	48	73	127	1,426
GF Total	1,176	873	770	1,412	1,663	817	1,505	2,609	1,313	1,287	1,222	1,027	15,674
Non GF Total	4,689	1,950	977	1,501	1,356	1,465	1,901	2,479	1,587	743	158	7,797	26,602
Region Total	5,865	2,823	1,747	2,913	3,019	2,282	3,406	5,088	2,900	2,030	1,380	8,823	42,276
<b>C. Mendocino-Pt. Conception</b>													
Sablefish	83	39	90	120	76	178	159	869	251	258	336	298	2,755
Whiting				0			0						0
Flatfish	281	139	210	416	101	231	217	282	266	225	242	249	2,859
Rockfish	421	159	313	344	199	398	303	449	455	275	426	398	4,139
Other GF	41	15	23	65	103	186	189	191	147	86	64	74	1,183
Shrimp/Prawns	337	148	245	356	204	180	162	251	190	260	84	93	2,510
Crab/Lobster	432	263	258	231	121	119	31	18	22	22	1,778	1,133	4,428
Salmon	3	0	2	3	3,299	2,977	1,224	813	1,687	20			10,028
HMS	8	3	0	0	0	4	25	84	929	1,526	285	42	2,910
CPS	105	61	11	514	742	321	324	491	498	321	145	57	3,588
Other	2,158	794	502	756	406	518	157	492	412	443	392	240	7,271
GF Total	827	352	635	946	478	992	867	1,791	1,119	844	1,068	1,019	10,938
Non GF Total	3,043	1,270	1,019	1,860	4,773	4,119	1,923	2,148	3,737	2,591	2,685	1,566	30,735
Region Total	3,870	1,621	1,655	2,806	5,250	5,112	2,790	3,940	4,856	3,435	3,753	2,585	41,673
<b>South of Point Conception</b>													
Sablefish	24	12	23	21	22	28	32	29	28	24	27	29	299
Whiting										0			0
Flatfish	3	5	5	7	7	4	3	11	5	8	4	4	66
Rockfish	40	26	67	68	82	91	86	78	85	68	64	85	839
Other GF	11	9	24	28	42	49	28	32	41	24	28	38	353
Shrimp/Prawns	276	419	375	369	347	247	141	205	248	496	217	373	3,715
Crab/Lobster	619	610	393	113	115	125	136	125	121	2,388	972	717	6,434
Salmon					0				4				4
HMS	2,242	1,441	457	918	252	276	738	641	1,667	2,545	1,828	2,603	15,608
CPS	5,113	2,901	1,955	1,572	1,074	1,154	1,485	833	1,155	3,260	6,626	6,035	33,164
Other	1,528	553	1,149	997	840	1,159	719	1,005	975	1,331	1,217	1,491	12,966
GF Total	78	52	119	123	153	171	149	151	158	124	124	156	1,558
Non GF Total	9,779	5,924	4,330	3,969	2,630	2,962	3,219	2,809	4,170	10,020	10,860	11,218	71,892
Region Total	9,857	5,976	4,449	4,093	2,783	3,133	3,368	2,960	4,328	10,144	10,984	11,374	73,450



TABLE 3.3.1.1-1a. Exvessel value of **all commercial fishery landings** made on the West Coast, in various fisheries stratified by month and port group, **2000**. (In \$1,000, not adjusted for inflation.) (Page 3 of 3)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Region													
Coastwide													
Sablefish	309	295	634	1,185	837	838	1,807	8,910	1,915	1,368	1,157	862	20,118
Whiting	0			37	418	856	2,192	2,957	1,505	0	0	0	7,967
Flatfish	1,654	1,239	940	1,395	916	792	934	1,201	930	948	867	1,178	12,966
Rockfish	950	748	967	1,272	1,268	1,151	1,615	1,439	1,995	1,556	1,829	1,286	16,078
Other GF	59	147	59	137	256	343	362	340	259	160	119	128	2,368
Shrimp/Prawns	631	593	667	1,337	1,603	3,992	4,123	3,595	2,810	1,561	427	501	21,842
Crab/Lobster	19,702	9,282	5,148	3,859	3,565	3,218	2,089	1,867	2,816	5,747	4,983	19,930	82,207
Salmon	61	71	28	145	3,832	3,378	2,894	5,982	4,504	2,564	529	148	24,136
HMS	2,256	1,445	458	918	253	344	2,111	7,159	6,712	6,166	2,315	2,645	32,782
CPS	5,218	2,962	1,966	2,086	1,817	1,508	2,236	2,149	2,187	3,649	6,771	6,093	38,644
Other	7,801	5,557	6,533	7,330	7,699	8,251	8,459	8,298	8,202	7,670	8,039	6,838	90,677
GF Total	2,971	2,429	2,600	4,025	3,696	3,980	6,910	14,847	6,605	4,033	3,973	3,455	59,496
Non GF Total	35,669	19,909	14,800	15,675	18,770	20,691	21,912	29,051	27,231	27,359	23,065	36,155	290,315
Region Total	38,641	22,338	17,400	19,700	22,466	24,671	28,822	43,898	33,836	31,392	27,038	39,610	349,811

TABLE 3.3.1.1-1b. Exvessel value of **all commercial fishery landings** made on the West Coast, in various fisheries stratified by month and port group, **1996**. (In \$1,000, adjusted for inflation to year 2000 dollars.) (Page 1 of 3)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>Region</b>													
<b>Washington (Inside Marine Waters)</b>													
Sablefish	-	15	-	-	-	-	-	-	-	-	-	8	23
Whiting	-	-	-	-	-	-	-	-	-	-	-	-	-
Flatfish	65	54	1	1	0	-	-	9	1	16	82	77	306
Rockfish	98	78	70	57	151	62	48	90	-	262	166	93	1,174
Other GF	12	16	-	-	252	-	0	42	-	61	55	41	478
Shrimp/Prawns	3	12	6	152	459	239	103	39	227	226	22	10	1,500
Crab/Lobster	787	670	549	321	98	65	730	964	708	2,514	1,276	1,019	9,701
Salmon	59	2	3	2	1	8	295	2,902	529	545	1,403	60	5,810
HMS	-	-	-	-	-	-	-	3	5	29	-	-	37
CPS	2	0	0	-	0	0	1	0	0	0	2	0	7
Other	2,693	2,799	4,114	3,637	4,082	4,286	4,796	6,008	6,358	4,304	3,604	3,838	50,518
GF Total	175	163	71	58	403	62	48	141	1	338	303	219	1,980
Non GF Total	3,545	3,482	4,672	4,111	4,641	4,599	5,926	9,917	7,828	7,618	6,307	4,927	67,573
Region Total	3,720	3,646	4,742	4,169	5,044	4,661	5,973	10,058	7,829	7,956	6,610	5,146	69,553
<b>Coastal Washington (and Columbia River)</b>													
Sablefish	20	51	358	471	1,653	1,208	205	261	1,349	358	101	46	6,082
Whiting	-	-	-	-	100	191	242	191	44	-	-	-	767
Flatfish	81	154	158	83	94	154	119	109	128	36	6	1	1,124
Rockfish	94	128	171	190	284	255	269	247	197	89	133	55	2,113
Other GF	14	20	36	35	123	230	146	121	98	39	5	0	867
Shrimp/Prawns	3	4	9	184	472	578	590	667	741	292	1	1	3,542
Crab/Lobster	12,310	4,450	2,383	927	761	306	158	177	151	401	626	8,823	31,473
Salmon	83	32	32	83	46	78	141	998	1,219	919	89	53	3,770
HMS	-	-	-	30	-	83	680	5,797	2,318	682	26	-	9,616
CPS	-	-	-	-	-	4	12	13	28	0	-	10	68
Other	1,208	1,286	1,464	884	863	827	708	740	1,136	1,701	3,037	2,850	16,704
GF Total	210	353	723	779	2,255	2,038	982	927	1,816	522	245	103	10,953
Non GF Total	13,604	5,771	3,888	2,107	2,142	1,876	2,290	8,393	5,593	3,995	3,779	11,736	65,173
Region Total	13,814	6,124	4,611	2,886	4,397	3,914	3,272	9,320	7,409	4,517	4,024	11,839	76,126
<b>Oregon North of Yachats</b>													
Sablefish	128	241	318	254	405	420	429	362	2,901	507	292	190	6,448
Whiting	-	-	-	0	317	785	1,381	1,464	456	1	1	-	4,406
Flatfish	273	352	395	244	407	425	293	333	344	220	217	196	3,698
Rockfish	393	525	785	743	1,166	1,030	1,083	988	815	557	521	218	8,825
Other GF	73	39	98	82	182	233	130	123	149	73	69	25	1,276
Shrimp/Prawns	15	5	10	425	890	754	808	800	673	211	10	6	4,607
Crab/Lobster	7,231	3,040	1,280	603	457	241	166	97	3	8	5	5,873	19,003
Salmon	-	6	0	1	322	600	50	813	535	212	19	-	2,559
HMS	-	-	-	-	-	26	608	2,820	2,262	653	119	-	6,488
CPS	-	0	-	-	3	0	0	1	2	0	4	-	11
Other	22	125	77	29	90	133	398	318	153	78	25	12	1,460
GF Total	867	1,157	1,596	1,324	2,477	2,892	3,316	3,270	4,666	1,358	1,100	629	24,653
Non GF Total	7,268	3,177	1,367	1,058	1,762	1,754	2,029	4,849	3,629	1,162	182	5,891	34,128
Region Total	8,135	4,334	2,963	2,382	4,239	4,647	5,345	8,118	8,295	2,521	1,282	6,520	58,781

TABLE 3.3.1.1-1b. Exvessel value of **all commercial fishery landings** made on the West Coast, in various fisheries stratified by month and port group, **1996**. (In \$1,000, adjusted for inflation to year 2000 dollars.) (Page 2 of 3)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Region													
Coos Bay-C. Mendocino													
Sablefish	194	292	432	358	477	505	619	551	2,393	728	522	295	7,368
Whiting	-	0	16	70	59	44	64	6	0	0	0	0	259
Flatfish	508	514	409	285	322	381	417	424	445	366	378	504	4,950
Rockfish	331	596	835	634	737	703	790	761	790	736	783	388	8,082
Other GF	53	79	103	83	136	164	136	141	112	109	75	30	1,221
Shrimp/Prawns	1	13	5	968	2,773	2,914	1,755	1,253	658	32	11	3	10,386
Crab/Lobster	10,787	3,545	1,522	980	985	538	316	153	2	3	3	4,578	23,411
Salmon	-	-	-	-	65	263	10	419	321	71	30	-	1,180
HMS	-	-	0	-	-	0	29	409	1,899	556	20	-	2,914
CPS	-	-	5	3	25	3	0	3	1	306	0	-	347
Other	259	172	115	113	145	161	206	144	153	142	126	129	1,865
GF Total	1,085	1,480	1,795	1,429	1,730	1,798	2,025	1,882	3,741	1,939	1,758	1,217	21,880
Non GF Total	11,047	3,730	1,648	2,065	3,994	3,879	2,316	2,380	3,033	1,111	191	4,710	40,103
Region Total	12,132	5,211	3,443	3,494	5,724	5,677	4,341	4,263	6,774	3,050	1,949	5,927	61,983
C. Mendocino-Pt. Conception													
Sablefish	226	233	403	331	241	245	355	287	2,062	611	542	367	5,902
Whiting	-	-	0	-	-	-	0	-	-	0	0	0	0
Flatfish	413	497	655	463	350	276	494	412	507	547	509	351	5,473
Rockfish	667	802	1,023	597	497	497	894	677	974	842	861	580	8,911
Other GF	156	180	206	169	203	194	411	242	272	274	291	227	2,823
Shrimp/Prawns	250	195	307	552	404	320	577	404	342	222	224	396	4,193
Crab/Lobster	406	330	313	188	168	222	76	39	41	26	1,530	824	4,163
Salmon	0	-	-	-	1,552	1,973	1,469	551	472	0	-	-	6,017
HMS	284	1	0	0	1	3	49	106	633	1,191	763	502	3,534
CPS	6	22	15	565	281	376	244	516	733	162	93	111	3,125
Other	13,635	289	727	220	512	374	435	470	565	791	572	2,895	21,486
GF Total	1,462	1,713	2,286	1,560	1,292	1,212	2,154	1,617	3,815	2,274	2,203	1,524	23,111
Non GF Total	14,582	837	1,362	1,525	2,919	3,269	2,850	2,085	2,786	2,392	3,183	4,729	42,518
Region Total	16,044	2,550	3,649	3,084	4,211	4,481	5,003	3,701	6,601	4,666	5,385	6,253	65,628
South of Point Conception													
Sablefish	24	28	24	22	31	40	26	31	36	35	24	21	343
Whiting	0	0	0	-	0	0	-	0	0	-	0	0	1
Flatfish	1	3	8	5	4	3	5	7	4	4	6	5	56
Rockfish	116	148	182	105	123	127	175	132	144	79	106	109	1,544
Other GF	33	29	51	28	43	55	68	45	38	35	17	23	464
Shrimp/Prawns	176	129	236	206	206	154	181	174	183	241	245	251	2,382
Crab/Lobster	531	461	349	104	103	115	117	111	83	2,663	1,149	771	6,556
Salmon	-	-	-	-	71	29	14	1	0	-	-	-	116
HMS	909	361	169	615	383	1,732	3,060	5,236	5,498	3,714	3,004	1,341	26,021
CPS	4,602	2,355	2,112	658	131	262	646	106	488	2,603	5,685	6,205	25,854
Other	2,481	1,435	2,214	1,311	1,388	1,495	1,372	1,207	1,846	2,118	2,372	2,941	22,179
GF Total	174	208	265	160	202	224	275	215	222	153	152	158	2,408
Non GF Total	8,700	4,741	5,080	2,893	2,282	3,788	5,390	6,835	8,099	11,339	12,454	11,508	83,109
Region Total	8,874	4,949	5,345	3,053	2,484	4,012	5,665	7,050	8,320	11,492	12,607	11,665	85,516

TABLE 3.3.1.1-1b. Exvessel value of **all commercial fishery landings** made on the West Coast, in various fisheries stratified by month and port group, **1996**. (In \$1,000, adjusted for inflation to year 2000 dollars.) (Page 3 of 3)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Region													
Coastwide													
Sablefish	592	861	1,535	1,435	2,808	2,419	1,635	1,492	8,740	2,239	1,482	926	26,166
Whiting	0	0	16	71	475	1,020	1,687	1,660	501	1	1	0	5,433
Flatfish	1,341	1,575	1,626	1,080	1,177	1,240	1,327	1,293	1,430	1,189	1,197	1,134	15,608
Rockfish	1,699	2,277	3,066	2,326	2,959	2,673	3,258	2,894	2,920	2,564	2,569	1,443	30,649
Other GF	342	362	494	398	939	876	891	713	670	591	511	346	7,132
Shrimp/Prawns	449	358	573	2,486	5,205	4,960	4,023	3,342	2,830	1,225	513	667	26,630
Crab/Lobster	32,055	12,494	6,396	3,123	2,572	1,486	1,562	1,541	988	5,616	4,589	21,888	94,310
Salmon	142	40	35	86	2,058	2,951	1,980	5,684	3,076	1,746	1,542	112	19,453
HMS	1,193	362	169	645	383	1,845	4,426	14,370	12,615	6,826	3,932	1,843	48,611
CPS	4,611	2,377	2,132	1,226	441	646	903	640	1,253	3,072	5,784	6,326	29,411
Other	20,313	6,110	8,715	6,195	7,082	7,277	7,916	8,892	10,223	9,174	9,764	12,687	114,348
GF Total	3,974	5,075	6,737	5,310	8,360	8,227	8,798	8,052	14,261	6,584	5,760	3,850	84,988
Non GF Total	58,763	21,742	18,020	13,759	17,742	19,165	20,810	34,469	30,985	27,659	26,124	43,525	332,762
Region Total	62,737	26,818	24,757	19,069	26,101	27,392	29,608	42,521	45,246	34,243	31,885	47,374	417,751

TABLE 3.3.1.1-1c. Exvessel value of **all commercial fishery landings** made on the West Coast, in various fisheries stratified by month and port group, **1986**. (In \$1,000, adjusted for inflation to year 2000 dollars.) (Page 1 of 3)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>Region</b>													
<b>Washington (Inside Marine Waters)</b>													
Sablefish	-	6	-	-	-	-	-	-	-	-	-	-	6
Whiting	-	-	-	-	-	-	-	-	-	-	-	-	-
Flatfish	4	33	1	1	0	153	60	0	-	2	39	53	346
Rockfish	26	-	62	138	143	237	159	132	105	53	69	10	1,133
Other GF	16	1	-	-	-	509	-	-	0	-	-	3	529
Shrimp/Prawns	-	-	-	7	24	287	51	25	26	13	-	-	433
Crab/Lobster	137	81	89	87	9	18	76	24	69	1,564	308	196	2,657
Salmon	396	55	63	6	165	74	332	32,648	13,819	7,044	3,745	686	59,034
HMS	-	-	-	-	-	-	-	1	12	0	5	-	18
CPS	1	2	1	0	0	-	-	0	0	0	0	0	5
Other	2,045	2,224	2,583	4,926	9,340	7,811	4,607	2,762	6,201	3,302	2,748	2,559	51,107
GF Total	46	40	62	139	143	899	219	132	105	55	108	66	2,014
Non GF Total	2,578	2,361	2,736	5,026	9,538	8,189	5,065	35,461	20,127	11,925	6,806	3,441	113,254
Region Total	2,624	2,401	2,798	5,165	9,682	9,088	5,285	35,593	20,231	11,980	6,914	3,507	115,268
<b>Coastal Washington (and Columbia River)</b>													
Sablefish	28	51	23	34	204	218	378	407	314	180	-	37	1,872
Whiting	-	-	-	0	3	7	0	-	0	-	-	-	11
Flatfish	100	137	151	54	44	110	190	173	23	28	34	5	1,051
Rockfish	15	15	20	11	22	22	14	22	16	13	10	11	191
Other GF	300	393	457	243	-	0	500	563	453	273	1	10	3,193
Shrimp/Prawns	-	15	-	898	2,884	2,498	2,107	1,944	1,641	996	-	96	13,080
Crab/Lobster	1,093	760	471	218	230	408	513	634	310	24	12	2,481	7,154
Salmon	451	312	501	153	919	448	549	3,681	4,615	4,840	1,300	602	18,369
HMS	-	-	-	0	-	-	11	985	581	34	0	-	1,610
CPS	-	-	-	-	1	2	9	10	6	0	-	-	28
Other	962	1,120	763	622	1,143	1,544	982	734	805	1,349	1,601	1,740	13,363
GF Total	443	596	651	343	273	358	1,082	1,165	806	494	45	63	6,318
Non GF Total	2,507	2,207	1,734	1,890	5,177	4,901	4,171	7,988	7,956	7,243	2,912	4,919	53,605
Region Total	2,949	2,802	2,385	2,233	5,450	5,259	5,253	9,153	8,763	7,736	2,957	4,981	59,923
<b>Oregon North of Yachats</b>													
Sablefish	81	145	143	133	301	283	405	461	353	222	58	94	2,678
Whiting	-	0	-	-	11	6	7	12	-	13	-	-	48
Flatfish	137	272	347	302	437	248	540	560	404	316	181	522	4,267
Rockfish	913	740	775	444	376	352	520	451	490	162	112	226	5,561
Other GF	90	144	196	178	417	296	309	304	293	248	77	205	2,754
Shrimp/Prawns	12	12	25	2,245	4,304	3,050	2,112	2,533	2,193	2,410	11	14	18,922
Crab/Lobster	1,097	694	400	148	146	148	83	36	5	12	7	2,597	5,373
Salmon	2	156	343	-	468	364	2,467	741	5,032	4,047	1,015	-	14,635
HMS	-	-	0	-	-	-	195	1,502	531	24	9	-	2,261
CPS	-	-	0	0	4	-	0	-	-	-	0	0	4
Other	32	237	169	43	601	790	914	300	791	73	34	17	4,001
GF Total	1,221	1,300	1,461	1,057	1,541	1,184	1,780	1,789	1,540	961	428	1,048	15,309
Non GF Total	1,143	1,099	937	2,435	5,523	4,352	5,771	5,112	8,552	6,567	1,075	2,629	45,195
Region Total	2,364	2,400	2,399	3,492	7,063	5,536	7,550	6,901	10,092	7,528	1,503	3,677	60,504

TABLE 3.3.1.1-1c. Exvessel value of **all commercial fishery landings** made on the West Coast, in various fisheries stratified by month and port group, **1986**. (In \$1,000, adjusted for inflation to year 2000 dollars.) (Page 2 of 3)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Region													
Coos Bay-C. Mendocino													
Sablefish	117	144	248	201	404	528	682	661	532	448	203	236	4,402
Whiting	-	-	-	90	191	138	78	65	9	2	0	-	572
Flatfish	572	637	879	364	717	480	575	718	668	968	803	973	8,354
Rockfish	515	400	696	290	327	405	287	355	297	284	261	226	4,343
Other GF	83	72	189	105	182	249	210	261	267	240	181	97	2,136
Shrimp/Prawns	-	0	1	1,479	1,461	1,967	1,415	2,162	1,855	942	11	12	11,305
Crab/Lobster	1,605	599	382	219	321	136	63	55	16	14	14	12,518	15,942
Salmon	-	-	-	-	640	1,733	2,762	2,739	485	65	34	-	8,458
HMS	-	-	-	0	-	41	116	757	568	91	6	16	1,596
CPS	0	-	-	-	-	-	-	-	-	0	-	-	0
Other	188	32	49	56	60	177	196	28	28	23	17	16	869
GF Total	1,287	1,253	2,012	1,049	1,820	1,800	1,833	2,059	1,772	1,942	1,448	1,532	19,808
Non GF Total	1,793	631	431	1,755	2,482	4,054	4,552	5,740	2,953	1,135	82	12,562	38,171
Region Total	3,080	1,884	2,443	2,804	4,302	5,855	6,385	7,799	4,725	3,077	1,531	14,094	57,979
C. Mendocino-Pt. Conception													
Sablefish	138	274	194	273	583	410	296	550	516	601	132	163	4,129
Whiting	0	0	-	0	0	1	1	0	0	-	-	0	2
Flatfish	1,001	572	792	618	561	614	620	609	788	916	656	750	8,496
Rockfish	661	342	584	464	373	612	399	615	647	625	435	459	6,216
Other GF	764	238	442	304	244	457	326	532	467	563	336	368	5,041
Shrimp/Prawns	57	41	34	160	292	337	57	68	53	68	63	63	1,292
Crab/Lobster	134	134	223	130	141	116	51	42	45	61	2,289	886	4,251
Salmon	0	-	-	0	5,907	6,624	4,194	1,673	223	2	-	-	18,623
HMS	92	0	0	1	94	97	315	591	2,549	2,257	588	216	6,802
CPS	0	1	2	142	388	310	506	693	275	165	207	99	2,787
Other	4,401	1,600	1,009	230	253	462	750	798	876	780	722	1,941	13,821
GF Total	2,563	1,427	2,012	1,661	1,761	2,093	1,641	2,306	2,418	2,705	1,559	1,739	23,884
Non GF Total	4,685	1,776	1,268	662	7,075	7,945	5,872	3,864	4,020	3,334	3,869	3,206	47,576
Region Total	7,248	3,202	3,281	2,323	8,836	10,039	7,513	6,170	6,438	6,039	5,428	4,945	71,460
South of Point Conception													
Sablefish	58	34	292	7	2	4	5	6	0	31	1	1	439
Whiting	0	0	0	-	-	0	0	1	0	0	0	0	1
Flatfish	13	7	7	12	15	13	20	23	25	20	18	9	181
Rockfish	241	115	264	256	213	187	234	180	147	218	137	172	2,365
Other GF	187	169	218	255	203	221	244	175	129	133	89	121	2,146
Shrimp/Prawns	159	163	169	132	149	60	53	64	46	170	140	77	1,379
Crab/Lobster	406	281	270	167	194	173	201	202	178	1,524	758	681	5,036
Salmon	-	-	-	-	101	68	45	4	-	-	-	-	217
HMS	3,615	969	4,458	1,582	2,338	5,025	5,625	5,746	6,715	6,207	4,796	3,903	50,978
CPS	1,088	455	136	201	512	636	302	933	905	1,491	1,757	1,963	10,381
Other	1,945	1,472	2,741	2,757	1,735	1,589	1,302	1,324	1,566	1,934	1,957	2,231	22,556
GF Total	499	324	781	530	433	425	504	384	302	402	245	303	5,132
Non GF Total	7,212	3,341	7,775	4,839	5,029	7,550	7,528	8,274	9,409	11,326	9,408	8,856	90,547
Region Total	7,711	3,666	8,556	5,369	5,462	7,975	8,031	8,658	9,711	11,729	9,653	9,159	95,679

TABLE 3.3.1.1-1c. Exvessel value of **all commercial fishery landings** made on the West Coast, in various fisheries stratified by month and port group, **1986**. (In \$1,000, adjusted for inflation to year 2000 dollars.) (Page 3 of 3)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Region													
Coastwide													
Sablefish	421	653	900	648	1,494	1,442	1,765	2,084	1,715	1,482	393	530	13,527
Whiting	0	0	0	90	204	152	86	78	10	15	0	0	635
Flatfish	1,827	1,659	2,177	1,353	1,775	1,617	2,004	2,083	1,908	2,250	1,731	2,311	22,695
Rockfish	2,371	1,611	2,402	1,603	1,452	1,816	1,614	1,755	1,700	1,355	1,024	1,105	19,808
Other GF	1,440	1,016	1,502	1,085	1,046	1,732	1,589	1,835	1,610	1,456	685	804	15,799
Shrimp/Prawns	228	231	229	4,921	9,114	8,198	5,794	6,796	5,814	4,600	225	262	46,411
Crab/Lobster	4,472	2,549	1,834	968	1,042	998	986	994	623	3,200	3,388	19,359	40,413
Salmon	850	523	907	159	8,200	9,311	10,348	41,485	24,174	15,999	6,093	1,288	119,337
HMS	3,707	970	4,458	1,583	2,432	5,163	6,262	9,582	10,955	8,614	5,404	4,136	63,265
CPS	1,088	458	139	344	905	948	817	1,636	1,185	1,657	1,964	2,063	13,206
Other	9,573	6,685	7,313	8,633	13,131	12,373	8,751	5,946	10,266	7,461	7,079	8,505	105,717
GF Total	6,058	4,939	6,980	4,779	5,972	6,760	7,058	7,834	6,943	6,559	3,833	4,751	72,465
Non GF Total	19,917	11,415	14,881	16,608	34,823	36,991	32,959	66,439	53,017	41,531	24,153	35,612	388,348
Region Total	25,976	16,354	21,862	21,387	40,795	43,751	40,017	74,273	59,960	48,090	27,986	40,363	460,814

TABLE 3.3.1.1-2. Value of landings by **groundfish limited entry vessels** in various fisheries stratified by month and port group, **2000**. (In \$1,000, not deflated.) (Page 1 of 2)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>Region</b>													
<b>All Washington</b>													
Sablefish	26	22	29	66	72	104	150	2,098	424	195	72	75	3,332
Whiting						220	347	429	124	0	0		1,120
Flatfish	147	169	110	147	150	194	479	415	104	166	37	84	2,202
Rockfish	17	44	38	60	143	104	192	138	301	150	171	109	1,466
Other GF	5	23	42	58	156	79	44	52	18	27	12	16	533
Shrimp/Prawns	1	1	3	9	87	111	152	89	65	69	32	5	626
Crab	8,111	3,836	2,114	1,230	1,184	513	404	397	268			4,185	22,243
Salmon					134	48	2	63	3	26			275
Tuna	5	0					401	3,240	1,632	448	109		5,836
CPEL						15	152	312	215	22	0		717
Other	1	1	2	19	168	650	528	264	293	86	1	3	2,018
GF Total	195	257	220	330	521	701	1,211	3,133	972	538	292	284	8,654
Non GF Total	8,118	3,839	2,119	1,258	1,574	1,338	1,639	4,365	2,476	651	143	4,193	31,714
Region Total	8,314	4,096	2,340	1,588	2,094	2,038	2,850	7,498	3,449	1,190	434	4,477	40,368
<b>Oregon North of Yachats</b>													
Sablefish	109	109	160	131	329	157	302	3,422	378	330	331	246	6,003
Whiting				1	1	471	1,687	2,528	1,381	0	0	1	6,070
Flatfish	429	441	365	399	366	306	368	310	261	229	267	355	4,096
Rockfish	255	194	238	339	586	307	623	399	647	626	606	405	5,225
Other GF	1	1	1	2	23	23	28	17	9	4	2	1	111
Shrimp/Prawns	8	11	25	47	124	36	87	61	72	44	61	11	586
Crab	5,283	2,196	1,098	627	562	297	186	79	10	14	11	4,787	15,150
Salmon				19	142	240	185	510	295	162	1		1,554
Tuna						57	837	2,774	1,812	1,102	77		6,658
CPEL				0	0	18	277	513	320	46	0	1	1,175
Other	7	10	9	71	301	1,720	2,403	1,373	1,476	530	12	10	7,923
GF Total	794	746	764	871	1,304	1,263	3,008	6,676	2,676	1,189	1,206	1,009	21,506
Non GF Total	5,299	2,217	1,132	764	1,129	2,368	3,973	5,310	3,985	1,898	162	4,809	33,045
Regional Total	6,093	2,963	1,896	1,635	2,432	3,631	6,981	11,986	6,660	3,087	1,368	5,818	54,550
<b>Coos Bay-C. Mendocino</b>													
Sablefish	92	131	184	224	366	195	429	2,039	478	480	387	235	5,241
Whiting	0			36	417	165	158	0	0	0			776
Flatfish	857	496	278	527	386	185	341	204	309	315	307	494	4,701
Rockfish	221	240	299	588	363	214	381	321	456	448	513	282	4,328
Other GF	6	6	8	36	85	58	103	46	57	43	15	15	478
Shrimp/Prawns	1	2	2	2	27	84	74	73	50	49	16	4	385
Crab	4,629	1,894	900	1,226	794	387	299	80	4	3	3	7,652	17,869
Salmon				30	56	53	358	608	363	116	50	15	1,648
Tuna		0		0		7	82	357	580	315	16		1,357
CPEL	0	6		1	1	0	1	0	0	0			9
Other	57	37	31	189	435	903	1,044	1,341	586	259	73	126	5,081
GF Total	1,176	873	770	1,411	1,618	817	1,412	2,609	1,300	1,287	1,222	1,027	15,523
Non GF Total	4,687	1,940	933	1,447	1,313	1,433	1,859	2,459	1,583	742	157	7,796	26,349
Regional Total	5,863	2,813	1,703	2,859	2,931	2,250	3,271	5,068	2,883	2,029	1,379	8,823	41,872



TABLE 3.3.1.1-2. Value of landings by **groundfish limited entry vessels** in various fisheries stratified by month and port group, **2000**. (In \$1,000, not deflated.) (Page 2 of 2)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>Region</b>													
<b>C. Mendocino-Pt. Conception</b>													
Sablefish	83	38	90	120	76	178	159	869	251	258	336	298	2,755
Whiting				0		0	0		0	0	0	0	0
Flatfish	281	139	210	416	101	231	217	282	266	225	242	249	2,859
Rockfish	423	163	313	345	199	400	303	457	463	279	427	395	4,167
Other GF	39	11	23	64	102	184	188	183	139	81	62	70	1,147
Shrimp/Prawns	337	148	245	195	137	180	162	249	190	260	84	93	2,281
Crab	432	263	258	231	121	119	31	18	22	22	1,778	1,133	4,428
Salmon	3	1	2	3	3,299	2,977	1,224	812	1,687	20			10,028
Tuna	0	2	1			2	25	73	817	758	94	17	1,789
CPEL	1,716	512	192	514	742	326	326	491	498	321	147	59	5,845
Other	551	343	319	913	472	514	154	503	521	1,203	578	269	6,341
GF Total	827	351	635	945	477	992	867	1,792	1,119	844	1,067	1,011	10,928
Non GF Total	3,039	1,269	1,017	1,856	4,771	4,119	1,922	2,147	3,735	2,584	2,683	1,571	30,713
Regional Total	3,866	1,620	1,652	2,802	5,248	5,111	2,789	3,938	4,854	3,427	3,750	2,583	41,641
<b>South of Pt. Conception</b>													
Sablefish	24	12	23	21	22	28	32	29	28	24	27	29	299
Whiting	0		0				0	0		0		0	0
Flatfish	3	5	5	7	7	4	3	11	5	8	4	4	66
Rockfish	43	27	79	78	92	112	105	87	93	76	78	113	983
Other GF	11	9	18	21	38	43	25	30	35	22	25	32	308
Shrimp/Prawns	277	419	375	373	354	250	140	207	252	503	224	381	3,754
Crab	76	84	136	111	115	124	136	125	121	84	70	97	1,280
Salmon					1				4				4
Tuna	403	328	119	917	89	111	458	281	446	1,016	114	113	4,395
CPEL	5,114	2,901	1,957	1,574	1,075	1,157	1,485	834	1,156	3,260	6,627	6,040	33,179
Other	3,912	2,191	1,735	995	997	1,305	987	1,360	2,200	5,167	3,837	4,590	29,275
GF Total	81	52	126	127	159	186	165	158	161	131	134	177	1,657
Non GF Total	9,783	5,923	4,323	3,970	2,630	2,947	3,205	2,807	4,178	10,030	10,872	11,221	71,889
Regional Total	9,864	5,975	4,448	4,097	2,789	3,133	3,370	2,965	4,340	10,161	11,007	11,397	73,545
<b>Coastwide</b>													
Sablefish	335	313	486	561	864	661	1,071	8,457	1,560	1,286	1,154	883	17,630
Whiting	0		0	37	418	856	2,192	2,957	1,505	1	0	1	7,967
Flatfish	1,716	1,250	969	1,496	1,010	919	1,409	1,223	945	943	857	1,185	13,924
Rockfish	959	668	968	1,409	1,383	1,136	1,604	1,403	1,960	1,581	1,795	1,304	16,169
Other GF	62	50	92	181	403	386	388	328	258	178	116	134	2,577
Shrimp/Prawns	624	581	651	626	729	661	615	680	629	925	418	493	7,632
Crab	18,531	8,274	4,506	3,424	2,777	1,440	1,055	698	425	123	1,862	17,854	60,970
Salmon	3	1	2	52	3,631	3,318	1,768	1,994	2,352	323	50	15	13,509
Tuna	409	330	120	917	89	176	1,803	6,725	5,287	3,639	410	130	20,035
CPEL	6,830	3,420	2,149	2,089	1,817	1,516	2,242	2,150	2,189	3,650	6,775	6,100	40,925
Other	4,529	2,582	2,096	2,187	2,374	5,092	5,115	4,841	5,076	7,245	4,502	4,998	50,639
GF Total	3,073	2,280	2,515	3,685	4,079	3,959	6,663	14,368	6,228	3,989	3,922	3,507	58,267
Non GF Total	30,926	15,187	9,524	9,295	11,416	12,204	12,598	17,088	15,958	15,904	14,017	29,590	193,710
Coastwide Total	33,998	17,467	12,040	12,980	15,495	16,163	19,261	31,456	22,186	19,893	17,939	33,097	251,977

TABLE 3.3.1.1-3. Number of **groundfish limited entry vessels** participating in various fisheries stratified by month and port group, **2000**. (Page 1 of 2)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>Region</b>													
<b>All Washington</b>													
Sablefish	13	16	14	25	33	32	42	70	53	37	14	18	86
Whiting						7	7	5	5	1	1		10
Flatfish	12	13	15	21	28	35	34	38	35	30	13	15	52
Rockfish	15	21	20	30	36	46	44	66	56	38	25	23	90
Other	13	13	13	20	31	34	41	39	40	27	7	11	63
Shrimp/Prawns	1	1	2	1	1	1	1	2	1	1	1	1	3
Crab	18	17	17	13	11	6	5	5	5			16	23
Salmon					1	7	8	6	4	1			8
Tuna	1	1					6	5	4	3	1		8
CPS						4	7	7	6	1	1		8
Other	5	7	11	16	22	31	35	24	22	14	9	12	54
GF Total	16	21	20	31	37	46	49	74	62	39	25	24	99
Non GF Total	23	24	27	29	31	36	41	33	30	16	10	26	71
Regional Total (any species)	34	37	36	41	45	52	55	80	68	41	25	37	109
<b>Oregon North of Yachats</b>													
Sablefish	29	32	37	43	53	61	91	101	82	59	58	41	130
Whiting				1	2	17	22	22	24	3	4	5	32
Flatfish	29	33	38	44	52	59	82	71	62	55	45	34	100
Rockfish	38	39	40	52	62	76	90	100	94	64	54	42	136
Other	15	15	17	23	50	66	92	55	58	38	24	12	109
Shrimp/Prawns	1	1	1	1	1	1	1	1	1	1	1	1	1
Crab	36	35	27	19	17	11	10	1	1	1	1	53	59
Salmon				1	4	18	22	20	19	2	1		33
Tuna						1	12	31	22	7	2		43
CPS				2	1	12	26	25	24	4	4	1	39
Other	22	26	32	40	49	69	105	71	66	46	33	31	123
GF Total	38	39	42	56	65	80	106	110	103	70	64	49	143
Non GF Total	57	60	56	53	63	84	110	96	88	53	36	77	151
Regional Total (any species)	73	71	66	68	74	93	115	121	113	78	64	94	162
<b>Coos Bay-C. Mendocino</b>													
Sablefish	44	50	49	64	61	58	81	96	97	73	66	42	130
Whiting	1			3	9	7	6	2	1	2			14
Flatfish	44	48	49	65	61	57	71	67	63	63	61	38	105
Rockfish	47	55	58	81	80	76	93	90	89	80	76	51	132
Other	15	25	31	45	71	59	76	55	53	56	38	30	122
Shrimp/Prawns	2	1	1	1	1	3	2	2	2	2	5	2	6
Crab	74	59	49	41	35	30	28	6	2	1	1	77	97
Salmon				1	5	3	7	8	6	10	7	2	22
Tuna		1		1		1	5	7	13	4	1		23
CPS	1	2		4	5	4	5	2	3	2			14
Other	43	44	45	65	81	84	88	76	77	63	57	43	121
GF Total	49	57	60	84	87	84	98	108	107	85	79	52	142
Non GF Total	108	98	87	94	99	102	102	88	93	71	64	103	150
Regional Total (any species)	113	107	98	111	110	108	111	117	115	91	84	114	154

TABLE 3.3.1.1-3. Number of **groundfish limited entry vessels** participating in various fisheries stratified by month and port group, **2000**. (Page 2 of 2)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>Region</b>													
<b>C. Mendocino-Pt. Conception</b>													
Sablefish	44	32	41	46	32	42	41	61	59	46	53	44	103
Whiting				2		2	2		1	1	1	1	5
Flatfish	43	38	49	50	34	41	43	48	50	42	42	34	83
Rockfish	51	41	56	56	48	62	63	72	67	62	61	49	118
Other	24	17	26	17	31	42	42	47	45	44	24	22	91
Shrimp/Prawns	5	5	6	9	5	5	6	7	2	10	2	2	20
Crab	20	15	17	16	11	8	4	4	2	2	29	26	44
Salmon	1	1	1	1	34	33	27	6	9	3			39
Tuna	1	1	1			1	3	5	21	10	3		30
CPEL	3	2	4	2	2	6	5	4	4	2	1	3	16
Other	42	34	39	54	35	36	32	42	38	37	33	23	84
GF Total	57	47	60	59	51	66	66	74	68	64	62	50	122
Non GF Total	61	49	55	69	74	75	61	51	61	49	56	46	120
Regional Total (any species)	72	61	74	77	83	91	78	82	84	73	83	71	139
<b>South of Pt. Conception</b>													
Sablefish	9	6	11	9	8	9	11	9	9	8	11	10	16
Whiting	1		1				1	2		1		2	2
Flatfish	4	4	7	5	5	4	4	4	2	4	5	3	13
Rockfish	9	8	14	11	14	13	12	13	11	10	15	13	21
Other	1	2	3	1	5	3	5	3	3	4	1	1	9
Shrimp/Prawns	3	4	4	3	3	2	2	2	2	3	2	2	7
Crab	2	2	1	1	1	2	2	1	1	2	1	1	6
Salmon					1				1				1
Tuna	1	1	1	1	1	3	3	5	5	5	3	2	10
CPEL	5	5	4	3	3	6	2	3	5	5	6	6	9
Other	5	5	7	4	6	6	6	7	7	9	12	11	19
GF Total	11	10	16	12	14	13	12	13	11	11	15	13	22
Non GF Total	9	9	11	6	8	12	8	8	11	12	13	12	28
Regional Total (any species)	16	14	19	13	15	16	15	16	17	16	21	19	32
<b>Coastwide</b>													
Sablefish	137	133	143	182	180	197	250	326	282	215	194	149	393
Whiting	2		1	6	11	31	34	30	28	8	6	8	55
Flatfish	130	133	150	180	171	191	217	221	196	187	160	120	292
Rockfish	155	157	177	222	227	261	279	332	298	242	220	171	401
Other	66	69	86	102	181	199	243	194	188	162	92	74	343
Shrimp/Prawns	8	6	9	10	6	6	7	9	4	13	7	4	29
Crab	142	124	106	85	71	52	44	13	7	3	29	167	202
Salmon	1	1	1	1	41	55	58	37	33	13	7	2	89
Tuna	1	1	1	1	1	3	25	48	58	24	6	3	98
CPEL	8	7	7	8	10	29	39	38	35	11	10	9	73
Other	113	113	128	173	184	208	246	210	195	162	140	115	331
GF Total	166	167	186	234	241	274	307	364	329	256	233	181	420
Non GF Total	249	232	228	240	263	286	295	263	261	193	174	256	392
Coastwide Total (any species)	298	280	278	297	312	335	343	394	367	283	264	323	439

TABLE 3.3.1.1-4. Pink shrimp exvessel value, pounds landed, and number of vessels, 1996-2000.

Year	Landings (1,000 pounds)	Revenue (\$1,000)	Number of Vessels
1996	31,653.00	18,851.90	237
1997	39,295.10	15,555.40	216
1998	10,659.20	5,588.90	188
1999	28,437.50	13,221.60	185
2000	32,974.40	13,193.10	N/A

TABLE 3.3.1.1-5. Ocean non-Indian commercial salmon (chinook and coho) fishery, 1996-2000.

Year	Vessel Landings Salmon	Vessels With Permits	Active Portion of Permitted Vessels	Nominal Exvessel Value (\$ 1,000)	Real (Inflation Adjusted) Exvessel Value (\$ 1,000)	Real Average Exvessel Value Per Vessel
1996	1,530	3,932	0.39	\$9,074.00	\$9,656.00	\$6,311.11
1997	1,319	3,688	0.36	\$9,882.00	\$10,315.00	\$7,820.32
1998	1,066	3,405	0.31	\$5,480.00	\$5,650.00	\$5,300.19
1999	1,051	3,123	0.34	\$9,226.00	\$9,371.00	\$8,916.27
2000	1,173	2,937	0.40	\$12,159.00	\$12,159.00	\$10,365.73

TABLE 3.3.1.2-1a. Groundfish landings (including at-sea whiting) and estimated exvessel revenue (\$1,000) for 2000, not adjusted for inflation. (Page 1 of 2)

INPFC Area	Gear	Landings (mt)	Revenue (\$1,000)	Percent of Total	
				mt	Value
All Areas	Nets	93.40	122.10	0.04%	0.17%
	Trawl	238,392.50	53,489.70	97.76%	73.42%
	Pot/Trap	896.10	3,820.60	0.37%	5.24%
	Hook & Line	4,113.10	14,853.80	1.69%	20.39%
	Dredges				
	Trawl-Shrimp	310.80	469.50	0.13%	0.64%
	Troll	35.10	65.00	0.01%	0.09%
	Other Gear	10.30	38.20	0.00%	0.05%
	All Gear - Total	243,851.30	72,858.80		
Vancouver - U.S.	Nets	0.10	trace	0.00%	0.00%
	Trawl	81,108.40	12,595.60	98.45%	78.03%
	Pot/Trap	15.00	64.50	0.02%	0.40%
	Hook & Line	1,241.20	3,447.10	1.51%	21.35%
	Dredges				
	Trawl-Shrimp				
	Troll	11.20	11.50	0.01%	0.07%
	Other Gear	6.40	23.60	0.01%	0.15%
	All Gear	82,382.30	16,142.30		
Columbia	Nets	trace	trace	0.00%	0.00%
	Trawl	139,283.30	25,228.70	98.55%	78.08%
	Pot/Trap	601.20	2,338.40	0.43%	7.24%
	Hook & Line	1,187.20	4,359.50	0.84%	13.49%
	Dredges				
	Trawl-Shrimp	254.40	360.00	0.18%	1.11%
	Troll	11.40	23.00	0.01%	0.07%
	Other Gear	trace	trace	0.00%	0.00%
	All Gear	141,337.60	32,309.60		
OR Coast	Nets				
	Trawl				
	Pot/Trap	11.30	44.30	16.17%	17.94%
	Hook & Line	49.70	191.60	71.10%	77.60%
	Dredges			0.00%	0.00%
	Trawl-Shrimp	8.90	11.00	12.73%	4.46%
	Troll				
Other Gear					
	All Gear	69.90	246.90		
Eureka	Nets	trace	trace	0.00%	0.00%
	Trawl	11,327.20	8,327.60	95.40%	81.45%
	Pot/Trap	89.20	322.90	0.75%	3.16%
	Hook & Line	446.10	1,555.20	3.76%	15.21%
	Dredges				
	Trawl-Shrimp	9.20	13.00	0.08%	0.13%
	Troll	1.60	4.20	0.01%	0.04%
	Other Gear	0.40	1.30	0.00%	0.01%
	All Gear	11,873.80	10,224.30		

TABLE 3.3.1.2-1a. Groundfish landings (including at-sea whiting) and estimated exvessel revenue (\$1,000) for **2000**, not adjusted for inflation. (Page 2 of 2)

INPFC Area	Gear	Landings (mt)	Revenue (\$1,000)	Percent of Total	
				mt	Value
Monterey	Nets	26.30	42.10	0.44%	0.45%
	Trawl	4,899.60	5,603.60	82.37%	59.33%
	Pot/Trap	125.40	525.40	2.11%	5.56%
	Hook & Line	873.90	3,221.40	14.69%	34.11%
	Dredges				
	Trawl-Shrimp	10.50	19.90	0.18%	0.21%
	Troll	9.40	21.60	0.16%	0.23%
	Other Gear	2.90	11.40	0.30%	0.12%
	All Gear	5,948.10	9,445.50		
Conception	Nets	67.00	79.90	6.83%	2.35%
	Trawl	514.60	647.90	52.49%	19.03%
	Pot/Trap	54.00	525.20	5.51%	15.43%
	Hook & Line	314.90	2,078.90	32.12%	61.07%
	Dredges				
	Trawl-Shrimp	27.80	65.50	2.84%	1.92%
	Troll	1.40	4.70	0.14%	0.14%
	Other Gear	0.70	1.90	0.07%	0.06%
	All Gear	980.30	3,404.10		
Unknown PFMC	Nets				
	Trawl	1,259.30	1,086.20	100.00%	100.00%
	Pot/Trap				
	Hook & Line				
	Dredges				
	Trawl-Shrimp				
	Troll				
	Other Gear				
	All Gear	1,259.30	1,086.20		

TABLE 3.3.1.2-1b. Groundfish landings and estimated exvessel revenue (\$1,000) for **1999**, not adjusted for inflation. (Page 1 of 2)

INPFC Area	Gear	Landings (mt)	Revenue (\$1,000)	Percent of Total	
				mt	Value
All Areas	Nets	158.80	200.60	0.06%	0.29%
	Trawl	260,199.40	52,056.00	97.70%	75.06%
	Pot/Trap	811.30	2,695.10	0.30%	3.89%
	Hook & Line	4,634.50	13,818.90	1.74%	19.92%
	Dredges				
	Trawl-Shrimp	425.20	460.80	0.16%	0.66%
	Troll	92.70	120.80	0.03%	0.17%
	Other Gear	0.80	3.50	0.00%	0.01%
	All Gear - Total	266,322.60	69,355.80		
Vancouver - U.S.	Nets				
	Trawl	112,154.40	15,007.90	98.94%	82.44%
	Pot/Trap			0.00%	0.00%
	Hook & Line	1,181.80	3,175.20	1.04%	17.44%
	Dredges				
	Trawl-Shrimp	1.90	2.00	0.00%	0.01%
	Troll	23.60	20.30	0.02%	0.11%
	Other Gear				
	All Gear	113,361.60	18,205.50		
Columbia	Nets	4.20	1.10		
	Trawl	132,795.90	22,501.10	98.36%	79.67%
	Pot/Trap	627.60	1,939.50	0.46%	6.87%
	Hook & Line	1,251.20	3,461.90	0.93%	12.26%
	Dredges				
	Trawl-Shrimp	321.70	322.00	0.24%	1.14%
	Troll	11.90	18.50	0.01%	0.07%
	Other Gear				
	All Gear	135,012.40	28,244.00		
OR Coast	Nets				
	Trawl				
	Pot/Trap	3.40	10.80	6.17%	7.07%
	Hook & Line	39.10	129.60	70.96%	84.87%
	Dredges				
	Trawl-Shrimp	12.50	12.20	22.69%	7.99%
	Troll				
	Other Gear				
	All Gear	55.10	152.70		
Eureka	Nets	0.60	0.80	0.01%	0.01%
	Trawl	8,266.30	7,504.20	90.99%	78.15%
	Pot/Trap	63.40	103.20	0.70%	1.07%
	Hook & Line	712.40	1,950.90	7.84%	20.32%
	Dredges				
	Trawl-Shrimp	40.40	37.70	0.44%	0.39%
	Troll	1.90	4.20	0.02%	0.04%
	Other Gear	0.20	0.70	0.00%	0.01%
	All Gear	9,085.30	9,601.70		

TABLE 3.3.1.2-1b. Groundfish landings and estimated exvessel revenue (\$1,000) for **1999**, not adjusted for inflation. (Page 2 of 2)

INPFC Area	Gear	Landings (mt)	Revenue (\$1,000)	Percent of Total	
				mt	Value
Monterey	Nets	41.20	56.50	0.57%	0.60%
	Trawl	5,959.00	6,059.40	83.07%	64.62%
	Pot/Trap	80.70	354.50	1.13%	3.78%
	Hook & Line	1,026.80	2,817.30	14.31%	30.05%
	Dredges				
	Trawl-Shrimp	10.30	11.80	0.14%	0.13%
	Troll	54.90	76.20	0.77%	0.81%
	Other Gear	0.30	1.30	0.00%	0.01%
	All Gear	7,173.30	9,376.90		
Conception	Nets	112.70	142.20	7.49%	3.83%
	Trawl	893.10	923.50	59.37%	24.86%
	Pot/Trap	36.20	287.00	2.41%	7.73%
	Hook & Line	423.10	2,284.10	28.13%	61.48%
	Dredges				
	Trawl-Shrimp	38.30	75.10	2.55%	2.02%
	Troll	0.40	1.70	0.03%	0.05%
	Other Gear	0.30	1.50	0.02%	0.04%
	All Gear	1,504.20	3,715.00		
Unknown PFMC	Nets				
	Trawl	130.70	59.90	100.00%	100.00%
	Pot/Trap				
	Hook & Line				
	Dredges				
	Trawl-Shrimp				
	Troll				
	Other Gear				
	All Gear	130.70	59.90		



TABLE 3.3.1.2-1c. Groundfish landings and estimated exvessel revenue (\$1,000) for 1996, not adjusted for inflation. (Page 1 of 2)

INPFC Area	Gear	Landings (mt)	Revenue (\$1,000)	Percent of Total	
				mt	Value
All Areas	Nets	330.20	418.40	0.13%	0.45%
	Trawl	242,842.60	69,460.70	96.11%	74.10%
	Pot/Trap	861.80	3,194.40	0.34%	3.41%
	Hook & Line	7,485.40	19,506.70	2.96%	20.81%
	Dredges	1.30	0.90	0.00%	0.00%
	Trawl-Shrimp	890.40	842.60	0.35%	0.90%
	Troll	224.00	262.80	0.09%	0.28%
	Other Gear	45.30	57.70	0.02%	0.06%
	All Gear - Total	252,680.90	93,744.30		
Vancouver - U.S.	Nets	0.50	0.10	0.00%	0.00%
	Trawl	56,116.90	13,581.10	97.29%	74.33%
	Pot/Trap	35.70	111.80	0.06%	0.61%
	Hook & Line	1,431.20	4,485.30	2.48%	24.55%
	Dredges				
	Trawl-Shrimp	90.30	83.80	0.16%	0.46%
	Troll	6.80	9.40	0.01%	0.05%
	Other Gear				
	All Gear	57,681.40	18,271.40		
Columbia	Nets	trace	0.10	0.00%	0.00%
	Trawl	150,641.50	29,281.30	98.35%	81.31%
	Pot/Trap	490.50	2,015.30	0.32%	5.60%
	Hook & Line	1,347.20	4,108.40	0.88%	11.41%
	Dredges				
	Trawl-Shrimp	633.30	557.00	0.41%	1.55%
	Troll	48.60	48.50	0.03%	0.13%
	Other Gear				
	All Gear	153,161.20	36,010.50		
OR Coast	Nets				
	Trawl				
	Pot/Trap				
	Hook & Line	53.50	125.10	95.20%	98.35%
	Dredges				
	Trawl-Shrimp	2.50	2.00	4.45%	1.57%
	Troll	0.20	0.10	0.36%	0.08%
	Other Gear				
	All Gear	56.20	127.20		
Eureka	Nets	0.20	0.30	0.00%	0.00%
	Trawl	22,411.70	12,654.90	95.30%	84.25%
	Pot/Trap	106.30	201.00	0.45%	1.34%
	Hook & Line	893.70	2,060.60	3.80%	13.72%
	Dredges				
	Trawl-Shrimp	81.80	71.90	0.35%	0.48%
	Troll	11.40	15.80	0.05%	0.11%
	Other Gear	12.20	16.50	0.05%	0.11%
	All Gear	23,517.30	15,021.00		

TABLE 3.3.1.2-1c. Groundfish landings and estimated exvessel revenue (\$1,000) for 1996, not adjusted for inflation. (Page 2 of 2)

INPFC Area	Gear	Landings (mt)	Revenue (\$1,000)	Percent of Total	
				mt	Value
Monterey	Nets	87.40	100.00	0.62%	0.58%
	Trawl	10,970.70	11,074.90	77.79%	64.46%
	Pot/Trap	174.50	507.70	1.24%	2.95%
	Hook & Line	2,683.90	5,284.60	19.03%	30.76%
	Dredges	1.30	0.90	0.01%	0.01%
	Trawl-Shrimp	8.90	10.60	0.06%	0.06%
	Troll	145.90	173.60	1.03%	1.01%
	Other Gear	29.70	29.50	0.21%	0.17%
	All Gear	14,102.40	17,181.70		
Conception	Nets	242.00	317.90	5.96%	4.51%
	Trawl	2,603.40	2,801.10	64.10%	39.73%
	Pot/Trap	54.50	355.60	1.34%	5.04%
	Hook & Line	1,073.80	3,431.50	26.44%	48.67%
	Dredges				
	Trawl-Shrimp	73.30	116.70	1.80%	1.66%
	Troll	11.20	15.40	0.28%	0.22%
	Other Gear	3.30	11.70	0.08%	0.17%
	All Gear	4,061.50	7,049.90		
Unknown PFMC	Nets				
	Trawl	98.40	67.50	97.43%	81.72%
	Pot/Trap	0.30	3.00	0.30%	3.63%
	Hook & Line	2.00	11.30	1.98%	13.68%
	Dredges			0.00%	0.00%
	Trawl-Shrimp	0.20	0.70	0.20%	0.85%
	Troll				
	Other Gear				
All Gear	101.00	82.60			

TABLE 3.3.1.2-2a. Non-whiting groundfish landings and estimated exvessel revenue (\$1,000) for 2000, not adjusted for inflation. (Page 1 of 2)

INPFC Area	Gear	Landings (mt)	Revenue (\$1,000)	Percent of Total	
				mt	Value
All Areas	Nets	93.40	122.10	0.25%	0.23%
	Trawl	31,954.10	34,754.40	85.41%	64.21%
	Pot/Trap	896.10	3,820.60	2.40%	7.06%
	Hook & Line	4,113.00	14,853.50	10.99%	27.44%
	Dredges				
	Trawl-Shrimp	310.80	469.50	0.83%	0.87%
	Troll	35.10	65.00	0.09%	0.12%
	Other Gear	10.30	38.20	0.03%	0.07%
	All Gear - Total	37,412.70	54,123.20		
Vancouver - U.S.	Nets	0.10	trace	0.00%	0.00%
	Trawl	7,129.20	5,974.40	84.84%	62.75%
	Pot/Trap	15.00	64.50	0.18%	0.68%
	Hook & Line	1,241.20	3,447.10	14.77%	36.20%
	Dredges				
	Trawl-Shrimp				
	Troll	11.20	11.50	0.13%	0.12%
	Other Gear	6.40	23.60	0.08%	0.25%
	All Gear	8,403.10	9,521.10		
Columbia	Nets	trace	trace	0.00%	0.00%
	Trawl	12,510.00	13,956.20	85.90%	66.34%
	Pot/Trap	601.20	2,338.40	4.13%	11.12%
	Hook & Line	1,187.20	4,359.50	8.15%	20.72%
	Dredges				
	Trawl-Shrimp	254.40	360.00	1.75%	1.71%
	Troll	11.40	23.00	0.08%	0.11%
	Other Gear	trace	trace	0.00%	0.00%
	All Gear	14,564.30	21,037.10		
OR Coast	Nets				
	Trawl				
	Pot/Trap	11.30	44.30	16.17%	17.94%
	Hook & Line	49.70	191.60	71.10%	77.60%
	Dredges			0.00%	0.00%
	Trawl-Shrimp	8.90	11.00	12.73%	4.46%
	Troll				
Other Gear					
	All Gear	69.90	246.90		
Eureka	Nets	trace	trace	0.00%	0.00%
	Trawl	5,867.20	7,508.30	91.48%	79.83%
	Pot/Trap	89.20	322.90	1.39%	3.43%
	Hook & Line	446.10	1,555.20	6.96%	16.54%
	Dredges				
	Trawl-Shrimp	9.20	13.00	0.14%	0.14%
	Troll	1.60	4.20	0.02%	0.04%
	Other Gear	0.40	1.30	0.01%	0.01%
	All Gear	6,413.80	9,405.00		

TABLE 3.3.1.2-2a. Non-whiting groundfish landings and estimated exvessel revenue (\$1,000) for 2000, not adjusted for inflation. (Page 2 of 2)

INPFC Area	Gear	Landings (mt)	Revenue (\$1,000)	Percent of Total	
				mt	Value
Monterey	Nets	26.30	42.10	0.44%	0.45%
	Trawl	4,891.50	5,603.30	82.25%	59.32%
	Pot/Trap	125.40	525.40	2.11%	5.56%
	Hook & Line	873.90	3,221.40	14.69%	34.11%
	Dredges				
	Trawl-Shrimp	10.50	19.90	0.18%	0.21%
	Troll	9.40	21.60	0.16%	0.23%
	Other Gear	2.90	11.40	0.30%	0.12%
	All Gear	5,947.00	9,445.20		
Conception	Nets	67.00	79.90	6.84%	2.35%
	Trawl	514.60	647.90	52.50%	19.04%
	Pot/Trap	54.00	525.20	5.51%	15.43%
	Hook & Line	314.80	2,078.60	32.12%	61.07%
	Dredges				
	Trawl-Shrimp	27.80	65.50	2.84%	1.92%
	Troll	1.40	4.70	0.14%	0.14%
	Other Gear	0.70	1.90	0.07%	0.06%
	All Gear	980.20	3,403.70		
Unknown PFMC Area	Nets				
	Trawl	1,034.50	1,064.30	100.00%	100.00%
	Pot/Trap				
	Hook & Line				
	Dredges				
	Trawl-Shrimp				
	Troll				
	Other Gear				
	All Gear	1,034.50	1,064.30		

TABLE 3.3.1.2-2b. Non-whiting groundfish landings and estimated exvessel revenue (\$1,000) for 1999, not adjusted for inflation. (Page 1 of 2)

INPFC Area	Gear	Landings (mt)	Revenue (\$1,000)	Percent of Total	
				mt	Value
All Areas	Nets	158.40	200.30	0.37%	0.40%
	Trawl	36,815.10	33,413.90	85.74%	65.89%
	Pot/Trap	811.30	2,695.10	1.89%	5.31%
	Hook & Line	4,634.50	13,818.90	10.79%	27.25%
	Dredges				
	Trawl-Shrimp	425.20	460.80	0.99%	0.91%
	Troll	92.70	120.80	0.22%	0.24%
	Other Gear	0.80	3.50	0.00%	0.01%
	All Gear - Total	42,937.90	50,713.40		
Vancouver - U.S.	Nets				
	Trawl	9,537.70	6,206.10	88.76%	66.00%
	Pot/Trap			0.00%	0.00%
	Hook & Line	1,181.80	3,175.20	11.00%	33.77%
	Dredges				
	Trawl-Shrimp	1.90	2.00	0.02%	0.02%
	Troll	23.60	20.30	0.22%	0.22%
	Other Gear				
	All Gear	10,745.30	9,403.70		
Columbia	Nets	4.20	1.10		
	Trawl	13,513.00	12,791.70	85.91%	69.02%
	Pot/Trap	627.60	1,939.50	3.99%	10.46%
	Hook & Line	1,251.20	3,461.90	7.95%	18.68%
	Dredges				
	Trawl-Shrimp	321.70	322.00	2.05%	1.74%
	Troll	11.90	18.50	0.08%	0.10%
	Other Gear				
	All Gear	15,729.50	18,534.60		
OR Coast	Nets				
	Trawl				
	Pot/Trap	3.40	10.80	6.17%	7.07%
	Hook & Line	39.10	129.60	70.96%	84.87%
	Dredges				
	Trawl-Shrimp	12.50	12.20	22.69%	7.99%
	Troll				
	Other Gear				
	All Gear	55.10	152.70		
Eureka	Nets	0.60	0.80	0.01%	0.01%
	Trawl	6,837.30	7,378.50	89.30%	77.87%
	Pot/Trap	63.40	103.20	0.83%	1.09%
	Hook & Line	712.40	1,950.90	9.30%	20.59%
	Dredges				
	Trawl-Shrimp	40.40	37.70	0.53%	0.40%
	Troll	1.90	4.20	0.02%	0.04%
	Other Gear	0.20	0.70	0.00%	0.01%
	All Gear	7,656.30	9,476.00		

TABLE 3.3.1.2-2b. Non-whiting groundfish landings and estimated exvessel revenue (\$1,000) for 1999, not adjusted for inflation. (Page 2 of 2)

INPFC Area	Gear	Landings (mt)	Revenue (\$1,000)	Percent of Total	
				mt	Value
Monterey	Nets	40.80	56.20	0.57%	0.60%
	Trawl	5,959.00	6,059.40	83.08%	64.62%
	Pot/Trap	80.70	354.50	1.13%	3.78%
	Hook & Line	1,026.80	2,817.30	14.32%	30.05%
	Dredges				
	Trawl-Shrimp	10.30	11.80	0.14%	0.13%
	Troll	54.90	76.20	0.77%	0.81%
	Other Gear	0.30	1.30	0.00%	0.01%
	All Gear	7,172.60	9,376.60		
Conception	Nets	112.70	142.20	7.49%	3.83%
	Trawl	893.10	923.50	59.37%	24.86%
	Pot/Trap	36.20	287.00	2.41%	7.73%
	Hook & Line	423.10	2,284.10	28.13%	61.48%
	Dredges				
	Trawl-Shrimp	38.30	75.10	2.55%	2.02%
	Troll	0.40	1.70	0.03%	0.05%
	Other Gear	0.30	1.50	0.02%	0.04%
	All Gear	1,504.20	3,715.00		
Unknown PFMC	Nets				
	Trawl	74.70	54.70	100.00%	100.00%
	Pot/Trap				
	Hook & Line				
	Dredges				
	Trawl-Shrimp				
	Troll				
	Other Gear				
	All Gear	74.70	54.70		

TABLE 3.3.1.2-2c. Non-whiting groundfish landings and estimated exvessel revenue (\$1,000) for 1996, not adjusted for inflation. (Page 1 of 2)

INPFC Area	Gear	Landings (mt)	Revenue (\$1,000)	Percent of Total	
				mt	Value
All Areas	Nets	330.20	418.40	0.54%	0.54%
	Trawl	51,554.60	52,752.70	84.04%	68.48%
	Pot/Trap	816.80	3,164.40	1.33%	4.11%
	Hook & Line	7,485.10	19,505.80	12.20%	25.32%
	Dredges	1.30	0.90	0.00%	0.00%
	Trawl-Shrimp	890.40	842.60	1.45%	1.09%
	Troll	224.00	262.80	0.37%	0.34%
	Other Gear	45.30	57.70	0.07%	0.07%
	All Gear - Total	61,343.50	77,032.40		
Vancouver - U.S.	Nets	0.50	0.10	0.00%	0.00%
	Trawl	8,583.60	7,530.70	84.58%	61.62%
	Pot/Trap	35.70	111.80	0.35%	0.91%
	Hook & Line	1,431.20	4,485.30	14.10%	36.70%
	Dredges				
	Trawl-Shrimp	90.30	83.80	0.89%	0.69%
	Troll	6.80	9.40	0.07%	0.08%
	Other Gear				
	All Gear	10,148.10	12,221.00		
Columbia	Nets	trace	0.10	0.00%	0.00%
	Trawl	19,778.50	19,726.50	88.70%	74.57%
	Pot/Trap	490.50	2,015.30	2.20%	7.62%
	Hook & Line	1,347.20	4,108.40	6.04%	15.53%
	Dredges				
	Trawl-Shrimp	633.30	557.00	2.84%	2.11%
	Troll	48.60	48.50	0.22%	0.18%
	Other Gear				
	All Gear	22,298.20	26,452.70		
OR Coast	Nets				
	Trawl				
	Pot/Trap				
	Hook & Line	53.50	125.10	95.20%	98.35%
	Dredges				
	Trawl-Shrimp	2.50	2.00	4.45%	1.57%
	Troll	0.20	0.10	0.36%	0.08%
	Other Gear				
	All Gear	56.20	127.20		
Eureka	Nets	0.20	0.30	0.00%	0.00%
	Trawl	9,596.80	11,560.00	90.05%	83.03%
	Pot/Trap	61.30	198.00	0.58%	1.42%
	Hook & Line	893.70	2,060.60	8.39%	14.80%
	Dredges				
	Trawl-Shrimp	81.80	71.90	0.77%	0.52%
	Troll	11.40	15.80	0.11%	0.11%
	Other Gear	12.20	16.50	0.11%	0.12%
	All Gear	10,657.30	13,923.10		

TABLE 3.3.1.2-2c. Non-whiting groundfish landings and estimated exvessel revenue (\$1,000) for 1996, not adjusted for inflation. (Page 2 of 2)

INPFC Area	Gear	Landings (mt)	Revenue (\$1,000)	Percent of Total	
				mt	Value
Monterey	Nets	87.40	100.00	0.62%	0.58%
	Trawl	10,900.30	11,070.60	77.68%	64.45%
	Pot/Trap	174.50	507.70	1.24%	2.96%
	Hook & Line	2,683.90	5,284.60	19.13%	30.76%
	Dredges	1.30	0.90	0.01%	0.01%
	Trawl-Shrimp	8.90	10.60	0.06%	0.06%
	Troll	145.90	173.60	1.04%	1.01%
	Other Gear	29.70	29.50	0.21%	0.17%
	All Gear	14,032.00	17,177.40		
Conception	Nets	242.00	317.90	5.96%	4.51%
	Trawl	2,603.40	2,801.10	64.11%	39.74%
	Pot/Trap	54.50	355.60	1.34%	5.04%
	Hook & Line	1,073.50	3,430.60	26.43%	48.67%
	Dredges				
	Trawl-Shrimp	73.30	116.70	1.80%	1.66%
	Troll	11.20	15.40	0.28%	0.22%
	Other Gear	3.30	11.70	0.08%	0.17%
	All Gear	4,061.10	7,049.00		
Unknown PFMC	Nets				
	Trawl	92.00	66.90	97.25%	81.59%
	Pot/Trap	0.30	3.00	0.32%	3.66%
	Hook & Line	2.00	11.30	2.11%	13.78%
	Dredges			0.00%	0.00%
	Trawl-Shrimp	0.20	0.70	0.21%	0.85%
	Troll				
	Other Gear				
	All Gear	94.60	82.00		



TABLE 3.3.1.2-3a. Pacific whiting landings and estimated exvessel revenue (\$1,000) for **1996**, not adjusted for inflation. Includes at-sea and shoreside. Predominately trawl.

INPFC Area	Landings (mt)	Revenue (\$1,000)	Percent of Total	
			mt	Value
All Areas	191,333.40	16,711.90		
Vancouver - U.S.	47,533.30	6,050.40	24.84%	36.20%
Columbia	130,863.00	9,557.80	68.40%	57.19%
OR Coast	-	-	-	-
Eureka	12,860.00	1,097.90	6.72%	6.57%
Monterey	70.40	4.30	0.04%	0.03%
Conception	0.40	0.90	0.00%	0.01%
Unknown PFMC Area	6.40	0.60	0.00%	0.00%

TABLE 3.3.1.2-3b. Pacific whiting landings and estimated exvessel revenue (\$1,000) for **1999**, not adjusted for inflation. Includes at-sea and shoreside. Predominately trawl.

INPFC Area	Landings (mt)	Revenue (\$1,000)	Percent of Total	
			mt	Value
All Areas	223,384.70	18,642.40		
Vancouver - U.S.	102,616.30	8,801.80	45.94%	47.21%
Columbia	119,282.90	9,709.40	53.40%	52.08%
OR Coast	-	-	0.00%	0.00%
Eureka	1,429.00	125.70	0.64%	0.67%
Monterey	0.40	0.30	0.00%	0.00%
Conception	-	-	0.00%	0.00%
Unknown PFMC Area	56.00	5.20	0.03%	0.03%

TABLE 3.3.1.2-3c. Pacific whiting landings and estimated exvessel revenue (\$1,000) for **2000**, not adjusted for inflation. Includes at-sea and shoreside. Predominately trawl.

INPFC Area	Landings (mt)	Revenue (\$1,000)	Percent of Total	
			mt	Value
All Areas	206,438.60	18,735.60		
Vancouver - U.S.	73,979.20	6,621.20	35.84%	35.34%
Columbia	126,773.30	11,272.50	61.41%	60.17%
OR Coast	-	-	0.00%	0.00%
Eureka	5,460.00	819.30	2.64%	4.37%
Monterey	1.10	0.30	0.00%	0.00%
Conception	0.20	0.40	0.00%	0.00%
Unknown PFMC Area	224.80	21.90	0.11%	0.12%

TABLE 3.3.1.4-1. Exvessel revenue by port area and species group in 2000<sup>a/</sup> (Page 1 of 1)

	Limited Entry						Open Access Vessels			All Vessels							Total			
	Trawl			Fixed Gear			Other Groundfish	Sablefish	Rockfish	All Gears										
	Sablefish	Whiting	Flatfish	October 2001	Dover/Thornyheads	Rockfish				Other Groundfish	Other Groundfish	Other Groundfish	Shrimp/Prawns	Crab/Lobster	Salmon	HMS		CPS	Other Species	
Inside Puget Sound	350	0	1,033	255	481	84	1,100	8	142	2	0	8	0	111	3,109	0	167	0	103	6,954
Olympic and Kitsap Peninsula	171	b/	314	157	363	7	848	b/	b/	157	b/	b/	21	5	1,014	145	b/	b/	178	3,559
Central Washington Coast	159	b/	271	256	407	10	466	26	3	79	21	13	52	2,208	15,764	130	5,255	b/	142	26,848
Astoria-Tillamook	1,698	2,157	1,130	2,511	2,510	28	1,455	10	2	67	77	20	145	4,314	6,896	449	2,835	1,159	170	27,635
Newport	1,215	934	585	948	1,487	27	978	7	10	53	35	30	172	3,527	6,254	1,104	3,041	16	191	20,615
Coos Bay	1,203	11	986	1,898	599	37	719	5	1	99	19	26	71	2,623	5,101	1,251	608	0	249	15,483
Brookings	355	c/	151	497	382	10	480	135	54	17	242	161	c/	339	2,986	260	79	-	659	6,832
Crescent City	420	d/	222	670	184	23	238	31	18	72	162	101	d/	977	5,999	6	270	1	65	9,696
Eureka	931	421	815	1,530	384	41	353	51	8	97	36	29	4	195	2,893	131	406	0	129	8,215
Fort Bragg	490	-	221	1,048	349	21	201	26	14	385	177	335	2	173	850	861	60	-	3,232	8,446
San Francisco	194	c/	1,009	478	420	26	422	163	8	30	379	107	792	674	3,359	5,314	226	64	2,903	16,569
Monterey	125	0	161	698	194	14	494	261	49	322	237	133	102	390	92	3,059	833	3,422	84	10,670
San Luis Obispo	78	-	68	373	121	2	b/	25	b/	0	538	522	109	1,272	128	793	1,559	0	31	5,628
Santa Barbara	c/	-	c/	1	c/	0	16	63	3	40	470	310	626	2,619	2,249	4	493	11,452	5,298	23,652
Los Angeles	-	-	-	-	-	-	159	212	7	35	41	63	635	594	1,656	1	10,192	13,857	5,188	32,639
San Diego	-	-	-	-	-	-	b/	b/	b/	34	43	27	177	329	2,009	-	2,239	21	1,034	5,937
Inland California	-	-	-	-	-	-	-	-	-	-	b/	b/	-	51	3	-	b/	-	59	116
<b>Totals</b>	<b>7,391</b>	<b>4,643</b>	<b>6,966</b>	<b>11,320</b>	<b>7,883</b>	<b>330</b>	<b>7,959</b>	<b>1,068</b>	<b>332</b>	<b>1,489</b>	<b>2,485</b>	<b>1,896</b>	<b>2,906</b>	<b>20,402</b>	<b>60,363</b>	<b>13,509</b>	<b>28,377</b>	<b>30,459</b>	<b>19,718</b>	<b>229,494</b>

a/ With respect to groundfish, all landings by any vessel with a limited entry trawl permit were counted as trawl limited entry landings (including permits endorsed for both trawl and fixed gear). Thus a licensed vessel will not show up under both fixed gear and trawl limited entry categories. Limited entry vessels may however show up multiple times within a limited entry category (e.g., the limited entry trawl category) if they (1) landed in more than one port or (2) landed more than one of the indicated groundfish species groups. Additionally, a limited entry vessel will show up at least once in the "All Vessels Category" for each category of species that the vessel landed (the vessel will show up more than once in the category if the vessel landed in more than one port).

b/ Omitted to preserve confidentiality. Value included in total for column and row.

c/ Value combined with next row up in order to protect confidentiality. Totals include the value in the row for the proper port.

d/ Value combined with next row down in order to protect confidentiality. Totals include the value in the row for the proper port.



TABLE 3.3.1.4-2. Number of vessels delivering by port and species group in 2000<sup>cl</sup>. (Page 2 of 3)

	Limited Entry						Open Access Vessels			All Vessels										
	Trawl			Fixed Gear			Sablefish	Rockfish	Other Groundfish	All Gears										
	Sablefish	Whiting	Flounder	Dover/Thornyheads	Rockfish	Other Groundfish				Hailbut	Shrimp/Prawns	Crab/Lobster	Salmon	HMS	CPS	Other Species				
Trinidad																				
Eureka Area	20	6	21	20	26	21	7	7	7	16	19	18	5	9	94	38	23	7	38	
Fields Landing	13	4	13	13	14	14	1	1	1	3	4	2	2	2	19	5	9	2	16	
Orick	1		1	1						1	12	9	1	1	5	4	1		3	
Fort Bragg	16		16	16	17	16	7	6	5	37	73	64	2	4	41	111	11		82	
Albion								1	1		11	12			1	3			24	
Point Arena	1				1	1				1	16	17		1	5	8	2		22	
Elk	1		1	1	1	1				4				2	7	2			6	
Bodega Bay	9		9	10	10	9	3	5	4	2	51	39	18	3	72	222	22	2	25	
Cloverdale											5	5	6	4	5	7	2		6	
Yountville			1		1						5	4	3	8	4	4	1	1	13	
Tomaes Bay											1	2	2			1			1	
Point Reyes													7		8	33			1	
Sausalito											3	3	5		3	84	11		36	
Oakland											1	1				3	1		3	
Alameda											2	2	2		4	4	1		3	
Berkeley								1	1	1	9	8	6		9	15	3		12	
Richmond							1	1			3	2	4	2	1	3			2	
San Francisco	14		15	15	16	13	7	11	9	8	43	30	39	4	53	146	13	4	145	
Princeton	10	1	11	9	11	11	2	9	4	9	70	47	48	3	63	258	19	30	41	
Gilroy											25	26	3			1			4	
Santa Cruz	4		4	3	4	3	3	9	1	16	42	31	23		16	132	34	9	18	
Moss Landing	11		10	11	10	7	12	16	13	28	68	61	25	13	15	242	53	27	32	
Monterey	3	2	4	3	5	4	2	2	2	2	55	50	13	9	7	60	17	22	19	
San Simeon											24	23	1			2			6	
Morro Bay	11		14	11	14	10	1	5	2	5	106	91	24	18	13	72	98	1	65	
Avila	7		7	7	8	4	4	3	1		72	62	32	7	18	32	29	2	35	
Santa Barbara			3		2	2		1	2	1	68	88	58	38	72	2	20	16	176	
Santa Cruz Island										1	2	1		1					4	
Port Hueneme							1	1			5	4	2	3			1	49	15	
Oxnard							3	3	2	8	38	52	27	15	38		21	11	103	
Ventura	1		1	1			2	2	1	2	17	33	32	15	28		1	23	42	48
Terminal Island							3	3	2	3	12	33	52	22	25		92	48	154	
San Pedro							1	2	1		7	37	34	6	34		102	80	125	
Willmington							1	1	1				1				3	1	3	
Catalina Island							4	6	4	4	11	16	18	6	30	1	24	14	46	
Long Beach							1	1	1	1	4	5	3	5	3		5	3	21	
Newport Beach							3	4	4	1	3	6	6	2	9		8	3	26	
Dana Point							3	3	1			3		6	36		8		26	
North Shore										5	15	18	13	7	48		33	5	63	

TABLE 3.3.1.4-2. Number of vessels delivering by port and species group in 2000<sup>c/</sup>. (Page 3 of 3)

	Limited Entry						Open Access Vessels			All Vessels								
	Trawl			Fixed Gear			Sablefish	Rockfish	Other Groundfish	All Gears								
	Sablefish	Whiting	Flatfish	Dover/Thornyheads	Rockfish	Other Groundfish				Haiibut	Shrimp/Prawns	Crab/Lobster	Salmon	HMS	CPS	Other Species		
San Diego							5	23	23	10	6	62	77	10	91			
Oceanside							2	2	1	2	3	10	11	4	17	43	2	22
Inland California											2	1	4	8	2			9

TABLE 3.3.1.7-1. Groundfish trawl fleet by combinations of fisheries in which vessels participate and percent of revenue from each fishery. (Page 1 of 2)

Fishery Combinations (Gear, Species, Area--if area is different from Council managed areas)	(\$ '000)		Average Percent of Revenue from Each Fishery																											
	Number of Vessels	October 2001 Average Rev Per Yr	Avg Rev/Ves/Yr Fished	Cum Perc of Vessels October 2001	Cum Perc of Revenue	Tri Albacore All Areas	CR&WACoast Salm	EntNet CAHalb	EntNet GF	EntNet Swdf&Shks	HKL GF&Halbs	HKL TropTunSwdf&Shks	OhGr Swdf&Shks	Pot DCrb Oc&PS	Pot OhCrb	Pot Groundfish	Pot Lobster	Pot Sh&Pr Oc&PS	Sn&Net CPS-#f	Sn&Net CPS-sqd	Sn&Onet Trop Tun	Troll Salmon	Trawl CA Halb	Trawl GF (not Whiting)	Trawl Shrimp&Prawns	Trawl Whiting	Trawl-Puget Sound	Net Sal Puget Sound	AllGr Herring All Areas	AI Gr Ech&Mol
Pot DCrb Oc&PS, Twl GF(xWHT), Twl ShPr, Twl Wh	5	2408	482	0	1	-	-	-	-	-	-	-	-	19	-	-	-	-	-	-	-	-	-	37	25	14	-	-	-	-
Pot DCrb Oc&PS, Twl GF(xWHT), Twl Wh	8	3,762	470	0	2	-	-	-	-	-	-	-	-	17	-	-	-	-	-	-	-	-	-	30	-	49	-	-	-	-
Twl GF(xWHT), Twl ShPr, Twl Wh	7	2,628	438	0	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	71	10	15	-	-	-	-	
Twl GF(xWHT), Twl Wh	26	5,899	284	0	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35	-	60	-	-	-	-	
Tri Alb All, Twl GF(xWHT), Twl ShPr	6	1,647	274	1	6	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	51	32	-	-	-	-	-	
HKL GF&Halbs, Pot DCrb Oc&PS, Twl GF(xWHT), Twl ShPr	4	1,071	268	1	6	-	-	-	-	3	-	-	-	35	-	-	-	-	-	-	-	-	46	12	-	-	-	-	-	
Twl GF(xWHT), Twl ShPr	63	15,801	268	1	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	73	22	-	-	-	-	-	
Tri Alb All, Pot DCrb Oc&PS, Twl GF(xWHT), Twl ShPr	7	1,825	261	1	12	3	-	-	-	-	-	-	-	32	-	-	-	-	-	-	-	-	41	18	-	-	-	-	-	
Pot DCrb Oc&PS, Twl GF(xWHT), Twl ShPr	37	9,152	247	2	15	-	-	-	-	-	-	-	-	29	-	-	-	-	-	-	-	-	41	24	-	-	-	-	-	
Twl GF(xWHT)	73	13,646	247	2	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	91	-	-	-	-	-	-	
Twl CAHalb, Twl GF(xWHT)	9	1,790	224	3	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	69	-	-	-	-	-	-	
Pot DCrb Oc&PS, Twl GF(xWHT)	11	1,874	195	3	21	-	-	-	-	-	-	-	-	31	-	-	-	-	-	-	-	-	62	-	-	-	-	-	-	
Tri Alb All, Twl GF(xWHT)	10	1,523	166	3	22	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68	-	-	-	-	-	-	
Twl CAHalb, Twl GF(xWHT), Twl ShPr	9	1,148	137	3	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	47	21	-	-	-	-	-	
Tri Alb All, Pot DCrb Oc&PS, Twl GF(xWHT)	5	577	137	3	22	12	-	-	-	-	-	-	-	53	-	-	-	-	-	-	-	-	31	-	-	-	-	-	-	
Pot DCrb Oc&PS, Twl CAHalb, Twl GF(xWHT), Twl ShPr	3	386	129	3	22	-	-	-	-	-	-	-	-	23	-	-	-	-	-	-	-	-	2	56	6	-	-	-	-	
Twl GF(xWHT), Twl ShPr-GF-Ec PS	8	374	62	3	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44	-	-	15	-	-	-	
Pot DCrb Oc&PS, Twl CAHalb, Twl GF(xWHT)	3	158	53	3	23	-	-	-	-	-	-	-	-	25	-	-	-	-	-	-	-	-	18	49	-	-	-	-	-	
HKL GF&Halbs, Tri Salm, Twl GF(xWHT)	4	170	50	3	23	-	-	-	-	52	-	-	-	-	-	-	-	-	-	-	-	17	27	-	-	-	-	-	-	
Twl CAHalb, Twl	4	94	39	3	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	5	-	-	-	-	-	45	

TABLE 3.3.1.7-1. Groundfish trawl fleet by combinations of fisheries in which vessels participate and percent of revenue from each fishery. (Page 2 of 2)

Fishery Combinations (Gear, Species, Area--if area is different from Council managed areas)	(\$ '000)		Average Percent of Revenue from Each Fishery																											
	Number of Vessels	Average Rev Per Yr	Avg Rev/Ves/Yr Fished	Cum Perc of Vessels	Cum Perc of Revenue	Tri Albacore All Areas	CR&W/ACoast Salm	EntNet CAHalb	EntNet GF	EntNet Swdf&Shks	HKL GF&Halbs	HKL TropTunSwdf&Shks	OthGr Swdf&Shks	Pot OhCrb	Pot DCrb Oc&PS	Pot Groundfish	Pot Lobster	Pot Sh&Pr Oc&PS	Sn&Net CPS-#	Sn&Net CPS-sqd	Sn&Onet Trop Tun	Troll Salmon	Trawl CA Halb	Trawl GF (not Whiting)	Trawl Shrimp&Prawns	Trawl Whiting	Trawl-Puget Sound	Net Sal Puget Sound	AllGr Herring All Areas	AllGr Ech&Mol
GF(xWHT), AllGr Ech&Mol	3	115	38	3	23	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	18	8	9	-	-	-	-	44
CAHalb, Twl GF(xWHT), Twl ShPr, AllGr Ech&Mol	5	144	34	3	23	-	-	-	22	72	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	
EntNet GF, HKL GF&Halbs, Twl GF(xWHT)	4	80	27	3	23	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	35	5	-	-	-	-	30	
CAHalb, Twl GF(xWHT), AllGr Ech&Mol	3	66	24	3	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44	5	1	-	-	-	33	
Twl CAHalb, Twl GF(xWHT), Twl ShPr, AllGr Ech&Mol	3	54	21	3	23	-	-	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32	4	-	-	-	-	
EntNet CAHalb, Twl CAHalb, Twl GF(xWHT)	12	105	19	4	23	-	-	-	-	81	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	
HKL GF&Halbs, Twl GF(xWHT)	3	29	13	4	23	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	36	-	-	-	56	-	
Twl GF(xWHT), Net Salm PS																														
Total of Above 27 Combinations	335	66,526																												
52 Other Combinations	60	5,774		<1	2																									
Total	395	72,300		4	25																									

NOTES: Each vessel was assigned to a combination based on strategies from which the vessel derived 5% of its revenue in at least one year from 1994-1998. Areas of catch are Council managed areas, unless otherwise noted. Cumulative percentages are expressed as a proportion of the totals for all vessels landing on the West Coast. Percentages do not add to 100 because vessels derive some income from species/gear/area combinations not included here. See Appendix C for methodology and key to abbreviations.

TABLE 3.3.1.7-2. Groundfish and halibut hook-and-line fleet by combinations of fisheries in which vessels participate and percent of revenue from each fishery. (Page 1 of 3)

October 2001 Fishery Combinations (Gear, Species, Area--if area is different from Council managed areas)	(\$ '000)			Average Percent of Revenue from Each Fishery																										
	Number of Vessels	Average Rev Per Yr	Avg Rev/Ves/Yr Fished	Cum Perc of Vessels	Cum Perc of Revenue	Tri Albacore All Areas	CR&WACoast Salm	EntNet CAHalb	EntNet GF	EntNet Swdf&Shks	HKL GF&Halbs	HKL TroptunSwdf&Shks	OthGr Swdf&Shks	Pot Dcb Oc&PS	Pot OthCrb	Pot Groundfish	Pot Lobster	Pot Sh&Pr Oc&PS	Sn&Net CPS-#f	Sn&Net CPS-sqd	Sn&Net Trop Tun	Troll Salmon	Trawl CA Halb	Trawl GF (not Whiting)	Trawl Shrimp&Prawns	Trawl Whiting	Trawl-Puget Sound	Net Sai Puget Sound	AllGr Herring All Areas	AllGr Ech&Mol
HKL GF&Halbs, Pot DCrb Oc&PS, Twl GF(xWHT), Twl ShPr	4	1,071	268	0	0	-	-	-	-	-	3	-	-	35	-	-	-	-	-	-	-	-	-	46	12	-	-	-	-	-
HKL GF&Halbs, Pot DCrb Oc&PS, Pot GF Tri Alb All, EntNet Swdf&Shks, HKL GF&Halbs	21	2,308	115	0	1	-	-	-	-	19	-	-	-	51	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tri Alb All, HKL GF&Halbs, Pot DCrb Oc&PS	51	4,265	94	1	3	10	-	-	-	27	-	-	-	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tri Alb All, HKL GF&Halbs, Pot DCrb Oc&PS, Twl ShPr	3	247	82	1	3	11	-	-	-	3	-	-	-	46	-	-	-	-	-	-	-	-	-	-	35	-	-	-	-	
HKL GF&Halbs, Pot DCrb Oc&PS, Pot Sh&Pr Oc&PS	4	295	74	1	3	-	-	-	-	34	-	-	-	53	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	
Tri Alb All, HKL GF&Halbs, Pot GF, AllGr Ech&Mol	3	190	73	1	3	3	-	-	-	16	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61	
HKL GF&Halbs, Pot DCrb Oc&PS, AllGr Ech&Mol	4	228	71	1	3	-	-	-	-	16	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	53	
HKL GF&Halbs, Twl ShPr-GF-Ec PS	3	142	71	1	3	-	-	-	-	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	77	-	-	-	
Tri Alb All, HKL GF&Halbs, Pot DCrb Oc&PS, AllGr Ech&Mol	3	198	66	1	3	3	-	-	-	14	-	-	-	46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33	
Tri Alb All, HKL GF&Halbs, Pot OthCrb, Pot DCrb Oc&PS	3	159	57	1	3	5	-	-	-	14	-	14	61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
HKL GF&Halbs, Pot DCrb Oc&PS	120	4,557	51	2	5	-	-	-	-	37	-	-	-	57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tri Alb All, HKL GF&Halbs, Pot DCrb Oc&PS, Pot GF, Trl Salm	8	388	51	2	5	6	-	-	-	24	-	-	-	44	4	-	-	-	-	-	17	-	-	-	-	-	-	-	-	
HKL GF&Halbs, Trl Salm, Twl GF(xWHT)	4	170	50	2	5	-	-	-	-	52	-	-	-	-	-	-	-	-	-	-	17	27	-	-	-	-	-	-	-	
HKL GF&Halbs, Pot GF, AllGr Ech&Mol	12	457	49	3	5	-	-	-	-	16	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70	
Tri Alb All, HKL GF&Halbs, Pot DCrb Oc&PS, Trl Salm	62	2,738	47	3	6	13	-	-	-	18	-	-	-	37	-	-	-	-	-	-	27	-	-	-	-	-	-	-	-	
HKL GF&Halbs, AllGr Ech&Mol	48	1,704	44	4	7	-	-	-	-	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76	
HKL GF&Halbs, Pot DCrb Oc&PS, Trl Salm, AllGr Herr All	4	151	44	4	7	-	-	-	-	5	-	-	-	45	-	-	-	-	-	-	12	-	-	-	-	-	-	-	34	
HKL GF&Halbs, Pot OthCrb, Pot DCrb Oc&PS, Trl Salm	3	120	40	4	7	-	-	-	-	41	-	-	1	23	-	-	-	-	-	-	31	-	-	-	-	-	-	-	-	
HKL GF&Halbs, Pot DCrb Oc&PS, Pot GF, Trl Salm	4	157	39	4	7	-	-	-	-	22	-	-	-	41	24	-	-	-	-	-	9	-	-	-	-	-	-	-	-	
HKL GF&Halbs, Twl CAHalb, Twl GF(xWHT), Twl ShPr, AllGr Ech&Mol	3	115	38	4	7	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	18	8	9	-	-	-	-	44	
EntNet GF, HKL GF&Halbs, Twl GF(xWHT)	5	144	34	4	7	-	-	-	22	72	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	





TABLE 3.3.1.7-2. Groundfish and halibut hook-and-line fleet by combinations of fisheries in which vessels participate and percent of revenue from each fishery. (Page 3 of 3)

Fishery Combinations (Gear, Species, Area--if area is different from Council managed areas)	(\$ '000)		Average Percent of Revenue from Each Fishery																											
	Number of Vessels	Average Rev Per Yr	Avg Rev/Ves/Yr Fished	Cum Perc of Vessels	Cum Perc of Revenue	Tri Albacore All Areas	CR&WA Coast Salm	EntNet CA Halb	EntNet GF	EntNet Swdf&Shks	HKL GF&Halbs	HKL TropTunSwdf&Shks	OthrGr Swdf&Shks	Pot OthCrb	Pot DCrb Oc&PS	Pot Groundfish	Pot Lobster	Pot Sh&Pr Oc&PS	Sn&Net CPS-#f	Sn&Net CPS-sqd	Sn&Net Trop Tun	Troll Salmon	Trawl CA Halb	Trawl GF (not Whiting)	Trawl Shrimp&Prawns	Trawl Whiting	Trawl-Puget Sound	Net Sai Puget Sound	AllGr Herring All Areas	AllGr Ech&Mol
HKL GF&Halbs, Pot OthCrb	19	35	4	28	13	-	-	-	-	-	40	-	-	46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HKL GF&Halbs, HKL TropTun-Swdf&Shks, Tri Salm	3	3	2	28	13	-	-	-	-	-	38	6	-	-	-	-	-	-	-	-	-	44	-	-	-	-	-	-	-	
Total of Above 52 Combinations	2,678	38,567																												
142 Other Combinations	171	5,713		2	2																									
Total	2,849	44,280		30	15																									

NOTES: Each vessel was assigned to a combination based on strategies from which the vessel derived 5% of its revenue in at least one year from 1994-1998. Areas of catch are Council managed areas, unless otherwise noted. Cumulative percentages are expressed as a proportion of the totals for all vessels landing on the West Coast. Percentages do not add to 100 because vessels derive some income from species/gear/area combinations not included here. See Appendix C for methodology and key to abbreviations.

TABLE 3.3.1.7-3. Groundfish pot fleet by combinations of fisheries in which vessels participate and percent of revenue from each fishery. (Page 1 of 1)

Fishery Combinations (Gear, Species, Area--if area is different from Council managed areas)	(\$ '000)		Average Percent of Revenue from Each Fishery																											
	October 20 Vessels	Average Rev Per Yr	Avg Rev/Ves/Yr Fished	Cum Perc of Vessels	Cum Perc of Revenue	Tri Albacore All Areas	CR&WACoast Salm	EniNet CAHalb	EniNet GF	EniNet Swdf&Shks	HKL GF&Halbs	HKL TropTunSwdf&Shks	OthGr Swdf&Shks	Pot OthCrb	Pot DCrb Oc&PS	Pot Groundfish	Pot Lobster	Pot Sh&Pr Oc&PS	Sn&Net CPS-ff	Sn&Net CPS-sqd	Sn&Onet Trop Tun	Troll Salmon	Trawl CA Halb	Trawl GF (not Whiting)	Trawl Shrimp&Prawns	Trawl Whiting	Trawl-Puget Sound	Net Sal Puget Sound	AllGr Herring All Areas	AllGr Ech&Mol
Tri Alb All, Pot DCrb Oc&PS, Pot GF	9	2,358	274	0	1	7	-	-	-	-	-	-	-	-	61	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tri Alb All, Pot DCrb Oc&PS, Pot GF, Tri Salm	3	338	121	0	1	16	-	-	-	-	-	-	-	-	64	7	-	-	-	-	-	10	-	-	-	-	-	-	-	-
HKL GF&Halbs, Pot DCrb Oc&PS, Pot GF	21	2,308	115	0	2	-	-	-	-	19	-	-	-	-	51	23	-	-	-	-	-	-	-	-	-	-	-	-	-	
Pot DCrb Oc&PS, Pot GF	10	924	110	0	2	-	-	-	-	-	-	-	-	-	71	24	-	-	-	-	-	-	-	-	-	-	-	-	-	
Pot OthCrb, Pot DCrb Oc&PS, Pot GF	3	203	85	0	2	-	-	-	-	-	-	-	-	10	59	27	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tri Alb All, HKL GF&Halbs, Pot GF, AllGr Ech&Mol	3	190	73	1	2	3	-	-	-	16	-	-	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	61	
Pot GF, Pot Lob, AllGr Ech&Mol	3	171	66	1	2	-	-	-	-	-	-	-	-	-	-	1	19	-	-	-	-	-	-	-	-	-	-	-	73	
Pot DCrb Oc&PS, Pot GF, Tri Salm	5	254	53	1	2	-	-	-	-	-	-	-	-	-	82	8	-	-	-	-	6	-	-	-	-	-	-	-	-	
Tri Alb All, HKL GF&Halbs, Pot DCrb Oc&PS, Pot GF, Tri Salm	8	388	51	1	2	6	-	-	-	24	-	-	-	44	4	-	-	-	-	-	17	-	-	-	-	-	-	-	-	
HKL GF&Halbs, Pot GF, AllGr Ech&Mol	12	457	49	1	3	-	-	-	-	16	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	70	
HKL GF&Halbs, Pot DCrb Oc&PS, Pot GF, Tri Salm	4	157	39	1	3	-	-	-	-	22	-	-	-	41	24	-	-	-	-	-	9	-	-	-	-	-	-	-	-	
HKL GF&Halbs, Pot GF, Pot Sh&Pr Oc&PS	4	83	32	1	3	-	-	-	-	18	-	-	-	-	52	-	8	-	-	-	-	-	-	-	-	-	-	-	-	
Pot GF, AllGr Ech&Mol	6	152	29	1	3	-	-	-	-	-	-	-	-	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	85	
HKL GF&Halbs, Pot GF	61	473	15	2	3	-	-	-	-	69	-	-	-	-	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Pot GF	13	34	13	2	3	-	-	-	-	-	-	-	-	-	91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
HKL GF&Halbs, Pot GF, Tri Salm	22	199	12	2	3	-	-	-	-	34	-	-	-	-	17	-	-	-	-	-	44	-	-	-	-	-	-	-	-	
Total of Above 16 Combinations	187	8,689																												
54 Other Combinations	85	5,132		1	2																									
Total	272	13,821		3	5																									

NOTES: Each vessel was assigned to a combination based on strategies from which the vessel derived 5% of its revenue in at least one year from 1994-1998. Areas of catch are Council managed areas, unless otherwise noted. Cumulative percentages are expressed as a proportion of the totals for all vessels landing on the West Coast. Percentages do not add to 100 because vessels derive some income from species/gear/area combinations not included here. See Appendix C for methodology and key to abbreviations.

TABLE 3.3.2-1. By port, number of buyers by species group (for groundfish purchases, separation is made between groundfish limited entry trawl, groundfish limited entry fixed gear, and open access deliveries of groundfish).<sup>d/</sup> (Page 1 of 3)

	Categories of Groundfish Deliveries									Categories of Nongroundfish Deliveries									
	Limited Entry						Open Access			All Vessels									
	Trawl			Fixed Gear						All Gears									
	Sablefish	Whiting	Flattish	Dover/Thornyheads	Rockfish	Other Groundfish	Sablefish	Rockfish	Other Groundfish	Sablefish	Rockfish	Other Groundfish	Halibut	Shrimp/Prawns	Crab/Lobster	Salmon	HMS	CPS	Other Species
Blaine	1	1	1	1	1	2			1						4		1		1
Bellingham	1		1	1	1	2	2	1	2	1	1	1		1	7		1		2
Anacortes															3		1		
La Conner							1	1											
Everett															1				
Seattle							1	1	1					1	7		5		
Tacoma																	1		
Olympia															1				
Shelton															1				
Centralia	1		1	1	1	1								1	1				1
Port Townsend					1		1	1	1					1	1	1	1		1
Port Angeles	1		1	1	1	1	1	1	1	1	2	2		1	2	2	1		1
Neah Bay	4		4	4	4	4	1			2	2	3	2			1			4
La Push							1	1	1	1	1	1			1	1	1		1
Quillayute															1		3		
Copalis							1		1				1	1	1				
Aberdeen							1	1	1	1	2	2	1		2	3	3	1	
Westport (WA)	3	1	2	2	5	4	4	2	3	6	6	9	6	12	17	11	11	2	4
Tokeland							1	1		3	2	2	1	5	10		1		6
Ilwaco	2	1	2	2	2	2	2	2	1	2	2	2	6	2	7	4	6	2	3
Pacific County															2		1		
Astoria	5	3	7	6	7	6	6	4	3	5	6	6	9	7	7	16	11	6	5
Gearhart-Seaside																4	1		2
Cannon Beach																2			
Nehalem Bay														2	1				2
Garibaldi (Tillamook)	3		3	3	3	3				4	11	12	8	5	10	15	6		13
Netarts														2					
Pacific City											3	4		5	4	2	2		2
Depoe Bay										2	4	3	2		5	5	1		4
Newport	6	3	6	5	6	6	8	6	9	5	22	20	21	8	22	37	31	4	11
Waldport														7	7				
Florence			1		1		2	1	1	1	3	2	3	3	8	7	7		1
Winchester							1	2	2		2	3	6	2	10	11	11	1	2
Charleston (Coos Bay)	3	2	5	4	4	6	4	5	3	5	13	13	12	5	8	25	22	2	12
Bandon											4	3	3		1	11	3		
Port Orford							3	4	4	2	6	5	3	1	6	7	2		5
Gold Beach								2	1		9	8	1	1	3	1			7
Brookings	5	1	6	5	5	5	1	3	3	3	13	10	1	6	13	12	8		12

TABLE 3.3.2-1. By port, number of buyers by species group (for groundfish purchases, separation is made between groundfish limited entry trawl, groundfish limited entry fixed gear, and open access deliveries of groundfish).<sup>d/</sup> (Page 2 of 3)

	Categories of Groundfish Deliveries												Categories of Nongroundfish Deliveries						
	Limited Entry						Open Access						All Vessels						
	Trawl						Fixed Gear						All Gears						
	Sablefish	Whiting	Flattish	Dover/Thornyheads	Rockfish	Other Groundfish	Sablefish	Rockfish	Other Groundfish	Sablefish	Rockfish	Other Groundfish	Halibut	Shrimp/Prawns	Crab/Lobster	Salmon	HMS	CPS	Other Species
October 2001																			
Crescent City	4	1	4	4	6	5	4	6	5	5	16	12	2	11	22	3	10	1	9
Requa																			1
Trinidad											4	4			10	2			
Eureka Area	3	1	4	3	3	2	5	8	7	7	11	11	2	2	19	7	8	1	8
Fields Landing	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	2	1	1
Orick	1		1	1						2	8	7	1	1	8	5	1		3
Fort Bragg	5		5	3	5	6	3	3	2	3	12	9	2	6	14	13	7		14
Albion								2	1		4	5			1	2			10
Point Arena	1				1	1				1	4	6		1	4	6	2		7
Elk	1		1	1	1	1				3				2	5	2			5
Bodega Bay	6		6	6	5	5	3	7	4	2	21	20	6	3	15	34	7	2	13
Cloverdale											5	5	4	6	5	7	2		7
Yountville			1		1						6	4	3	6	4	4	1	1	14
Tomales Bay											1	2	3			1			1
Point Reyes													1		1	2			1
Sausalito											1	1	2		1	7	1		2
Oakland											4	2				3	1		4
Alameda											3	2	2		3	3	1		2
Berkeley								5	5	1	10	8	4		4	13	4		11
Richmond							1	1			3	2	3	3	1	5			1
San Francisco	7		8	8	8	8	4	19	13	9	28	25	20	4	16	19	10	2	38
Princeton	7	1	7	6	7	7	2	7	4	7	28	18	18	3	33	54	11	8	15
Gilroy											6	6	3			1			3
Santa Cruz	6		7	4	6	5	3	3	1	5	14	11	10		13	28	10	5	11
Moss Landing	7		9	7	9	7	7	9	6	6	13	13	13	5	6	41	13	6	11
Monterey	2	3	3	2	3	3	1	2	2	3	19	19	5	10	5	8	9	7	13
San Simeon											5	4	1			2			3
Morro Bay	4		7	3	7	5	4	12	4	5	17	17	9	11	8	19	30	1	26
Avila	3		3	2	3	1	3	3	1		10	10	4	5	8	8	8	1	8
Santa Barbara			4		3	3		1	2	1	20	29	27	34	35	2	6	16	58
Santa Cruz Island										1	2	1			2				3
Port Hueneme							1	1			5	5	2	3			1	12	9
Oxnard							3	9	9	5	14	26	24	15	23		15	11	50
Ventura	1		1	1			2	2	1	3	15	24	21	18	24	1	16	11	36
Terminal Island							5	5	3	6	10	16	15	12	12		16	10	48
San Pedro							2	3	1		2	13	13	6	21		24	16	35
Willmington							1	1	1				1				3	1	3
Catalina Island							3	5	2	4	10	9	10	7	26	1	11	12	26

TABLE 3.3.2-1. By port, number of buyers by species group (for groundfish purchases, separation is made between groundfish limited entry trawl, groundfish limited entry fixed gear, and open access deliveries of groundfish).<sup>d/</sup> (Page 3 of 3)

	Categories of Groundfish Deliveries									Categories of Nongroundfish Deliveries									
	Limited Entry						Open Access			All Vessels									
	Trawl			Fixed Gear						All Gears									
	Sablefish	Whiting	Flattish	Dover/Thornyheads	Rockfish	Other Groundfish	Sablefish	Rockfish	Other Groundfish	Sablefish	Rockfish	Other Groundfish	Halibut	Shrimp/Prawns	Crab/Lobster	Salmon	HMS	CPS	Other Species
Long Beach						1	1	1	1	4	5	3	4	3			5	3	18
Newport Beach						2	2	2	1	2	4	4	2	9			7	3	11
Dana Point						3	3	1			3		6	17			10		16
North Shore									7	11	15	10	9	25			19	4	30
San Diego									5	13	13	12	6	26			25	7	30
Oceanside						2	2	1	2	3	7	11	4	14			11	2	13
Inside California										2	1		3	7			2		5
Total Buying "Locations"	94	19	112	87	111	102	108	162	119	140	480	506	360	287	626	482	451	162	735

TABLE 3.3.3-1. Trends in effort for recreational ocean fisheries in thousands of angler trips. (Page 1 of 1)

Area	Charter					Private				
	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>Total Angler Trips</b>										
Washington	51	50	44	49	49	52	55	37	52	52
Oregon	54	65	57	60	87	57	87	213	173	330
Northern California	90	139	158	162	206	253	312	528	549	523
Southern California	982	812	674	609	876	1,099	1,073	1,167	879	1,314
<b>Total</b>	<b>1,177</b>	<b>1,066</b>	<b>933</b>	<b>880</b>	<b>1,218</b>	<b>1,461</b>	<b>1,527</b>	<b>1,945</b>	<b>1,653</b>	<b>2,219</b>
<b>Groundfish Target and Incidental<sup>ef</sup></b>										
Washington	24	19	23	21	25	24	21	54	25	30
Oregon	43	47	47	44	69	33	57	119	88	153
Northern California	63	159	58	95	101	110	113	160	188	120
Southern California	59	23	33	45	57	35	11	15	30	28
<b>Total</b>	<b>189</b>	<b>248</b>	<b>161</b>	<b>205</b>	<b>252</b>	<b>202</b>	<b>202</b>	<b>348</b>	<b>331</b>	<b>331</b>

TABLE 3.3.3-2. Charter vessels engaging in saltwater fishing outside of Puget Sound in 2001 by port area. (Page 1 of 1)

State	Port Area	Charter Boats
<b>Washington</b>	Neah Bay	1
	La Push	0
	Westport	13
	Ilwaco	6
	Unknown	86
	<b>TOTAL</b>	<b>106</b>
<b>Oregon</b>	Astoria	22
	Tillamook	51
	Newport	45
	Coos Bay	13
	Brookings	15
	Unknown	86
<b>TOTAL</b>	<b>232</b>	
<b>California</b>	Crescent City	1
	Eureka	4
	Fort Bragg	14
	San Francisco	67
	Monterey	33
	Conception (Northern port <sup>#</sup> ion)	129
	San Diego	95
	Unknown	72
<b>TOTAL</b>	<b>415</b>	
<b>GRAND TOTAL</b>	<b>753</b>	



TABLE 3.3.3-3 Effort and economic value of recreational ocean fisheries off Washington, Oregon, and California.

Area	Angler Trips (thousands)			Coastal Community Income Impacts for the Recreational Fishery (thousands of dollars)		
	Charter	Private	Total	Charter	Private	Total
	Washington Coast	49	52	101	\$4,319	\$1,927
Oregon	87	330	417	\$7,648	\$20,195	\$27,843
North/Central California <sup>a/</sup>	206	523	729	\$25,128	\$21,499	\$46,628
Southern California <sup>b/</sup>	876	1,314	2,190	\$107,132	\$57,982	\$165,114
California Total	1,082	1,837	2,919	\$132,260	\$79,481	\$211,742
Grand Total	1,218	2,219	3,437	\$144,228	\$101,603	\$245,831

a/ Includes counties from Monterey north.

b/ Includes counties from San Luis Obispo south.

TABLE 3.3.3-4 Effort and economic value of recreational groundfish fisheries off Washington, Oregon, and California (based on target and incidental catch as reported in Table 3.3.3-1.

Area	Angler Trips (thousands)			Coastal Community Income Impacts for the Recreational Fishery (thousands of dollars)		
	Charter	Private	Total	Charter	Private	Total
	Washington Coast	25	30	55	\$2,204	\$1,112
Oregon	69	153	222	\$6,066	\$9,363	\$15,429
North/Central California <sup>a/</sup>	101	120	221	\$12,320	\$4,933	\$17,253
Southern California <sup>b/</sup>	57	28	85	\$6,971	\$1,236	\$8,206
California Total	158	148	306	\$19,291	\$6,168	\$25,460
Grand Total	252	331	583	\$27,561	\$16,643	\$44,204

TABLE 4.1.4-1. Total catch optimum yield (OY) alternatives for 2002 compared to OY, harvest, and exvessel revenue from 2000 and OY from 2001 for those species with changes in OY. (Page 1 of 1)

	2000				2001		2002 (Total catch OY)							
	Total Catch OY (mt)	Landed Catch OY (mt)	Final Harvest (mt)	Exvessel Revenue (\$1,000)	Total Catch OY (mt)	Landed Catch OY (mt)	Status Quo (2001)	Change from 2001	Alt 1.1 (Low)	Change from 2001	Alt 1.2 (High)	Change from 2001	Alt 1.3 (Pref'r'd)	Change from 2001
Lingcod	378	378	144.3	343.8	611	571	611	0.0%	-	N/A	-	N/A	577	-5.6%
Sablefish (coastwide)	8,391	7,553	6,260.5	20,204.5	7,107	6,418	7,107	0.0%	3,296	-53.6%	4,596	-35.3%	4,096	-42.4%
Pacific Ocean Perch (POP)	270	227	90.7	88.0	303	255	303	0.0%	290	-4.3%	410	35.3%	350	15.5%
Nominal POP	-	-	49.8	46.7	-	-	-	-	-	-	-	-	-	-
Widow Rockfish	4,333	3,416	3,143.0	3,078.6	2,300	1,739	2,300	0.0%	726	-68.4%	856	-62.8%	856	-62.8%
Nominal Widow	-	-	721.1	713.8	-	-	-	-	-	-	-	-	-	-
Shortspine Thornyhead (SST) (coastwide)	1,145	799	520.5	1,291.1	751	614	751	0.0%	751	0.0%	955	27.2%	-	-
Nominal SST	-	-	172.9	501.9	-	-	-	-	-	-	-	-	-	-
Darkblotched Rockfish	N/A	N/A	N/A	N/A	130	106	130	0.0%	157	20.8%	181	39.2%	168	29.2%
Dover Sole	9,426	8,955	8,755.0	6,841.3	7,677	7,293	7,677	0.0%	5,520	-28.1%	7,440	-3.1%	6,410	-16.5%

TABLE 4.1.4-2. Landings, exvessel value, and price by gear group in 2000 for species with changes in 2002 optimum yield. Values not adjusted for inflation. Information not included for species coded as "nominal" in PacFIN (e.g., nominal widow rockfish).

Species	Gear	Landings (mt)	Revenue (\$1,000)	Price (\$ per pound)
Lingcod	Nets	3.4	\$2.8	\$0.377
	Trawl	61.5	\$121.2	\$0.893
	Pot/Trap	1.3	\$4.6	\$1.572
	Hook & Line	52.4	\$163.4	\$1.416
	Trawl-Shrimp	15.5	\$31.3	\$0.913
	Troll	10.1	\$20.4	\$0.915
	Other Gear	trace	\$0.1	\$1.500
	All Gear	144.3	\$343.8	\$1.081
Sablefish	Nets	1.3	\$4.3	\$1.471
	Trawl	2,642.9	\$6,889.6	\$1.182
	Pot/Trap	810.3	\$3,078.9	\$1.724
	Hook & Line	2,734.8	\$10,019.2	\$1.662
	Trawl-Shrimp	61.5	\$178.4	\$1.316
	Troll	2.9	\$8.2	\$1.294
	Other Gear	6.9	\$25.8	\$1.700
	All Gear	6,260.5	\$20,204.5	\$1.464
Pacific ocean	Nets	-	-	-
	Trawl	90.5	\$87.7	\$0.439
	Pot/Trap	-	-	-
	Hook & Line	0.2	\$0.3	\$0.979
	Trawl-Shrimp	trace	\$0.0	\$0.344
	Troll	-	-	-
	Other Gear	-	-	-
	All Gear	90.7	\$88.0	\$0.440
Widow rockfish	Nets	trace	\$0.0	\$1.394
	Trawl	3,131.9	\$3,053.0	\$0.442
	Pot/Trap	-	-	-
	Hook & Line	11.0	\$25.0	\$1.032
	Trawl-Shrimp	-	-	-
	Troll	0.1	\$5.0	\$1.863
	Other Gear	-	-	-
	All Gear	3,143.0	\$3,078.6	\$0.444
Shortspine	Nets	-	-	-
	Trawl	490.2	\$1,123.5	\$1.040
	Pot/Trap	-	-	-
	Hook & Line	30.2	\$167.3	\$2.511
	Trawl-Shrimp	-	-	-
	Troll	0.1	\$0.3	\$2.029
	Other Gear	-	-	-
	All Gear	520.5	\$1,291.1	\$1.125
Darkblotched	Nets	-	-	-
	Trawl	215.4	\$199.3	\$0.420
	Pot/Trap	-	-	-
	Hook & Line	0.3	\$0.5	\$0.870
	Trawl-Shrimp	trace	\$0.0	\$0.360
	Troll	trace	\$0.0	\$0.976
	Other Gear	-	-	-
	All Gear	215.7	\$199.9	\$0.420
Dover sole	Nets	trace	\$0.0	\$0.633
	Trawl	8,705.3	\$6,800.1	\$0.354
	Pot/Trap	1.1	\$1.0	\$0.383
	Hook & Line	2.7	\$2.9	\$0.484
	Trawl-Shrimp	45.8	\$37.1	\$0.367
	Troll	0.1	\$0.3	\$1.957
	Other Gear	-	-	-
	All Gear	8,755.0	\$6,841.3	\$0.354

TABLE 4.4.1-1. Recreational catches of groundfish in Washington, Oregon, and California, 1996-2000. Data from RecFIN.

Stock	All Modes					Partyboat/Charter Only				
	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>Roundfish</b>										
Lingcod	554	506	476	532	364	213	252	115	205	144
Pacific Cod										
Pacific Whiting										
Sablefish	1	7	3	T	1	1	7	3	T	1
<b>Total Roundfish</b>	<b>555</b>	<b>513</b>	<b>479</b>	<b>532</b>	<b>365</b>	<b>213</b>	<b>259</b>	<b>118</b>	<b>205</b>	<b>145</b>
<b>Rockfish</b>										
Black	734	724	1045	865	1073	436	416	476	406	510
Blue	313	463	393	311	270	228	337	213	188	179
Bocaccio	103	112	58	136	110	60	98	38	107	95
Canary	93	141	91	115	120	59	109	60	78	90
Chilipepper	37	74	7	7	38	24	73	1	2	32
Cowcod	5	2	2	4	4	1	1	1	3	1
Pacific Ocean Perch		1								
Shortbelly	T	T	T				T	T		
Shortspine Thornyhead				1					T	
Widow Rockfish	27	43	47	31	22	26	42	45	29	22
Yelloweye	24	37	35	51	22	13	24	19	27	16
Yellowtail	143	396	188	305	190	131	357	136	255	174
Rockfish Genus	1029	540	475	1009	611	537	308	196	590	328
<b>Total Rockfish</b>	<b>2509</b>	<b>2532</b>	<b>2342</b>	<b>2834</b>	<b>2460</b>	<b>1515</b>	<b>1764</b>	<b>1186</b>	<b>1684</b>	<b>1446</b>
<b>Rockfish by Management Groups</b>										
Species with OYs	310	403	276	333	349	213	351	204	253	291
<b>Minor Rockfish "Other"</b>										
Near-Shore	961	829	735	957	681	511	470	286	464	387
Shelf	538	271	253	529	334	277	194	125	331	161
Slope	T		1			T				
<b>Minor Rockfish "Remaining"</b>										
Near-Shore	578	631	926	700	939	406	399	474	386	468
Shelf	122	397	150	315	158	107	351	96	250	139
Slope		1								
<b>Total Rockfish</b>	<b>2509</b>	<b>2532</b>	<b>2342</b>	<b>2834</b>	<b>2460</b>	<b>1515</b>	<b>1764</b>	<b>1186</b>	<b>1684</b>	<b>1446</b>
<b>Flatfish</b>										
Arrowtooth Flounder										
California Halibut	219	169	234	433	398	52	25	30	70	110
Dover Sole										
Other Flatfish	50	37	18	25	84	15	13	4	12	51
Pacific Halibut	169	273	438	375	204	93	185	219	165	116
Petrale Sole	1	T	T	T	T	T	T	T	T	T
Starry Flounder	2	3	8	3	5		1		T	1
<b>Total Flatfish</b>	<b>441</b>	<b>482</b>	<b>699</b>	<b>835</b>	<b>691</b>	<b>160</b>	<b>224</b>	<b>254</b>	<b>248</b>	<b>278</b>
<b>Other Fish</b>										
Cabezon	102	93	117	84	85	14	17	10	12	28
Greenlings	65	46	24	29	50	4	6	2	5	10
Leopard Shark	58	30	29	33	28	T		1	5	
Soupin shark	2			4	T				4	T
Spiny Dogfish Shark	19	5	2	13	9	6			3	2
<b>Total Other Fish</b>	<b>246</b>	<b>175</b>	<b>173</b>	<b>163</b>	<b>171</b>	<b>25</b>	<b>23</b>	<b>13</b>	<b>29</b>	<b>40</b>

TABLE 4.4.1-2. Recreational catches of groundfish in Washington, Ocean only, 1996-2000. Data from RecFIN.

Stock	All Modes					Partyboat/Charter Only				
	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>Roundfish</b>										
Lingcod	54	48	38	43	29	31	27	20	22	18
Pacific Cod										
Pacific Whiting										
Sablefish										
<b>Total Roundfish</b>	<b>54</b>	<b>48</b>	<b>38</b>	<b>43</b>	<b>29</b>	<b>31</b>	<b>27</b>	<b>20</b>	<b>22</b>	<b>18</b>
<b>Rockfish</b>										
Black	231	180	239	156	139	194	154	209	129	115
Blue	1	1	2	2	1	1	1	1	1	1
Bocaccio	T		T	T	T	T		T	T	T
Canary	3	4	17	5	3	2	3	15	4	2
Chilipepper										
Cowcod										
Pacific Ocean Perch										
Shortbelly										
Shortspine Thornyhead										
Widow Rockfish										
Yelloweye	3	5	14	15	8	2	3	10	8	4
Yellowtail	4	6	29	6	9	4	6	27	5	7
Rockfish Genus	2	2	4	4	5	1	1	2	1	1
<b>Total Rockfish</b>	<b>244</b>	<b>199</b>	<b>305</b>	<b>189</b>	<b>166</b>	<b>204</b>	<b>168</b>	<b>265</b>	<b>148</b>	<b>131</b>
<b>Rockfish by Management Groups</b>										
Species with OYs	7	10	46	12	12	6	9	42	9	9
<b>Minor Rockfish "Other"</b>										
Near-Shore	3	3	5	5	6	2	2	3	1	2
Shelf	T	T	T	1	T	T	T	T	T	T
Slope										
<b>Minor Rockfish "Remaining"</b>										
Near-Shore	231	180	239	156	139	194	154	209	129	115
Shelf	3	5	15	16	8	2	3	10	8	5
Slope										
<b>Total Rockfish</b>	<b>244</b>	<b>199</b>	<b>305</b>	<b>189</b>	<b>166</b>	<b>204</b>	<b>168</b>	<b>265</b>	<b>148</b>	<b>131</b>
<b>Flatfish</b>										
Arrowtooth Flounder										
California Halibut										
Dover Sole										
Other Flatfish										
Pacific Halibut	141	147	340	263	137	71	68	169	132	74
Petrals Sole										
Starry Flounder										
<b>Total Flatfish</b>	<b>141</b>	<b>147</b>	<b>340</b>	<b>263</b>	<b>137</b>	<b>71</b>	<b>68</b>	<b>169</b>	<b>132</b>	<b>74</b>
<b>Other Fish</b>										
Cabezon	2	2	3	7	3	1	T	1	T	1
Greenlings	2	1	1	2	1	T	T	T	T	T
Leopard Shark										
Southern Shark										
Spiny Dogfish Shark	2									
<b>Total Other Fish</b>	<b>6</b>	<b>2</b>	<b>4</b>	<b>10</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>T</b>	<b>1</b>

TABLE 4.4.1-3. Recreational catches of groundfish in Oregon, All Fishing Areas, 1996-2000. Data from RecFIN.

Stock	All Modes					Partyboat/Charter Only				
	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>Roundfish</b>										
Lingcod	135.2	197.2	178.8	115.6	130.4	73	88	45	43	56
Pacific Cod										
Pacific Whiting										
Sablefish	T	7	3	T	1	T	7	3	T	1
<b>Total Roundfish</b>	<b>136</b>	<b>204</b>	<b>182</b>	<b>116</b>	<b>131</b>	<b>73</b>	<b>95</b>	<b>47</b>	<b>43</b>	<b>57</b>
<b>Rockfish</b>										
Black	347	451	687	544	799	212	245	265	257	352
Blue	109	164	122	77	79	99	119	79	52	42
Bocaccio	T	1	T	3	1	T	1	T	1	1
Canary	26	43	49	43	32	18	31	31	23	23
Chilipepper				T					T	
Cowcod										
Pacific Ocean Perch										
Shortbelly										
Shortspine Thornyhead										
Widow Rockfish	4	4	9	2	15	4	4	9	1	15
Yelloweye	8	15	14	26	11	6	8	6	14	10
Yellowtail	41	26	41	37	47	40	24	32	30	46
Rockfish Genus	14	32	39	40	42	8	18	12	18	29
<b>Total Rockfish</b>	<b>549</b>	<b>736</b>	<b>963</b>	<b>772</b>	<b>1028</b>	<b>387</b>	<b>449</b>	<b>434</b>	<b>394</b>	<b>518</b>
<b>Rockfish by Management Groups</b>										
Species with OYs		73	100	81	94		58	72	53	84
<b>Minor Rockfish "Other"</b>										
Near-Shore	118	187	145	102	112	103	131	86	63	66
Shelf	5	9	14	15	10	3	6	3	6	5
Slope	T					T				
<b>Minor Rockfish "Remaining"</b>										
Near-Shore	347	451	687	544	799	212	245	265	257	352
Shelf	9	16	16	30	13	7	9	8	14	12
Slope										
<b>Total Rockfish</b>	<b>549</b>	<b>736</b>	<b>963</b>	<b>772</b>	<b>1028</b>	<b>387</b>	<b>449</b>	<b>434</b>	<b>394</b>	<b>518</b>
<b>Flatfish</b>										
Arrowtooth Flounder										
California Halibut			7							
Dover Sole										
Other Flatfish	T	T	1	T	1	T	T	T	T	T
Pacific Halibut	25	126	99	112	66	22	117	51	33	42
Petrale Sole			T	T				T	T	
Starry Flounder	T	T	2	1	1					T
<b>Total Flatfish</b>	<b>25</b>	<b>126</b>	<b>109</b>	<b>113</b>	<b>68</b>	<b>22</b>	<b>117</b>	<b>51</b>	<b>33</b>	<b>43</b>
<b>Other Fish</b>										
Cabezon	14	31	40	34	43	6	13	6	11	20
Greenlings	18	27	12	20	31	2	4	2	4	5
Leopard Shark				T						
Soupin shark										
Spiny Dogfish Shark				1						
<b>Total Other Fish</b>	<b>32</b>	<b>58</b>	<b>52</b>	<b>54</b>	<b>74</b>	<b>8</b>	<b>18</b>	<b>8</b>	<b>15</b>	<b>25</b>

TABLE 4.4.1-4. Recreational catches of groundfish in Northern California, All Fishing Areas, 1996-2000. Data from RecFIN.

Stock	All Modes					Partyboat/Charter Only				
	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>Roundfish</b>										
Lingcod	339	250	248	345	200	89	136	43	121	67
Pacific Cod										
Pacific Whiting										
Sablefish	T			T	T	T				T
<b>Total Roundfish</b>	<b>339</b>	<b>250</b>	<b>248</b>	<b>345</b>	<b>200</b>	<b>89</b>	<b>136</b>	<b>43</b>	<b>121</b>	<b>67</b>
<b>Rockfish</b>										
Black	156	92	119	165	135	30	17	2	19	42
Blue	163	297	255	220	187	89	217	120	124	134
Bocaccio	28	66	28	72	61	25	64	25	64	55
Canary	62	93	24	65	84	39	74	13	49	65
Chilipepper	23	73	1	T	30	23	73	1		30
Cowcod		T		1			T		1	
Pacific Ocean Perch										
Shortbelly	T	T								
Shortspine Thornyhead				T						
Widow Rockfish	22	38	38	29	7	22	38	35	28	7
Yelloweye	13	16	6	7	2	5	13	3	4	1
Yellowtail	98	363	115	251	134	87	327	74	210	120
Rockfish Genus	543	390	239	474	338	272	205	71	244	203
<b>Total Rockfish</b>	<b>1109</b>	<b>1430</b>	<b>824</b>	<b>1285</b>	<b>978</b>	<b>591</b>	<b>1029</b>	<b>345</b>	<b>744</b>	<b>657</b>
<b>Rockfish by Management Groups</b>										
Species with OYs	136	271	90	167	182	108	250	74	142	156
<b>Minor Rockfish "Other"</b>										
Near-Shore	739	612	526	713	533	326	317	159	308	299
Shelf	136	184	92	153	130	70	135	37	85	81
Slope			1							
<b>Minor Rockfish "Remaining"</b>										
Near-Shore										
Shelf	99	363	115	251	134	87	327	74	210	120
Slope										
<b>Total Rockfish</b>	<b>1109</b>	<b>1430</b>	<b>824</b>	<b>1284</b>	<b>978</b>	<b>591</b>	<b>1029</b>	<b>345</b>	<b>744</b>	<b>657</b>
<b>Flatfish</b>										
Arrowtooth Flounder										
California Halibut						13	6	13	8	62
Dover Sole										
Other Flatfish	14	28	9	9	6	5	8	2	4	2
Pacific Halibut	3									
Petrale Sole	T	T				T	T			
Starry Flounder	1	3	6	2	4		1		T	1
<b>Total Flatfish</b>	<b>19</b>	<b>31</b>	<b>16</b>	<b>11</b>	<b>10</b>	<b>19</b>	<b>16</b>	<b>15</b>	<b>12</b>	<b>65</b>
<b>Other Fish</b>										
Cabezon	73	55	65	28	33	4	2	1	1	7
Greenlings	44	19	11	7	18	2	2	T	T	4
Leopard Shark	58	29	26	28	22	T		1	4	
Soupin shark										
Spiny Dogfish Shark	1	4	2	3						
<b>Total Other Fish</b>	<b>177</b>	<b>107</b>	<b>104</b>	<b>67</b>	<b>73</b>	<b>6</b>	<b>3</b>	<b>2</b>	<b>5</b>	<b>12</b>

TABLE 4.4.1-5. Recreational catches of groundfish in Southern California, All Fishing Areas, 1996-2000. Data from RecFIN.

	All Modes					Partyboat/Charter Only				
	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>Roundfish</b>										
Lingcod	27	11	12	28	4	19	2	7	20	3
Pacific Cod										
Pacific Whiting										
Sablefish										
<b>Total Roundfish</b>	<b>27</b>	<b>11</b>	<b>12</b>	<b>28</b>	<b>4</b>	<b>19</b>	<b>2</b>	<b>7</b>	<b>20</b>	<b>3</b>
<b>Rockfish</b>										
Black				T					T	
Blue	39		14	13	2	38		13	11	2
Bocaccio	75	45	30	61	47	35	32	13	41	38
Canary	2	1	1	2	T			1	2	T
Chilipepper	14	1	6	6	9	1	T	1	2	2
Cowcod	5	2	2	4	4	1	1	1	2	1
Pacific Ocean Perch		1								
Shortbelly		T	T				T	T		
Shortspine Thornyhead				T					T	
Widow Rockfish	T	T	T	T	T	T		T	T	T
Yelloweye				2					2	
Yellowtail	T	1	2	10	T	T	T	2	10	T
Rockfish Genus	471	116	194	491	225	257	84	112	326	95
<b>Total Rockfish</b>	<b>607</b>	<b>167</b>	<b>250</b>	<b>589</b>	<b>288</b>	<b>332</b>	<b>119</b>	<b>143</b>	<b>397</b>	<b>139</b>
<b>Rockfish by Management Groups</b>										
Species with OYs	97	50	40	73	61	37	34	16	48	42
<b>Minor Rockfish "Other"</b>										
Near-Shore	101	27	59	138	30	81	21	38	92	20
Shelf	398	78	146	359	194	204	52	85	240	75
Slope										
<b>Minor Rockfish "Remaining"</b>										
Near-Shore										
Shelf	11	13	4	19	3	10	12	4	18	3
Slope		1								
<b>Total Rockfish</b>	<b>607</b>	<b>167</b>	<b>250</b>	<b>588</b>	<b>288</b>	<b>332</b>	<b>119</b>	<b>143</b>	<b>397</b>	<b>139</b>
<b>Flatfish</b>										
Arrowtooth Flounder										
California Halibut	219	169	228	433	398	39	19	17	62	48
Dover Sole										
Other Flatfish	36	9	7	16	78	9	5	2	8	49
Pacific Halibut										
Petrale Sole	T			T	T				T	
Starry Flounder	1									
<b>Total Flatfish</b>	<b>256</b>	<b>178</b>	<b>235</b>	<b>449</b>	<b>476</b>	<b>48</b>	<b>24</b>	<b>19</b>	<b>70</b>	<b>97</b>
<b>Other Fish</b>										
Cabezon	14	5	9	14	6	4	2	2	T	T
Greenlings				T	T				T	
Leopard Shark		1	3	4	6				1	
Soupfin shark	2			4	T				4	T
Spiny Dogfish Shark	16	1		9	9	6			3	2
<b>Total Other Fish</b>	<b>32</b>	<b>7</b>	<b>13</b>	<b>33</b>	<b>21</b>	<b>10</b>	<b>2</b>	<b>2</b>	<b>8</b>	<b>3</b>



TABLE 4.4.1-6. Preliminary recreational groundfish fishery set asides and allocations (mts) by stock or stock complex approved by the Council in September 2001 for 2002.

State/Area	Bocaccio	Canary	Yelloweye	Minor Nearshore RF	Lingcod
North of Cape Mendocino	NA	NA	6	800	NA
South of Cape Mendocino	52 a/	NA	3	400	NA
Coastwide	NA	44	9	1,200	320

a/ Original recreational allocation set in November 2000 was 48 mt with 52 mt allocated to the commercial fishery. Council adopted 52 mt for the 2002 recreational fishery (out of 100 mt total) on basis of Ad Hoc Allocation Committee recommendation. Council should decide whether this recommendation was intentional or based on a mistaken transposition of the allocation amounts.

TABLE 4.4.1-7. Projected 2002 recreational groundfish fishery catches (mts) by stock or stock complex, state, and recreational fishery management alternative.

State/Area	Alternative	Bocaccio	Canary	Yelloweye	Yellowtail	Widow	Minor Nearshore	Minor Shelf	Lingcod
WA	1	NA	3	13	6	0	150	1	NA
	2	NA	2	11	6	0	150	1	NA
	3	NA	3	3	6	0	150	1	NA
	4	NA	2	2	6	0	150	1	NA
	Lingcod	NA	NA	NA	NA	NA	NA	NA	50
OR	1	NA	9	4	8	2	385	5	NA
	1- Lingcod	NA	NA	NA	NA	NA	NA	NA	70
	2	NA	12	4	9	3	455	?	NA
	2- Lingcod	NA	NA	NA	NA	NA	NA	NA	76
CA/N. a/	OR alt. 1	NA	6	0.6	NA	NA	NA	NA	NA
	OR alt. 2	NA	7	0.6	NA	NA	NA	NA	NA
CA/C. b/	1	NA	23	0.5	NA	NA	NA	NA	NA
	2	NA	20	0.5	NA	NA	NA	NA	NA
	3	NA	23	0.5	NA	NA	NA	NA	NA
CA/S. c/	1	47	NA	NA	NA	NA	NA	NA	NA
	2	59	NA	NA	NA	NA	NA	NA	NA

a/ CA north = Cape Mendocino to California/Oregon border. These alternatives match those considered for Oregon.

b/ CA central = Point Conception to Cape Mendocino.

c/ CA south = U.S./Mexico border to Point Conception.

TABLE 4.5-1. Tribal fishery groundfish catch projections for 2002.

Stock	Projected Catch (mts)	Comment
Canary Rockfish	2.5	All tribes
Darkblotched Rockfish	Prob. minimal	Need better spp. comp. from sampling
Lingcod	4-5 mt	All tribes
Pacific Ocean Perch	Trace	
Widow Rockfish	27 mt	Makah only = 95% a/
Yelloweye Rockfish	1.5-2 mt	All tribes- high end of range unlikely

a/ June-July 2001 closed, but expected to be open in 2002. Projection factors this in.

TABLE 3.3.1.3-1 All West Coast vessels (groundfish and non-groundfish), exvessel revenue for groundfish as a percent of total exvessel revenue for all West Coast vessels, 2000.

Species (or groups)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>Gear Group</b>													
<b>Limited Entry Trawl</b>													
Other Slope													
Rockfish	0	0	0	0	1	0	0	0	0	0	0	0	0
POP	0	0	0	0	0	0	0	0	0	0	0	0	0
Sablefish	1	2	3	4	5	3	4	4	4	5	5	2	3
Thornyheads	2	2	5	6	2	1	1	1	1	1	3	1	2
Dover Sole	2	3	7	8	4	2	3	1	3	3	4	2	3
Arrowtooth	0	0	0	0	0	0	1	1	0	0	0	0	0
Rex	0	0	0	0	0	0	0	0	0	0	0	0	0
Petrale	4	3	0	2	2	2	2	1	1	1	1	2	2
Other Flatfish	0	0	1	1	1	1	1	1	1	1	1	0	1
Whiting	0	-	-	0	1	5	7	4	4	0	0	0	2
Other Shelf RF	0	0	0	0	0	0	0	0	0	0	0	0	0
Widow	1	1	2	2	2	1	2	1	3	3	4	1	2
Yellowtail RF	0	0	0	0	2	2	2	1	2	2	2	1	1
Chilipepper	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore RF	0	0	0	0	0	0	0	0	0	0	0	0	0
Oth GF expt Whiting	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Limited Entry Fixed Gear</b>													
Slope Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Sablefish	0	0	0	0	0	0	1	23	3	1	1	0	3
Flatfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Shelf Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Groundfish	0	0	0	0	1	0	0	0	0	0	0	0	0
<b>Open Access Other not Trawl or Troll</b>													
Slope Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Sablefish	0	0	0	0	0	0	1	1	1	1	2	1	1
Flatfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Shelf Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore Rockfish	0	0	0	1	1	1	1	1	1	1	1	1	1
Other Groundfish	0	0	0	1	1	2	2	1	1	1	1	0	1
<b>Open Access Trawl &amp; Troll</b>													
Slope Rockfish	0	0	0	0	0	0	0	0	0	0	-	0	0
Sablefish	0	0	0	0	0	0	0	0	0	0	0	0	0
Flatfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Shelf Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore Rockfish	-	0	-	0	0	0	0	0	0	0	0	0	0
Other Groundfish	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Groundfish as a Percent of All Species, by Gear Group</b>													
Limited Entry Trawl	10	12	19	26	21	19	26	15	20	17	21	9	17
Limited Entry Fixed Gear	0	0	1	1	1	1	1	23	4	2	2	1	4
Open Access Other	1	0	1	2	3	4	4	3	3	3	4	2	2
Open Access Trawl & Troll	0	0	0	0	0	0	0	0	0	0	0	0	0
Total All Groundfish	11	13	21	30	25	24	32	42	27	22	27	12	23
<b>Exvessel Revenue (\$1,000)</b>													
Limited Entry Trawl	2,757	2,113	2,189	3,193	3,153	3,067	4,776	4,354	4,203	3,049	3,032	2,645	38,533
Limited Entry Fixed Gear	112	60	112	166	218	192	229	6,579	762	362	315	253	9,359
Open Access Other	171	77	173	294	406	580	708	770	640	538	550	571	5,478
Open Access Trawl & Troll	25	25	9	9	29	65	82	63	55	20	4	4	391
Total All Groundfish	3,065	2,275	2,482	3,662	3,806	3,904	5,795	11,767	5,660	3,969	3,902	3,473	53,761
Total All Species	27,058	17,095	11,809	12,205	15,298	16,163	18,301	28,157	21,162	17,759	14,709	29,776	229,494

TABLE 3.3.1.3-2a. Washington internal marine waters, exvessel revenue for groundfish as a percent of total exvessel revenue for all West Coast vessels, 2000.

Species (or group)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>Gear Group</b>													
<b>Limited Entry Trawl</b>													
Other Slope RF	0	0	0	0	0	2	1	0	1	0	0	0	0
POP	0	0	0	0	0	2	0	0	1	1	0	0	0
Sablefish	0	0	1	2	3	17	9	2	27	14	7	4	5
Thornyheads	0	0	0	1	0	1	0	0	1	1	1	0	0
Dover Sole	3	2	3	6	3	8	5	1	5	7	4	4	3
Arrowtooth	0	0	0	1	4	11	30	12	4	5	1	0	7
Rex	0	0	0	0	0	0	0	0	0	0	0	0	0
Petrals	4	7	-	1	2	14	25	7	2	23	0	1	7
Other Flatfish	0	-	-	0	2	3	4	1	1	7	1	0	1
Whiting	-	-	-	-	-	-	-	-	-	0	0	-	0
Other Shelf RF	0	-	0	0	0	1	1	0	1	1	0	0	0
Widow	-	0	0	0	0	0	1	1	18	6	19	3	2
Yellowtail RF	0	0	1	0	5	4	7	3	21	6	15	3	4
Nearshore RF	-	-	-	-	1	-	-	-	-	-	-	-	0
GF expt Whiting	0	0	0	1	6	7	1	0	1	6	0	0	1
Crab/Lobster	7	6	5	6	0	-	-	-	-	-	-	-	2
All Other Species	0	0	0	1	4	5	4	1	1	4	1	0	1
<b>Limited Entry Fixed Gear</b>													
Slope Rockfish	-	0	0	0	0	-	-	0	0	0	-	0	0
Sablefish	-	0	-	2	1	0	-	66	8	1	0	0	16
Flatfish	-	0	0	0	0	0	-	0	0	0	-	0	0
Shelf Rockfish	-	0	0	0	0	0	-	0	0	0	0	0	0
Other Groundfish	-	2	3	9	12	3	-	0	0	0	1	0	2
Crab/Lobster	-	1	1	0	-	1	0	-	-	-	-	12	1
HMS	-	-	-	-	-	-	-	0	-	-	-	-	0
<b>Open Access Other</b>													
All Other Species	-	0	0	0	0	0	-	0	0	0	-	0	0
Slope Rockfish	-	-	-	0	-	-	0	-	-	-	-	-	0
Sablefish	-	0	-	0	0	-	0	-	-	-	-	-	0
Shelf Rockfish	-	-	-	0	-	0	0	-	-	-	-	-	0
Other Groundfish	-	0	-	1	0	1	0	-	-	-	-	-	0
Shrimp/Prawns	-	-	-	2	1	2	-	-	1	-	-	-	0
Crab/Lobster	85	81	86	66	49	15	6	0	1	-	-	69	41
All Other Species	-	-	0	-	-	-	-	-	-	-	-	-	0
Salmon	-	-	-	-	-	-	-	-	-	7	-	-	0
Shrimp/Prawns	-	-	-	-	5	0	6	2	-	-	-	-	1
HMS	1	0	-	-	-	-	1	1	6	11	49	-	2
<b>Groundfish as a Percent of All Species, by Gear Group</b>													
Limited Entry Trawl	7	10	5	13	28	71	83	28	83	77	48	18	31
Limited Entry Fixed Gear	-	2	3	11	13	4	-	67	8	1	2	1	18
Open Access Other	-	0	-	1	0	1	0	-	-	-	-	-	0
Open Access Trawl & Troll	-	-	-	-	-	-	-	-	-	-	-	-	-
Total All Groundfish	7	12	8	25	41	76	84	95	91	78	50	19	50
<b>Exvessel Revenue (\$1,000)</b>													
Limited Entry Trawl	71	89	31	51	127	221	461	463	326	194	92	82	2,209
Limited Entry Fixed Gear		17	16	44	58	12		1,111	33	3	3	4	1,301
Open Access Other		1		4	0	4	2						10
Open Access Trawl & Troll													
Total All Groundfish	71	107	47	99	185	236	463	1,574	359	197	95	86	3,520
Total All Species	968	895	569	389	455	310	553	1,660	395	253	191	446	7,086

TABLE 3.3.1.3-2b. Coastal Washington and Columbia River, exvessel revenue for groundfish as a percent of total exvessel revenue for all West Coast vessels, 2000.

Species (or group)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>Gear Group</b>													
<b>Limited Entry Trawl</b>													
Othr Slope RF	0	0	0	0	0	0	0	0	0	1	0	0	0
POP	0	0	0	0	0	0	0	0	0	0	0	0	0
Sablefish	0	0	1	2	2	1	1	1	2	5	5	0	1
Thornyheads	0	0	0	2	0	0	0	0	0	0	1	0	0
Dover Sole	1	1	3	3	3	1	1	0	1	3	6	1	1
Arrowtooth	0	0	0	0	0	0	0	0	0	0	1	0	0
Rex	0	0	0	0	0	0	0	0	0	0	0	0	0
Petrale	1	1	1	4	2	2	4	1	1	2	1	1	1
Other Flatfish	0	0	0	1	1	1	1	0	0	1	2	0	0
Whiting	-	-	-	-	-	13	15	8	4	-	-	-	4
Other Shelf RF	0	0	0	0	0	0	0	0	0	0	0	0	0
Widow	0	1	1	0	1	0	1	0	1	4	18	1	1
Yellowtail RF	0	0	0	2	4	2	4	0	3	6	22	1	2
Nearshore RF	-	-	-	-	0	0	0	-	-	-	-	-	0
GF expt Whiting	-	-	0	0	0	0	0	0	0	0	-	-	0
<b>Limited Entry Fixed Gear</b>													
Slope Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Sablefish	0	0	0	1	1	1	2	16	6	8	14	1	4
Flatfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Shelf Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore RF	-	-	-	0	0	0	0	-	0	0	-	0	0
Other Groundfish	0	0	0	0	0	0	0	0	0	0	-	-	0
<b>Open Access Other</b>													
Slope Rockfish	-	-	-	0	0	0	0	0	0	0	0	0	0
Sablefish	-	0	0	1	0	1	1	2	1	3	6	0	1
Flatfish	-	-	-	-	0	0	0	0	0	0	0	0	0
Shelf Rockfish	-	-	0	0	0	0	0	0	0	0	0	0	0
Nearshore RF	-	-	0	-	0	0	0	0	0	-	0	-	0
Other Groundfish	-	-	-	0	0	0	0	0	0	-	-	-	0
<b>Open Access Trawl &amp; Troll</b>													
Slope Rockfish	-	-	-	-	-	0	0	0	-	0	-	-	0
Sablefish	-	-	-	-	-	0	0	0	0	0	-	-	0
Flatfish	-	-	-	-	0	0	0	0	0	0	-	-	0
Shelf Rockfish	-	-	-	-	0	0	0	0	0	0	-	-	0
Other Groundfish	-	-	-	-	0	0	0	0	0	0	-	-	0
<b>Groundfish as a Percent of All Species, by Gear Group</b>													
Limited Trawl	2	4	8	16	14	21	27	11	11	23	57	4	11
Limited Entry Fixed Gear	0	0	0	1	2	2	2	16	7	9	14	1	4
Open Access Other	-	0	0	1	0	1	1	2	1	3	6	0	1
Open Access Trawl & Troll	-	-	-	-	0	1	0	0	0	1	-	-	0
Total All Groundfish	2	5	8	18	16	25	31	29	20	35	77	5	16
<b>Exvessel Revenue (\$1,000)</b>													
Limited Entry Trawl	115	138	140	191	226	366	629	577	350	213	140	144	3,230
Limited Entry Fixed Gear	4	7	6	16	30	34	52	838	208	81	33	32	1,340
Open Access Other		1	1	7	8	17	26	85	36	29	14	8	232
Open Access Trawl & Troll					5	11	10	14	10	6			57
Total All Groundfish	120	146	147	213	269	428	718	1,513	604	329	188	185	4,860
Total All Species	5,090	3,201	1,771	1,199	1,639	1,728	2,297	5,186	3,053	936	244	3,930	30,274

TABLE 3.3.1.3-2c. Oregon north of Yachats, exvessel revenue for groundfish as a percent of total exvessel revenue for all West Coast vessels, 2000. (Page 1 of 2)

Species (or group)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>Gear Group</b>													
<b>Limited Entry Trawl</b>													
Other Slope RF	0	0	0	1	1	0	0	0	0	1	1	0	0
POP	0	0	0	0	1	0	0	0	0	1	0	0	0
Sablefish	3	4	8	8	13	4	4	7	4	11	18	4	6
Thornyheads	2	3	8	10	4	1	1	1	1	2	9	2	2
Dover Sole	5	7	18	19	8	3	3	1	3	6	14	4	5
Arrowtooth	0	1	1	1	1	1	1	0	1	0	1	0	1
Rex	0	0	0	1	1	0	0	0	0	1	1	0	0
Petrals	5	7	0	2	4	3	2	1	1	1	3	2	2
Other Flatfish	0	0	0	1	1	1	1	0	0	1	0	0	0
Whiting	-	-	-	0	0	13	16	8	15	0	0	0	6
Other Shelf RF	0	0	0	0	0	0	0	0	0	0	0	0	0
Widow	3	3	4	7	6	2	4	1	5	10	19	3	4
Yellowtail RF	0	0	1	2	11	4	4	2	5	9	15	2	4
Nearshore RF	-	0	0	-	0	0	0	0	-	0	-	0	0
GF expt Whiting	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Limited Entry Fixed Gear</b>													
CPS	-	-	-	0	0	0	0	0	0	0	0	0	0
All Other Species	0	0	0	1	2	1	0	0	0	0	1	0	0
Slope Rockfish	-	0	0	0	0	0	0	0	0	0	0	0	0
Sablefish	-	0	0	0	0	0	0	22	2	0	5	0	5
Flatfish	-	0	0	0	0	0	0	0	0	0	0	-	0
Shelf Rockfish	-	0	0	0	0	0	0	0	0	0	-	-	0
Nearshore RF	-	0	0	0	0	0	0	0	0	-	0	-	0
Other Groundfish	-	0	-	0	0	0	0	0	0	0	0	-	0
<b>Open Access Other</b>													
CPS	-	-	-	-	-	-	0	-	-	-	-	-	0
All Other Species	-	0	0	0	0	0	0	0	-	0	-	0	0
Slope Rockfish	-	-	-	-	0	-	0	-	-	-	0	0	0
Sablefish	-	-	-	0	-	0	0	0	-	-	2	0	0
Flatfish	-	-	-	0	0	-	0	-	-	-	-	-	0
Shelf Rockfish	0	0	0	0	0	0	0	0	0	0	0	-	0
Nearshore RF	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Groundfish	-	-	0	0	0	0	0	0	0	0	-	-	0
<b>Open Access Trawl &amp; Troll</b>													
CPS	-	-	-	-	-	0	4	5	6	2	-	-	2
All Other Species	0	0	0	0	1	0	1	0	0	0	0	0	0
Slope Rockfish	-	-	-	-	0	0	0	0	0	0	-	-	0
Sablefish	-	-	-	0	0	0	0	0	0	0	-	-	0
Flatfish	-	-	-	0	0	0	0	0	0	0	-	-	0
Shelf Rockfish	-	-	-	0	0	0	0	0	0	0	0	-	0
Nearshore RF	-	-	-	0	0	0	0	0	0	0	-	-	0
Other Groundfish	-	-	-	-	0	0	0	0	-	-	-	-	0
<b>Groundfish as a Percent of All Species, by Gear Group</b>													
Limited Entry Trawl	19	25	40	52	52	33	36	22	35	42	82	17	32
Limited Entry Fixed Gear	-	0	0	0	0	0	0	22	2	0	5	0	5
Open Access Other	0	0	0	0	0	0	0	0	0	0	2	0	0
Open Access Trawl & Troll	-	-	-	0	0	1	1	0	1	0	0	-	0
<b>Total All Groundfish</b>	<b>19</b>	<b>25</b>	<b>40</b>	<b>53</b>	<b>53</b>	<b>35</b>	<b>37</b>	<b>45</b>	<b>38</b>	<b>43</b>	<b>88</b>	<b>18</b>	<b>37</b>

TABLE 3.3.1.3-2c. Oregon north of Yachats, exvessel revenue for groundfish as a percent of total exvessel revenue for all West Coast vessels, 2000. (Page 2 of 2)

Species (or group)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Exvessel Revenue (\$1,000)													
Limited Entry Trawl	793	743	762	858	1,270	1,202	2,245	2,167	1,947	1,166	1,117	960	15,230
Limited Entry Fixed Gear		2	2	5	9	13	21	2,179	134	11	65	22	2,463
Open Access Other	0	1	1	7	11	13	29	14	11	3	24	26	140
Open Access Trawl & Troll				0	10	33	38	25	28	8	0		142
Total All Groundfish	794	746	764	870	1,300	1,261	2,333	4,384	2,120	1,189	1,206	1,008	17,976
Total All Species	4,232	2,963	1,896	1,635	2,432	3,631	6,308	9,697	5,637	2,772	1,368	5,679	48,250

TABLE 3.3.1.3-2d. Coos Bay to Mendocino, exvessel revenue for groundfish as a percent of total exvessel revenue for all West Coast vessels, 2000. (Page 1 of 2)

Species (or groups)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>Gear Group</b>													
<b>Limited Entry Trawl</b>													
Other Slope RF	0	0	0	1	1	1	1	0	1	1	1	0	0
POP	0	0	0	0	0	0	0	0	0	0	0	0	0
Sablefish	2	5	10	7	13	8	12	4	11	20	22	2	7
Thornyheads	3	8	13	14	6	3	4	1	4	7	19	2	5
Dover Sole	3	8	14	12	9	5	8	3	8	12	17	2	6
Arrowtooth	0	0	0	0	0	0	0	0	0	0	0	0	0
Rex	0	1	1	1	1	1	1	0	1	1	1	0	1
Petrale	12	8	1	2	3	1	1	1	1	2	3	4	4
Other Flatfish	0	0	1	2	1	1	1	1	1	2	1	0	1
Whiting	0	-	-	1	8	7	0	0	0	0	-	-	1
Other Shelf RF	0	0	0	0	0	0	0	0	0	0	0	0	0
Widow	1	0	3	4	2	2	3	2	5	10	13	1	3
Yellowtail RF	0	0	0	0	0	1	1	1	2	2	2	0	1
Chilipepper	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore RF	0	0	-	0	0	0	0	0	0	0	0	0	0
GF expt Whiting	0	0	0	0	1	1	1	0	1	1	0	0	0
<b>Limited Entry Fixed Gear</b>													
Slope Rockfish	0	0	0	0	0	-	0	0	0	0	0	0	0
Sablefish	0	0	0	0	0	0	0	32	5	3	3	0	4
Flatfish	-	-	0	0	0	0	0	0	0	0	0	-	0
Shelf Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore RF	0	0	0	1	1	1	0	0	1	1	1	0	0
Other Groundfish	0	0	0	0	1	0	0	0	0	0	0	0	0
<b>Open Access Other</b>													
Slope Rockfish	-	-	-	0	0	0	0	0	0	0	0	0	0
Sablefish	-	0	0	0	0	0	1	1	1	3	4	0	1
Flatfish	-	-	-	0	0	0	0	0	0	0	0	0	0
Shelf Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore RF	0	0	0	1	2	1	2	1	2	2	1	0	1
Other Groundfish	0	0	0	1	2	1	2	1	1	1	0	0	1
<b>Open Access Trawl &amp; Troll</b>													
Slope Rockfish	-	0	-	0	0	0	0	0	0	0	-	-	0
Sablefish	-	0	-	-	-	0	0	0	0	0	-	-	0
Flatfish	-	0	-	0	0	0	0	0	0	0	-	-	0
Shelf Rockfish	-	-	-	0	0	0	0	0	0	0	0	-	0
Nearshore RF	-	-	-	0	0	0	0	0	0	0	0	0	0
Other Groundfish	-	-	-	0	0	0	0	0	0	-	0	-	0
<b>Groundfish as a Percent of All Species, by Gear Group</b>													
Limited Entry Trawl	21	30	44	46	46	31	32	13	34	58	79	11	29
Limited Entry Fixed Gear	0	1	1	2	3	2	2	33	6	4	4	0	5
Open Access Other	0	0	0	1	1	1	1	1	2	5	4	0	1
Open Access Trawl & Troll	1	2	1	3	4	3	4	1	3	1	4	1	2
Total All Groundfish	22	32	46	51	54	36	39	49	46	69	91	13	38
<b>Exvessel Revenue (\$1,000)</b>													
Limited Entry Trawl	1,161	841	746	1,321	1,269	699	1,012	633	973	1,088	1,086	941	11,770
Limited Entry Fixed Gear	18	16	13	50	71	45	58	1,569	181	83	55	21	2,179
Open Access Other	1	4	4	16	18	14	37	72	64	98	54	25	405
Open Access Trawl & Troll	40	45	24	81	106	63	123	71	97	26	56	113	844
Total All Groundfish	1,221	905	787	1,468	1,463	821	1,230	2,344	1,314	1,295	1,251	1,100	15,198
Total All Species	5,513	2,813	1,703	2,859	2,734	2,250	3,124	4,812	2,883	1,873	1,379	8,282	40,226



TABLE 3.3.1.3-2e. Point Mendocino to Point Conception, exvessel revenue for groundfish as a percent of total exvessel revenue for all West Coast vessels, 2000.

Species (or group)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>Gear Group</b>													
<b>Limited Entry Trawl</b>													
Other Slope RF	0	0	0	1	0	0	0	0	0	0	1	1	0
Sablefish	1	2	3	3	1	3	3	2	2	2	3	3	2
Thornyheads	6	6	9	7	1	1	2	1	2	1	3	4	3
Dover Sole	3	5	8	9	1	2	3	2	3	2	3	4	3
Arrowtooth	0	0	0	0	-	0	-	0	0	0	0	-	0
Rex	0	1	1	0	0	0	0	0	0	0	0	0	0
Petrale	2	1	1	3	0	1	1	1	1	1	2	4	1
Other Flatfish	1	1	2	2	1	1	4	3	2	4	1	1	2
Whiting	-	-	-	0	-	-	0	-	0	0	0	0	0
Other Shelf RF	0	0	0	0	0	0	0	0	0	1	1	1	0
Widow	1	1	3	0	0	1	1	0	1	0	1	1	1
Yellowtail RF	-	0	0	0	0	0	0	0	0	0	-	0	0
Chilipepper	0	1	3	1	0	1	1	1	1	1	1	1	1
Nearshore RF	0	0	0	0	0	0	0	0	-	0	0	0	0
GF expt Whiting	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Limited Entry Fixed Gear</b>													
Slope Rockfish	1	0	1	1	0	0	1	1	0	0	0	1	1
Sablefish	0	0	1	0	0	0	0	20	2	3	2	2	3
Flatfish	-	-	-	0	0	0	0	0	0	0	-	0	0
Shelf Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore RF	0	0	0	0	0	0	0	1	0	1	0	1	0
Other Groundfish	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Open Access Other</b>													
Slope Rockfish	0	-	0	0	0	0	0	0	0	0	0	0	0
Sablefish	0	0	1	1	0	1	2	1	1	3	5	6	2
Flatfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Shelf Rockfish	1	0	0	0	0	0	0	1	1	1	1	1	1
Nearshore RF	1	1	2	2	1	2	5	5	3	3	3	5	3
Other Groundfish	1	1	1	2	2	3	6	4	3	2	2	3	3
<b>Open Access Trawl &amp; Troll</b>													
Slope Rockfish	0	0	0	0	0	0	0	0	-	-	-	0	0
Sablefish	0	0	0	0	0	0	0	0	0	-	-	-	0
Flatfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Shelf Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore RF	-	0	-	-	0	0	0	0	0	0	-	0	0
Other Groundfish	0	0	0	0	0	0	0	0	0	-	-	0	0
<b>Groundfish as a Percent of All Species, by Gear Group</b>													
Limited Entry Trawl	16	19	31	28	5	11	15	13	13	12	16	20	15
Limited Entry Fixed Gear	2	1	3	1	1	1	2	22	3	5	3	5	4
Open Access Other	3	2	5	5	3	7	13	11	7	10	10	15	7
Open Access Trawl & Troll	0	0	0	0	0	0	0	0	0	0	0	0	0
Total All Groundfish	21	22	38	34	9	19	31	47	23	26	28	39	26
<b>Exvessel Revenue (\$1,000)</b>													
Limited Entry Trawl	616	301	509	771	260	579	428	509	607	388	598	518	6,084
Limited Entry Fixed Gear	71	10	43	28	39	59	59	851	150	146	105	118	1,679
Open Access Other	121	32	76	142	170	341	372	427	356	308	365	375	3,086
Open Access Trawl & Troll	18	8	6	4	8	13	8	5	6	2	1	1	78
Total All Groundfish	827	351	635	945	477	992	867	1,791	1,119	844	1,067	1,011	10,927
Total All Species	3,866	1,620	1,652	2,802	5,248	5,111	2,789	3,837	4,854	3,201	3,750	2,583	41,313

TABLE 3.3.1.3-2f. South of Point Conception, exvessel revenue for groundfish as a percent of total exvessel revenue for all West Coast vessels, 2000.

Species (or groups)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>Gear Group</b>													
<b>Limited Entry Trawl</b>													
Other Slope RF	-	0	-	-	-	-	-	-	-	-	-	-	0
Sablefish	-	-	0	-	-	-	-	-	-	-	-	-	0
Petrals	0	0	0	0	0	-	-	0	-	-	-	-	0
Other Flatfish	0	0	0	0	0	-	-	0	-	-	0	0	0
Other Shelf RF	-	-	-	0	-	-	-	-	-	-	0	-	0
Chilipepper	-	0	-	-	-	-	-	0	-	-	-	-	0
GF expt Whiting	-	-	0	0	0	0	-	-	-	-	-	0	0
<b>Limited Entry Fixed Gear</b>													
Slope Rockfish	0	0	0	1	1	1	1	1	1	0	0	0	0
Sablefish	0	0	0	0	1	1	1	1	0	0	0	0	0
Flatfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Shelf Rockfish	0	-	0	0	0	0	0	0	0	0	0	0	0
Nearshore RF	-	-	0	-	0	0	0	0	0	0	0	0	0
Other Groundfish	-	0	0	0	0	0	0	0	0	0	0	0	0
<b>Open Access Other</b>													
Slope Rockfish	0	0	1	1	1	1	1	0	0	0	0	0	0
Sablefish	0	0	0	0	0	0	0	0	0	0	0	0	0
Flatfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Shelf Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore RF	-	0	0	1	1	1	1	1	1	0	0	0	0
Other Groundfish	0	0	1	1	1	2	1	1	1	0	0	0	1
<b>Open Access Trawl &amp; Troll</b>													
Slope Rockfish	0	-	-	-	0	-	-	-	-	0	-	0	0
Sablefish	0	0	0	0	-	-	0	0	-	-	0	0	0
Flatfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Shelf Rockfish	-	-	0	0	0	0	0	0	-	0	0	0	0
Nearshore RF	-	-	-	-	0	0	-	-	-	0	0	0	0
Other Groundfish	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Groundfish as a Percent of All Species, by Gear Group</b>													
Limited Entry Trawl	0	0	0	0	0	0	-	0	-	-	0	0	0
Limited Entry Fixed Gear	0	0	1	1	1	1	2	1	1	0	1	1	1
Open Access Other	1	1	2	2	4	4	3	3	2	1	1	1	2
Open Access Trawl & Troll	0	0	0	0	0	0	0	0	0	0	0	0	0
Total All Groundfish	1	1	3	4	6	5	5	5	4	1	2	2	2
<b>Exvessel Revenue (\$1,000)</b>													
Limited Entry Trawl	0	0	1	1	0	0		7			0	0	10
Limited Entry Fixed Gear	32	18	34	37	35	41	51	43	49	40	53	52	483
Open Access Other	40	32	82	82	114	128	98	100	108	81	68	100	1,032
Open Access Trawl & Troll	6	1	3	4	3	2	1	1	1	2	3	3	30
Total All Groundfish	78	52	119	123	153	171	149	150	158	123	124	155	1,555
Total All Species	7,382	5,603	4,218	3,316	2,782	3,129	3,223	2,959	4,326	8,706	7,753	8,831	62,229

