

Title of Environmental Review: Environmental Assessment of Management Measures to Prevent Harm to the Pacific Whiting Fishery

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Legal Mandate: Magnuson-Stevens Fishery Conservation and Management Act, 50 CFR Part 660

Location of Proposed Activities: The Exclusive Economic Zone (3-200 nautical miles offshore) of the states of Washington, Oregon, and California

Abstract: This environmental assessment (EA) analyzes the effects of implementing a limited entry program for the three non-tribal sectors of the Pacific whiting fishery (shore-based, catcher/processor, mothership) off the coast of Washington, Oregon, and California. Under current regulations, catcher vessels participating in the shore-based and mothership sectors, or vessels participating in the catcher/processor sectors, must be registered to a groundfish limited entry permit. The limited entry permit program has been in place since 1994 and allows appropriately registered vessels to participate in groundfish fisheries targeting any of the 90+ species in the Pacific Coast Groundfish Fishery Management Plan (FMP). The proposed action, which would be finalized as Amendment 15 to the FMP, would require vessels that wish to participate in the non-tribal whiting fishery to qualify for an additional whiting entry limitation program within the overall groundfish limited entry program. The alternatives considered in this EA share the intent to limit future participation in the Pacific whiting fishery, but vary in the qualifications required to secure that privilege. This EA analyzes the effects that a limited entry program for the Pacific whiting fishery, with qualifications for the three non-tribal sectors, has on the socioeconomic, biological, and physical environments.

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List of acronyms

ABC Allowable Biological Catch
AFA American Fisheries Act
BSAI Bering Sea Aleutian Islands
CFR Code of Federal Regulations
CZMA Coastal Zone Management Act
E.O. Executive Orders
EA Environmental Assessment
EEZ Exclusive Economic Zone
EFH Essential Fish Habitat
EFP Exempted Fishing Permit
EIS Environmental Impact Statement
EMS electronic monitoring system
ESA Endangered Species Act
ESU evolutionarily significant unit
FMP Pacific Coast Groundfish Fishery Management Plan
FR Federal Regulations
H&G head and gut
MMPA Marine Mammal Protection Act
mt metric ton
NEPA National Environmental Policy Act
Nm nautical miles
NMFS National Marine Fisheries Service
NOAA National Oceanic and Atmospheric Administration
NWR North West Regional
OY Optimum Yield
PacFIN Pacific Fisheries Information Network
POP Pacific Ocean Perch
PRA Paperwork Reduction Act
PWCC Pacific Whiting Conservation Cooperative
RCA Rockfish Conservation Area
RFA Regulatory Flexibility Act
SBA Small Business Administration
SHOP Shorebased Hake Observation Program
USD United State Dollar
WOC Washington, Oregon, and California

1. PURPOSE OF AND NEED FOR THE ACTION

1.1 Introduction

The groundfish fishery in the Exclusive Economic Zone (EEZ), offshore waters between 3 and 200 nautical miles (nm), off the coasts of Washington, Oregon, and California (WOC) is managed under the Pacific Coast Groundfish Fishery Management Plan (FMP). The Pacific Coast Groundfish FMP was prepared by the Pacific Fishery Management Council (Council) under the authority of the Magnuson Fishery Conservation and Management Act (subsequently amended and renamed the Magnuson-Stevens Fishery Conservation and Management Act). The FMP has been in effect since 1982.

Actions taken to amend FMPs or to implement regulations to govern the groundfish fishery must meet the requirements of several Federal laws, regulations, and executive orders. In addition to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), these Federal laws, regulations, and executive orders include: National Environmental Policy Act (NEPA), Regulatory Flexibility Act (RFA), Endangered Species Act (ESA), Marine Mammal Protection Act (MMPA), Coastal Zone Management Act (CZMA), Paperwork Reduction Act (PRA), Executive Orders (E.O.) 12866, 12898, 13132, and 13175, and the Migratory Bird Treaty Act.

NEPA regulations require that NEPA analysis documents be combined with other agency documents to reduce duplication and paperwork (40 CFR §§1506.4). Therefore, this EA will ultimately become a combined regulatory document to be used for compliance with not only NEPA, but also E.O. 12866, RFA, and other applicable laws. NEPA, E.O. 12866, and the RFA require a description of the purpose and need for the proposed action as well as a description of alternative actions that may address the problem.

- Chapter One describes the purpose and need of the proposed action.
- Chapter Two describes a reasonable range of alternative management actions that may be taken to meet the proposed need.
- Chapter Three contains a description of the physical, biological, and socioeconomic characteristics of the affected environment.
- Chapter Four examines the physical, biological, and socioeconomic impacts of the alternative management actions.
- Chapter Five outlines the consistency with the fishery management plan and other applicable laws.
- Chapter Six details the regulatory impact review and regulatory flexibility analysis.
- Chapter Seven contains a list of references for this document.

1.1.1 Background

The American Fisheries Act (AFA) of 1998 was designed to strengthen U.S. ownership standards that had been exploited under the Anti-reflagging Act, and to rationalize the Bering Sea and Aleutian Islands (BSAI) walleye pollock fishery (pollock) while protecting non-AFA participants in other fisheries. Management measures required by the AFA include (1) regulations that limit access into the fishing and processing sectors of the BSAI pollock fishery and that allocate pollock to such sectors, (2) regulations governing the formation and operation of fishery cooperatives in the BSAI pollock fishery, (3) regulations to protect other fisheries

from spillover effects from the AFA, and (4) regulations governing catch measurement and monitoring in the BSAI pollock fishery. The AFA requires the Council to develop conservation and management measures to protect fisheries under its jurisdiction and the participants in those fisheries from adverse impacts caused by the AFA, or by any fishery cooperatives in the directed pollock fishery. Protection measures can be divided into two basic categories 1) the protection of persons/companies that harvest fish and are not part of the BSAI pollock fleet as defined by the AFA and 2) the protection of non-AFA fish processors. To address the concern of AFA impacts on the Pacific coast groundfish fishery the Council voted to establish a control date of September 16, 1999, and to initiate the development of recommendations to restrict AFA-qualified vessels from participating in the Pacific Coast groundfish fishery if, during a qualifying period between January 1, 1994, and September 16, 1999, the vessel: (1) did not harvest at least 50 metric tons (mt) of Pacific whiting in the mothership sector; (2) did not land at least 50 mt of Pacific whiting in the shorebased sector; or (3) did not land groundfish shore-based in the Pacific Coast groundfish fishery (not including fish landed in the Pacific whiting fishery) (64 FR 66158). This control date provided notice to AFA-permitted vessels that might seek to participate in the Pacific Coast groundfish fisheries that current requirements for accessing the fisheries may change.

At its June 2000 meeting, the Council also set a control date of June 29, 2000, for any limited entry permit on that date owned by an owner of a vessel eligible for benefits under the AFA and registered for use with an AFA-qualified vessel that does not meet minimum participation requirements. The control date was intended to indicate that new requirements may be established in the future, and permit holders may be subject to restrictions similar to restrictions imposed on the vessel (65 FR 55214). The intended effect of this action was to discourage speculative entry or increased effort in the Pacific coast groundfish fisheries by entities eligible for AFA benefits and to provide notice of potential permit restrictions or revocation to purchasers or lessees of limited entry permits owned by AFA-qualified vessel owners and registered for use with AFA-qualified vessels.

In September 2001, the Council reviewed a range of alternatives limiting participation in the West Coast groundfish fisheries and the Pacific whiting fishery under Amendment 15. Analysis in the draft EA identified key issues: qualifying criteria for AFA catcher vessels; whether AFA catcher vessel restrictions would be on vessels, permits held by vessels, or both; qualifying criteria for AFA catcher/processors; qualifying criteria for AFA motherships; and duration of the restrictions. The Council adopted a preferred alternative and directed Council staff to complete public review drafts of the analysis and proposed management measures. However, because of competing workload and no threatened imminent harm, the Council tabled action on Amendment 15 in 2001.

In 2006, changes in the Pacific whiting fishery occurred which led to Council concern about increased participation by both AFA-permitted and non-AFA permitted vessels in the Pacific whiting fishery. A significant increase in the whiting ex-vessel price attracted several new vessels to the fishery, including some AFA-permitted vessels. Since the Alaska pollock fishery was rationalized, some vessels found they could engage in fishing for Pacific whiting off the West Coast in the spring and early summer and then travel to Alaska to take their shares of pollock later in the summer when Alaskan fishing conditions were more favorable. Increased

participation in the Pacific whiting fishery contributed to the achievement of the shore-based whiting harvest limits earlier in the year in 2006 than in 2005 which adversely affected processors and fishers.

At the March 2006 Council meeting, the Legislative Committee discussed a request by staff of the U.S. Senate Committee on Commerce, Science, and Transportation for Council input on draft AFA amendatory language. In turn the Council directed Council staff to send a letter to the U.S. Senate Committee recommending that “all AFA qualified vessels (original or replacement) - not just catcher/processor vessels - without West Coast landing history prior to June 29, 2000 [one of two Council approved control dates] be prohibited from participating in the Pacific whiting fishery.” At the June 2006 meeting, the Legislative Committee and the Council heard testimony regarding participation by AFA qualified vessels in the shore-based sector of the Pacific whiting fishery. Additional public comments stated that Council recommended restrictions on AFA qualified vessels would not go far enough to protect all sectors of the West Coast Pacific whiting fishery and that sector specific “sideboards” (landing requirements) should be requested and that current efforts to address the issue through federal legislation were unlikely to address all of the Council’s concerns. In response, the Council and the Legislative Committee recommended revisiting Amendment 15 to the groundfish FMP as a potential mechanism for protecting West Coast fisheries from adverse impacts caused by the AFA.

In September 2006, the Council recommended that NMFS take emergency action to prevent new entry into the Pacific whiting fishery in 2007. The basis for the Council’s recommendation was conservation concerns that could arise from an accelerated race for fish¹ due to new entry of AFA-permitted vessels to the fishery. Members of the Council expressed concern that a race for fish could result in excessive harvest of whiting early in the season, greater bycatch of overfished rockfish and higher levels of incidental catch of endangered and threatened salmon in the early season. The Council also noted its concern that new entry of AFA-permitted vessels could result in early achievement of the U.S. directed harvest whiting quotas, leaving West Coast-based vessels facing no fishing or very limited fishing while the AFA-permitted vessels could return to the rationalized Alaska pollock fisheries, in which they also had an interest. The Council’s proposal would only have prohibited AFA-permitted vessels from entry into the Pacific whiting fishery in 2007, and only if they did not have a history of involvement in the fishery prior to 2006. Other non-AFA vessels could still have entered the fishery.

In a letter of January 11, 2007, the Northwest Regional Administrator denied the Council’s request for an emergency rule. The letter noted that the Council action was intended to address actual or potential harm to West Coast fisheries from the AFA, however the earlier closure of the whiting shore-based fishery in 2006 (compared to 2005) was due to new participation by both AFA-permitted vessels and non-AFA vessels. While acknowledging that new market conditions were likely to attract additional vessels, the Regional Administrator pointed out that the proposed

¹ The Pacific whiting fishery is managed under a "primary" season structure where vessels harvest Pacific whiting until the sector allocation is reached and the fishery is closed. This is different from most West Coast groundfish fisheries, which are managed under a "trip limit" structure, where catch limits are specified by gear type and species (or species group) and vessels can land catch up to the specified limits. Incidental catch of other groundfish species in the Pacific whiting fishery, however, is managed under the trip limit structure.

action would have denied new entry to a selected category of vessels (i.e., AFA-permitted vessels) but not all vessels. The Regional Administrator noted that the guidelines for the use of emergency rules call for use of notice-and-comment procedures when there are controversial actions with serious economic effects, except under extraordinary circumstances. Therefore, the proposal, as with other allocation decisions, would more appropriately be handled through the Council's full rulemaking process.

The Regional Administrator subsequently advised the Council on February 13, 2007, that if it were to submit a proposal that dealt more broadly with the issue of conservation risks and management problems due to potential new entry of any new vessels into the directed whiting fishery, NMFS would review that proposal on its own merits. NMFS would continue to be concerned if the request based the proposed action on the AFA rather than on the Magnuson-Stevens Act.

At its March 2007 meeting, the Council discussed a schedule of final Council action for Amendment 15 at its June or September 2007 meeting. As an interim protective mechanism, the Council voted to request that NMFS enact an emergency rule for the 2007 non-tribal season to prohibit participation in the 2007 non-tribal Pacific whiting fishery by all vessels without sector-specific history in the fishery prior to January 1, 2007 (72 CFR 27760). In addition to the factors that were presented in the 2006 Council emergency rule request, there were four new pieces of information presented at the March 2007 Council meeting that exacerbated concern for an accelerated race for fish. First, the price for whiting continued to increase to unprecedented levels, ex-vessel prices increased from \$77 per ton in 2004 to \$137 per ton in 2006 - nearly doubling since 2004, and increasing by over 22% compared to 2005. Industry projections for the 2007 season were that prices would continue to increase to over \$176 per ton. Second, the U.S. OY of whiting was reduced by 10% for the 2007 season compared to 2006. Third, because of higher than projected canary rockfish bycatch rates in the non-whiting fishery, the Council took action in March 2007 that placed more severe constraints on the limited entry non-whiting trawl fishery. Vessels that had reduced opportunities due to the expanded rockfish conservations areas, may have had an incentive to join the whiting fishery. Fourth, the quota for Alaskan pollock was reduced in 2007². All of these recent changes increased the likelihood that there could be accelerated race for fish: the first by making entry more lucrative for additional vessels, the second by constraining supply of whiting and leading to more pressure among vessels to quickly capture the more limited supply of whiting, and the third and fourth by increasing the relative attractiveness of entering the whiting fishery this year.

Faced with this information, the Council adopted and submitted a proposal to NMFS to address the anticipated issues in 2007. The Council's proposal was to: (1) prohibit via NMFS emergency action participation in either the shore-based, catcher/processor, and mothership sectors of the fishery by any vessel that had no sector-specific history of participation prior to January 1, 2007; and (2) commit the Council to complete Amendment 15 to the FMP to address concern regarding

² Because the midwater trawl fishing gear used in the shore-based whiting fishery is similar to gear used in the Bering Sea/Aleutian Islands pollock fishery, the added equipment cost for participation is minimal for Alaskan pollock vessels. Individuals entering the whiting fishery would need to acquire the necessary West Coast trawl limited entry permit(s); the number of permits needed is directly related to the size of the vessel.

increased participation by AFA vessels for the long term, consistent with the Magnuson-Stevens Act, the AFA, and other applicable law.

The NMFS implemented the Council's request for emergency action on May 14, 2007, prohibiting participation in the 2007 whiting fishery by any vessel that had no history of participation within a specific sector of the whiting fishery during the period between December 31, 1996 and January 1, 2007 (72 FR 27759, May 17, 2007). This action remains in effect until November 13, 2007, unless modified or extended. Emergency actions may be in place for as long as 180 days, and may be extended for a subsequent 180 days, but not longer.

The Council continued to address Amendment 15 during the April 2007 meeting. At this meeting, the Council adopted a purpose and need statement to limit sector-specific participation by AFA-permitted vessels without historical participation, and adopted a range of alternatives. Following the April Council meeting, an inter-agency workgroup led by the Oregon Department of Fish and Wildlife was established composed of staff from that agency, as well as Washington Department of Fish and Wildlife, National Marine Fisheries Service, and the Pacific Fishery Management Council. This workgroup was assigned with conducting analysis of the selected alternatives and completing the EA for Amendment 15.

During the initial planning and analysis, the workgroup identified a need for Council clarification on the purpose and need statement in order to develop and analyze a range of alternatives for Council consideration. During the June 11-15, 2007 Council meeting, the Council refined the previously adopted purpose and need statement, expanding it to prohibit participation by all vessels, regardless of qualification under the AFA. The revised statement and subsequent proposed alternatives, which are presented in this document, were designed to more fully address conservation risks and management problems as a result of new entrants to the Pacific whiting fishery.

1.2 Description of the Proposed Action

The proposed action is to develop conservation and management measures to protect the West Coast non-tribal Pacific whiting fishery and the participants in the fishery from adverse impacts caused by vessels with no sector-specific significant historical participation in the Pacific whiting fishery. The proposed limitations on entry are intended to restrict introduction of additional harvest capital in the fisheries, which could result in an accelerated race for fish. However, the entry limitations alone under the proposed Amendment 15 may be insufficient to reduce the overcapitalization and the "regular" race for fish that currently exist in the Pacific whiting fishery. The proposed Amendment 20 to the Pacific Groundfish Fishery Management Plan, examines the creation and implementation of a capacity rationalization plan that increases net economic benefits, creates individual economic stability, provides for full utilization of the trawl sector allocation, considers environmental impacts, and achieves individual accountability of catch and bycatch. If the whiting fishery is rationalized under Amendment 20, the proposed action under Amendment 15 would be an interim measure.

1.3 Purpose of and Need for the Action

Overcapacity fosters destructive derby operations (race for fish), aggravates overfishing and bycatch, creates chronic management problems, and undermines the economic performance of

the harvesting sector. New entry into all sectors of the directed Pacific whiting fishery is likely given these conditions: increased whiting ex-vessel prices, increased prices for headed and gutted whiting as well as for fillet products, declining whiting OY, limited West Coast trawl opportunities due to overfished species rebuilding measures, and declining pollock quotas. Without action, it is likely that new vessels will enter into the fully capitalized Pacific whiting fishery, which could negatively effect the socioeconomic, biological, and physical environments.

1.4 Relationship to Other Plans and Policies

To encourage consistency among plans the relationship of the alternative actions to existing plans must be examined. Plans and policies that may affect or be affected by the alternative actions are discussed below.

Magnuson-Stevens Act and the Groundfish Fishery Management Plan

The alternative actions are consistent with the national standards and guidelines specified in the Magnuson-Stevens Act and the goals and objectives of the FMP. The alternative actions in the context of the Magnuson-Stevens Act and the Fishery Management Plan are thoroughly discussed in Chapter 5.1.

The proposed actions also relate to other FMP Amendments.

Amendment 10

Amendment 10 will create the regulatory framework for a maximized retention and monitoring program for the Pacific whiting shore-based fishery. Under this amendment, regulations will establish whiting vessel certifications. The alternative actions proposed under Amendment 15 may restrict vessel eligibility for whiting certifications.

Amendment 20

Amendment 20 to the FMP examines the creation and implementation of a capacity rationalization plan that increases net economic benefits, creates individual economic stability, provides for full utilization of the trawl sector allocation, considers environmental impacts, and achieves individual accountability of catch and bycatch. If the trawl fishery is rationalized under Amendment 20, then the proposed action under Amendment 15 would be an interim measure.

Pacific Fishery Management Council Strategic Plan

The Amendment 15 action alternatives support the Council's Strategic plan, which addressed the prevention of future overcapacity in the whiting fishery. The plan recommended implementing whiting endorsements with qualification for the endorsement based on landing history since 1994, the start of West Coast limited entry. While action alternatives do not promote an endorsement, a list of vessels eligible to participate in the Pacific whiting fishery would be maintained by the NMFS. Alternatives 1 and 2 contain the 1994 start date for historical participation, which is inline with the Strategic Plan recommendations. The Strategic Plan recommends bringing harvest capacity to a level that is in balance with the economic value of the resource. The plan also recommended limiting capacity while the permanent rationalization program is being developed. As previously mentioned, Amendment 15 would prohibit new

entrants and additional harvest capacity until such a time that the Council can create a permanent capacity reduction program through Amendment 20 or other initiative. If the trawl fishery is rationalized under Amendment 20, then the proposed action under Amendment 15 would be an interim measure. The Strategic Plan also encourages the use of incentives to encourage fishermen to fish in areas or times when bycatch is lower. Reducing competition and slowing the race for fish, under Amendment 15, may provide the opportunity to fish during times and in areas with lower rockfish bycatch.

International Plan of Action for the Management of Fishing Capacity

In 1999 the U.S. and the members of the Food and Agriculture Organization of the United Nations committed to the International Plan of Action for the Management of Fishing Capacity (U.S. Department of Commerce, 2004). The U.S., through NOAA, pledged to have an active role in managing capacity by working with the Councils to reduce overcapacity in fisheries under their jurisdiction. Under the plan of action, states and regional fisheries organizations agree to exercise caution to avoid growth in capacity, which can undermine long-term sustainability objectives. The proposed alternatives under Amendment 15 would prevent new entry and further overcapitalization in the whiting fishery, which is in line with the U.S. commitment to the International Plan of Action for the Management of Fishing Capacity.

1.5 Applicable Federal Permits, Licenses, or Authorizations Needed in Conjunction with Implementing the Proposal

In June 2007, the Council took final action under Amendment 10 to the FMP to adopt a maximized retention and monitoring program for the Pacific whiting shore-based fishery. In addition to a limited entry permit with a trawl endorsement, vessels participating in future shore-based whiting fisheries will be required to apply for and obtain an annual whiting certification, which will serve as a declaration to participate. The alternative actions considered under Amendment 15 are expected to result in NMFS maintaining a list of vessels eligible to participate in the whiting fishery. NMFS expects that it would only issue whiting certificates in the shore-based sector, as called for by the shore-based whiting full retention and monitoring program recommended by the Council in June 2007, to eligible vessels under Amendment 15.

Catcher/processors, motherships, and catcher vessels in the mothership sector may also need to be issued whiting certifications. During the regulatory development process, NMFS will review the Council's recommendations for Amendment 15 in order to determine whether publishing and maintaining a list of eligible vessels is adequate for the amendment's implementation for the catcher/processor and mothership sectors.

Implementing regulations under Amendment 15 would specify the necessary application procedures for the Pacific whiting fishery.

2. ALTERNATIVES

This chapter describes the alternative management actions that could be implemented to prevent increased participation in the non-tribal Pacific whiting fishery by vessels with no sector-specific participation during the qualifying periods. The proposed limitations on entry are intended to

restrict introduction of additional harvest capital in the fisheries, which could result in an accelerated race for fish. This action is anticipated to be in effect until the Council recommends and NMFS implements a trawl rationalization program, such as those being considered under Amendment 20 to the groundfish FMP.

For the shore-based and mothership catcher vessel sector, the alternatives proposed by the Council do not seek to restrict or exclude participation of vessels who have participated in the Pacific whiting fishery during the qualifying period. For the catcher/processor and mothership sector, vessels with limited participation (i.e., less than 1,000 mt catching or processing in a single year) in that sector during the qualifying period could be restricted. Preventing further capacity in the Pacific whiting fishery could be accomplished by excluding vessels that do not meet qualifying criteria for sector specific significant participation in the Pacific whiting fishery during the qualifying period.

The primary factors taken into consideration when developing the alternatives were: (1) defining sector-specific significant historical participation by vessels and (2) determining qualifying dates by sector. The Council recommended that any participation during the qualifying period was a sufficient qualifier for the shore-based and at-sea catcher vessel sector. For the catcher/processor and mothership fleet, the Council recommended a tonnage requirement of 1,000 metric tons to represent significant historical participation.

The earliest date for defining the start of participation under the proposed alternatives is January 1, 1994; the year in which the West Coast limited entry trawl permit system began. Limited entry changed the composition of the at-sea processing fleet considerably, increasing the number of motherships, because permits were not required of vessels that only process. No catcher/processers initially qualified for a permit, but later purchased permits necessary to operate in the fishery. An alternative date for the start of the qualifying period is January 1, 1997 for catcher/processers and motherships, which represents the year in which the at-sea allocation was specifically divided into catcher/processor and mothership allocations. Prior to 1997, 60% of the OY was available in open competition between the shore-based and at-sea sectors. The remaining 40% was reserved for the shore-based fishery.

The Council chose two end dates for the qualifying periods in the proposed alternatives. The qualifying period end date of January 1, 2006 reflects the Pacific whiting fishery through the 2005 season, prior to the 22% increase in the ex-vessel value of Pacific whiting and the subsequent increased participation in the shore-based sector by 7 vessels that had not previously participated in that sector of the whiting fishery, and one mothership processor that had not previously participated in the fishery. The qualifying period end date of January 1, 2007 reflects the Pacific whiting fishery through the 2006 season, after improved market conditions and increased participation in the shore-based and mothership sectors by the new entrants.

The proposed alternatives for limiting participation in the Pacific whiting fishery are found in Table 1 and further detailed below.

Table 1 Action Alternatives for Limiting Vessel Participation in the Pacific Whiting Fishery

Status quo (No action)	Alternative 1 (includes participation through the 2005 season)	Alternative 2 (includes participation through the 2006 season)	Alternative 3 (2007 E-Rule 72 CFR 27759)
<p>Harvest capacity limited only by the number and availability of limited entry permits with trawl endorsements: Catcher vessels in the shore-based and mothership sectors and catcher/processors must be registered to a Pacific coast groundfish limited entry permit with a trawl endorsement</p> <p>Processing capacity in the mothership and shore-based sectors are not limited.</p>	<p>Alternative 1A- All vessels required to have sector specific participation between January 1 1994 & January 1, 2006</p> <p>Catcher/processor & motherships required to have significant participation a/</p>	<p>Alternative 2A- All vessels required to have sector specific participation between January 1, 1994 & January 1, 2007</p> <p>Catcher/processor & motherships required to have significant participation a/</p>	<p>All vessels required to have sector specific participation between January 1, 1997 & January 1, 2007</p>
	<p>Alternative 1B – Shore-based and mothership catcher vessels required to have sector specific participation between January 1 1994 & January 1, 2006</p> <p>Catcher/processor & mothership Vessels required to have significant sector specific history of participation between January 1, 1997 & January 1, 2006 a/</p>	<p>Alternative 2B - Shore-based and mothership catcher vessels required to have sector specific participation between January 1, 1994 & January 1, 2007</p> <p>Catcher/processor & mothership Vessels required to have significant sector history of participation between January 1, 1997 & January 1, 2007 a/</p>	

a/ Significant participation means that at least 1,000 metric tons were processed by a mothership or caught and processed by a catcher/processor in any one qualifying year

For Action Alternatives 1 & 2, significant historical participation is defined as having caught and processed at least 1,000 metric tons in any one qualifying year for catcher/processors; and having received at least 1,000 metric tons of whiting in any one qualifying year for motherships.

2.1 Status Quo (No Action). *Limit participation in the Pacific whiting fishery by using only the current limited entry system*

Under the No Action Alternative, any vessel registered to a West Coast limited entry groundfish permit with a trawl endorsement (176 existing permits) could harvest fish in the shore-based, catcher/processor, and mothership sectors of the Pacific whiting fishery. For new unpermitted vessels to be registered to a limited entry groundfish permit, they would need to purchase trawl

endorsement permit(s) adequate to the size of the vessel³ Under this alternative, increased or decreased participation in the whiting fishery is expected to be driven by whiting allocations, market conditions for whiting products, processor capacity, cost of gear, opportunity in other West Coast groundfish fisheries and other fishing opportunities such as the BSAI pollock fishery. Increased harvest and processing capital in the whiting fishery could result in an accelerated race for fish, which could reduce the per vessel value for the historical participants, may have undesirable consequences on overfished and protected species, and could result in a fishery that is more costly and difficult to manage in an effective manner.

The outcomes and effects of status quo are anticipated to continue until the Council recommends and NMFS implements a trawl rationalization program under Amendment 20 to the FMP, or other program that would reduce capacity in the whiting fishery.

2.2 Alternative 1. *Limit participation through the 2005 season*

Alternative 1 would prohibit participation by vessels that do not have sector-specific history of participation in the Pacific whiting fishery during the qualifying years defined below. This alternative is based on participation in the fishery since license limitation was implemented through the 2005 season. For the at-sea processing sector, a sub option exists with a start date that represents the year in which the at-sea allocation was specifically divided into catcher/processor and mothership allocations. Future adverse harm to the fishery from vessels that joined the fishery in 2006 and any new vessels that may chose to join in the future would be prevented under this alternative.

Alternative 1A

Limit participation to only those vessels with participation records as catcher vessels in the shore-based and at-sea catcher vessel sector during the January 1, 1994 – January 1, 2006 qualification period.

For the catcher/processor and mothership sector only, limit participation to those vessels with significant historical participation during the January 1, 1994 – January 1, 2006 qualification period. Significant historical participation is defined as having caught and processed at least 1,000 metric tons in any one qualifying year for catcher/processors; and having received at least 1,000 metric tons of whiting in any one qualifying year for motherships.

Alternative 1B

Limit participation to only those vessels with participation records as catcher vessels in the shore-based and at-sea catcher vessel sector during the January 1, 1994 – January 1, 2006 qualification period.

For the catcher/processor and mothership sector only, limit participation to only those vessels with significant participation records during the January 1, 1997 – January 1,

³Each limited entry permit is endorsed with the length overall or the size of the vessel that initially qualified for the permit. Vessels must combine enough limited entry permits in order to cover the length overall. Only 176 limited entry permits with trawl endorsements are currently available for use in all groundfish fisheries.

2006 qualifying period. Significant historical participation is defined as having caught and processed at least 1,000 metric tons in any one qualifying year for catcher/processors; and having received at least 1,000 metric tons of whiting in any one qualifying year for motherships.

This alternative excludes vessels that entered the fishery for the first time in 2006. The total number of eligible catcher vessels that would be qualified to participate in the Pacific whiting fishery is 68 in the shore-based sector and 64 in the mothership sector, under either Alternative 1A or 1B. For the shore-based sector, of the 68 that qualify based on participation records, 12 vessels are no longer in operation due to the west coast groundfish buyback program. Therefore the effective number of eligible vessels is 56 for the shore-based sector. The effective vessels for this alternative will be referenced hereinafter. The total number of eligible catcher/processors qualified to participate in the Pacific whiting fishery, under Alternative 1A is 11 and 10 under Alternative 1B. The total number of unique motherships qualified to participate in the Pacific whiting fishery, under alternative 1A is 10 and 6 under Alternative 1B. In 2005 there were 29 catcher vessels participating in the shore-based sector and 10 processors. At-sea participation consisted of 6 catcher-processors, 5 motherships, and 18 mothership catcher vessels.

Vessels that purchased limited entry permits with the intent to join the whiting fishery or vessels that purchased equipment necessary to fish for Pacific whiting, but had not previously done so, would be prohibited from future participation under Alternative 1. Vessels that do not meet the participation requirements would need to find other fishing opportunities.

Since the alternatives are sector-specific, vessels that did not qualify for a particular sector would be ineligible to participate in that sector in the future. For example, shore-based vessels that acquired equipment to process at-sea, but had not previously done so, would be prohibited from participating in the catcher/processor sector. Catcher/processors without significant historical participation in the mothership sector would be prohibited from participating from that sector in the future (and vice versa). Catcher vessels with no previous history in shore-based sector would be prohibited from participating from that sector in the future (and vice versa).

Unlike the at-sea processors, participation of Pacific whiting shore-based processing facilities are not restricted under these alternatives. However, Pacific whiting shore-based processing facilities and mothership processors that arranged with catcher vessels that would be excluded under Alternative 1 may experience hardships in contracting with additional catcher vessels in the future.

The outcomes and effects are anticipated to continue until the Council recommends and NMFS implements a trawl rationalization program under Amendment 20 to the FMP or other program that would reduce capacity in the whiting fishery.

2.3 *Alternative 2. Limit participation through the 2006 season*

Alternative 2 would prohibit participation by vessels that do not have sector-specific history of participation in the Pacific whiting fishery during the qualifying years defined below. This alternative is based on participation in the fishery since license limitation was implemented

through the 2006 season. For the at-sea processing sector, a sub option exists with a start date that represents the year in which the at-sea allocation was specifically divided into catcher/processor and mothership allocations. Future adverse harm to the fishery from vessels that may chose to join in the future would be prevented under this alternative.

Alternative 2A

Limit participation to only those vessels with participation records as catcher vessels in the shore-based and at-sea catcher vessel sector during the January 1, 1994 – January 1, 2007 qualification period.

For the catcher/processor and mothership sector only, limit participation to those vessels with significant historical participation during the January 1, 1994 – January 1, 2007 qualification period. Significant historical participation is defined as having caught and processed at least 1,000 metric tons in any one qualifying year for catcher/processors; and having received at least 1,000 metric tons of whiting in any one qualifying year for motherships.

Alternative 2B

Limit participation to only those vessels with participation records as catcher vessels in the shore-based and at-sea catcher vessel sector during the January 1, 1994 – January 1, 2007 qualification period.

For the catcher/processor and mothership sector only, limit participation to those vessels with significant historical participation during the January 1, 1997 – January 1, 2007 qualification period. Significant historical participation is defined as having caught and processed at least 1,000 metric tons in any one qualifying year for catcher/processors; and having received at least 1,000 metric tons of whiting in any one qualifying year for motherships.

This alternative includes vessels that entered the fishery during the 2006 season. The total number of unique catcher vessels that would be qualified to participate in the Pacific whiting fishery, under either Alternative 2A or 2B, is 75 in the shore-based sector and 64 in the mothership sector. For the shore-based sector, of the 75 that qualify based on participation records, 12 vessels are no longer in operation due to the west coast groundfish buyback program. Therefore the effective number of eligible vessels is 63 for the shore-based sector. The effective vessels for this alternative will be referenced hereinafter. The total number of unique catcher/processors qualified to participate in the Pacific whiting fishery, under Alternative 2A is 11 and 10 under Alternative 2B. The total number of unique motherships qualified to participate in the Pacific whiting fishery, under Alternative 2A is 11 and 7 under Alternative 2B. In 2006 there were 37 catcher vessels participating in the shore-based sector. At sea participation consisted of 9 catcher-processors, 6 motherships, and 20 mothership catcher vessels.

More vessels are eligible to participate in the Pacific whiting fishery under Alternative 2, compared to Alternative 1. Similar to Alternative 1, vessels that purchased limited entry permits with the intent to join the whiting fishery or vessels that purchased equipment necessary to fish for Pacific whiting, but had not previously done so, would be prohibited from future participation

under Alternative 2. Vessels that do not meet the participation requirements would need to find other fishing opportunities.

Like Alternative 1, since the alternatives are sector-specific, vessels that did not qualify for a particular sector would not be eligible to participate in that sector in the future. For example, shore-based vessels that acquired equipment to process at-sea, but had not previously done so, would be prohibited from participating in the catcher/processor sector. Catcher/processors without significant historical participation in the mothership sector would be prohibited from participating from that sector in the future (and vice versa). Catcher vessels with no previous history in shore-based sector would be prohibited from participating from that sector in the future (and vice versa).

Unlike the at-sea processors, participation of Pacific whiting shore-based processing facilities are not restricted under these alternatives. However, Pacific whiting shore-based processing facilities and mothership processors that arranged with catcher vessels that would be excluded under Alternative 2 may experience hardships in contracting with additional vessels in the future.

The outcomes and effects are anticipated to continue until the Council recommends and NMFS implements a trawl rationalization program under Amendment 20 to the FMP or other program that would reduce capacity in the whiting fishery.

2.4 Alternative 3. 2007 Emergency Rule (72 CFR 27759)

Alternative 3 reflects the spirit of the 2007 emergency rule, with participation dates reflecting the first year of the whiting sector allocation (1997) through the 2006 season. Future adverse harm to the fishery from any new vessels that may chose to join in the future would be prevented under this alternative.

The total number of eligible catcher vessels that would be qualified to participate in the Pacific whiting fishery, under Alternative 3 is 65 in the shore-based sector and 39 in the mothership sector. For the shore-based sector, of the 65 that qualify based on participation records, 9 are vessels no longer in operation due to the west coast groundfish buyback program. Therefore the effective number of eligible vessels is 56 for the shore-based sector. The effective vessels for this alternative will be referenced hereinafter. The total number of unique catcher/processors that would qualified to participate in the Pacific whiting fishery, under Alternative 3 is 10. The total number of unique motherships that would be qualified to participate in the Pacific whiting fishery, under Alternative 3 is 7. In 2006 there were 37 catcher vessels participating in the shore-based sector. At sea participation consisted of 9 catcher-processors, 6 motherships, and 20 mothership catcher vessels.

Vessels that participated prior to 1997 and after January 1, 2007, would be excluded under this alternative. Alternative 3 limits participation more than the other action alternatives.

Similar to Alternatives 1 and 2, vessels that purchased limited entry permits with the intent to join the whiting fishery or vessels that purchased equipment necessary to fish for Pacific whiting, but had not previously done so, would be prohibited from future participation under Alternative

3. Vessels that do not meet the participation requirements would need to find other fishing opportunities.

Like Alternatives 1 and 2, since the alternatives are sector-specific, vessels that did not qualify for a particular sector would not be eligible to participate in that sector in the future. For example, shore-based vessels that acquired equipment to process at-sea, but had not previously done so, would be prohibited from participating in the catcher/processor sector. Catcher/processors without historical participation in the mothership sector would be prohibited from participating from that sector in the future (and vice versa). Catcher vessels with no previous history in shore-based sector would be prohibited from participating from that sector in the future (and vice versa).

Unlike the at-sea processors, participation of Pacific whiting shore-based processing facilities are not restricted under these alternatives. However, Pacific whiting shore-based processing facilities and mothership processors that arranged with catcher vessels that would be excluded under Alternative 3 may experience hardships in contracting with enough additional vessels in the future.

The outcomes and effects are anticipated to continue until the Council recommends and NMFS implements a trawl rationalization program under Amendment 20 to the FMP or other program that would reduce capacity in the whiting fishery.

Table 2 summarizes the number of eligible vessels by sector and alternative.

Table 2. Numbers of Eligible Vessels by Sector and Alternative

Vessel Category	Alternative 1A 1/1/94-1/1/06	Alternative 2A 1/1/94-1/1/07	Alternative 3 1/1/97-1/1/07
Shore-based catcher vessels	56 [68] ¹	63 [75] ¹	56 [65] ¹
Mothership catcher vessels	64	64	39
Catcher/processor	11	11	10
Mothership	10	11	7
	Alternative 1B 1/1/97-1/1/06	Alternative 2B 1/1/97-1/1/07	
Catcher/processor	10	10	
Mothership	6	7	

¹Numbers in brackets indicate the actual number of vessels qualified, including those purchased during the buyback program.

2.5 Alternatives Considered but Rejected for Further Analysis

Only restrict participation by AFA-permitted vessels in the whiting fishery

In September 2006, the Council recommended that NMFS take emergency action to prevent new entry into the Pacific whiting fishery in 2007 by AFA-permitted vessels. The Council's proposal would only have prohibited AFA-permitted vessels from entry into the Pacific whiting fishery in 2007, and only if they did not have a history of involvement in the fishery prior to 2006. Other non-AFA vessels could still have entered the fishery.

In a letter of January 11, 2007, the Northwest Regional Administrator denied the Council's request for an emergency rule. The letter noted that the Council action was intended to address actual or potential harm to West Coast fisheries from the AFA; however the earlier closure of the whiting shore-based fishery in 2006 (compared to 2005) was due to new participation by both AFA-permitted vessels and non-AFA vessels. While acknowledging that new market conditions were likely to attract additional vessels, the Regional Administrator pointed out that the proposed action would have denied new entry to a selected category of vessels (i.e., AFA-permitted vessels) but not all vessels. The Regional Administrator noted that the guidelines for the use of emergency rules call for use of notice-and-comment procedures when there are controversial actions with serious economic effects, except under extraordinary circumstances. Therefore, the proposal, as with other allocation decisions, would more appropriately be handled through the Council's full rulemaking process.

As per the Regional Administrator guidelines, the Council submitted the proposed alternatives that deal more broadly with the issue of conservation risks and management problems due to potential new entry of any new vessels into the directed whiting fishery.

Implement Rules under Secretary of Commerce Authority Under the AFA

The Secretary of Commerce has the authority under the AFA to establish regulations and control entry into the Pacific whiting fishery by AFA-permitted vessels. Developing an alternative under the AFA was considered and rejected by the Council at its June 2007 meeting. By rejecting action under the AFA, the Council also rejected participation dates relative to the AFA control dates previously specified by the Council (64 FR 66158 and 65 FR 55214) or the passage of the AFA (1999). The NMFS previously indicated to the Council that the potential problems that would arise with new entry to the Pacific whiting fishery were not limited to the prospect of AFA-permitted vessels entering the fishery. Conservation and management problems were likely to arise with any new entry to the fishery. Further, use of Secretarial authority under the AFA would be more complex and take longer than under the Magnuson-Stevens Act and the rule could likely not be implemented under the AFA in a time frame to be useful in 2008. Therefore, this alternative was rejected without further analysis.

Restrict participation by AFA-permitted vessels in the non-whiting groundfish fisheries

The Council also considered increased participation by AFA-permitted vessels in the non-whiting fishery at the June 2007 Council meeting. The Council stated their desire to implement measures to protect the whiting fishery, from vessels with no previous participation, in time for the 2008 whiting fishery. The Council rejected an expanded action which would restrict AFA-permitted vessel participation in the non-whiting groundfish fishery since it would considerably lengthen the amount of time for the analysis, preventing implementation in time for the 2008 Pacific whiting season.

3. AFFECTED ENVIRONMENT

This chapter describes the Pacific Coast groundfish fishery and the resources that would be affected by the alternative actions. Physical resources are discussed in Chapter 3.1, biological resources are described in Chapter 3.2, and socio-economic resources are described in Chapter 3.3. Other recent NEPA documents prepared for the Pacific Coast groundfish fishery provide detailed information pertaining to the physical, biological and socio-economic environment. These NEPA documents include: the Environmental Impact Statement (EIS) for the FMP, EFH Designation and Minimization of Adverse Impacts; the EIS prepared for the Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2007-2008 Pacific Coast Groundfish Fishery; the EA entitled “A Maximized Retention and Monitoring Program for the Pacific Shore-based Fishery”; the EA titled “Catch Accounting Requirements for Pacific Whiting Shore-based Processors/First Receivers Participating in the Shore-based fishery”; and the “Emergency Rule to Implement Measures to Prohibit Entry of New Vessels to the Directed Fishery for Pacific Whiting in the Exclusive Economic Zone Off the West Coast in 2007”. Rather than repeat information detailed in the other NEPA documents, the information has been summarized in this document and the reader is referred to the appropriate sections in the other NEPA documents for further detail.

3.1 Physical Characteristics of the Affected Environment

3.1.1 General Characteristics

The coastal ocean off Washington, Oregon, and California is a biogeographic region that is referred to as the Coastal Upwelling Domain (Ware and McFarlane 1989). Coastal upwelling results in high production of phytoplankton from April through September fueled by the nearly continuous supply of nutrients, and a high biomass of copepods, euphausiids and other zooplankton during summer. The Coastal Upwelling Domain is part of the California Current system. The California Current is a broad, slow, meandering current that moves toward the equator. In deep waters offshore of the continental shelf, the currents flow southward all year round; however, over the continental shelf, southward flows occur only in spring, summer, and fall. During winter months, the flow over the shelf reverses, and the water moves northward as the Davidson Current.

Pacific whiting are a California current species that undertake an extended spawning migration during which the adults swim south to spawn in the southern California Bight in fall and winter. Pacific whiting migrate from as far north as Vancouver Island to southern California, a distance of several thousand kilometers. The Pacific whiting fishery has historically occurred during the northern migration of adults. The northern migrating adults and the northward drift of larvae and juveniles takes place at depths where fish take advantage of the poleward undercurrent.

3.1.2 Essential Fish Habitat

The Magnuson Act defines “essential fish habitat” as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” Groundfish EFH has been identified by the Pacific Fishery Management Council as all waters from the high tide line (and parts of estuaries) to 3,500 meters (1,914 fathoms) in depth. The physical environment and its

relation to Pacific whiting are more fully described in the April 2007 EA titled “Catch Accounting Requirements for Pacific Whiting Shore-based Processors/First Receivers Participating in the Shore-based fishery”. In addition, the Pacific Coast Groundfish Fishery Management Plan, EFH Designation and Minimization of Adverse Impacts, contains detailed information on the physical environment. Detailed information on the West Coast marine habitat and physical oceanography is presented in Section 3.2 of the final EFH EIS. A copy of the EFH EIS can be obtained by contacting the Sustainable Fisheries Division, Northwest Region, NMFS, 7600 Sand Point Way, NE, Seattle, WA 98115-0070; or viewing the internet posting at www.nwr.noaa.gov/Groundfish-Halibut/Groundfish-Fishery-Management/NEPA-Documents/index.cfm.

3.2 Biological Characteristics of the Affected Environment

There are over 90 species of groundfish managed under the groundfish FMP. These species include over 60 species of rockfish in the family Scorpaenidae, 7 roundfish species, 12 flatfish species, assorted sharks, skates, and a few miscellaneous bottom-dwelling marine fish species. The groundfish species occur throughout the EEZ and occupy diverse habitats at all stages in their life history. For more in-depth descriptions of species in the affected environment the reader is referred to Section 3.2 of the Emergency Rule to Implement Measures to Prohibit Entry of New Vessels to the Directed Fishery for Pacific Whiting in the Exclusive Economic Zone Off the West Coast in 2007, available online at <http://www.nwr.noaa.gov/Groundfish-Halibut/Groundfish-Fishery-Management/NEPA-Documents/index.cfm>.

3.2.1 Pacific Whiting

Pacific whiting range from Sanak Island in the western Gulf of Alaska to Magdalena Bay, Baja California Sur. They are most abundant in the California Current System (Bailey 1982; Hart 1973; Love 1991; NOAA 1990). In general, Pacific whiting is a very productive species with highly variable recruitment patterns (recruitment-the biomass of fish that mature and enter the fishery each year) and a relatively short life span when compared to most other groundfish species.

In 1987, the Pacific whiting biomass was at a historically high level due to an exceptionally large number of fish that spawned in 1980 and 1984 (fished spawned during a particular year are referred to as year classes). As these large year classes passed through the population and were replaced by moderate sized year classes, the overall size of the Pacific whiting stock declined. The Pacific whiting stock stabilized between 1995 and 1997, but then declined to its lowest level in 2001. The female spawning biomass of Pacific whiting in 2001 was estimated to be less than 20 percent of the unfished biomass. As a result, the stock was believed to be below the overfished threshold ($B_{25\%}$) and was declared overfished on April 15, 2002 (67 FR 18117).

Since 2001, the Pacific whiting stock has increased substantially due to a strong 1999 year class that matured and entered the spawning population. NMFS announced that the Pacific whiting stock was estimated to be above the target rebuilding biomass ($B_{40\%}$) in 2003 and was no longer considered to be an overfished stock. A Pacific whiting stock assessment was prepared in early 2006, and the Pacific whiting biomass was estimated to be between 31 percent and 38 percent of

its unfished biomass. In 2006, the U.S. allowable biological catch (ABC) (73.88 percent of the U.S.-Canada coastwide ABC) was 518,294 mt and the U.S. total catch OY with a 40-10 precautionary adjustment was 269,069 mt. In the absence of a strong year class recruiting to the fishery, the Pacific whiting stock is projected to decline to near or below the overfished threshold in the next few years. A 2007 stock Pacific whiting stock assessment, which was available to the Council at its March 2007 meeting shows that the stock biomass is continuing to decline. Whiting is currently considered a precautionary zone stock.

3.2.2 Healthy and Precautionary Zone Stocks

Species that are incidentally taken in the Pacific whiting fishery may be commingled with Pacific whiting or merely in the vicinity of Pacific whiting schools, depending on the relationships between the various species. Major factors affecting bycatch are: area, depth, season, time of day, and environmental conditions. Overall abundance of a particular species is also relevant.

The most common groundfish species taken under the shore-based exempted fishing permit (EFP) fishery between 2002 and 2006 include: yellowtail rockfish (*Sebastes flavidus*), sablefish (*Anoplopoma fimbria*), spiny dogfish (*Squalus acanthias*), chilipepper rockfish (*Sebastes goodie*), and lingcod (*Ophiodon elongatus*). The most common groundfish species taken in the at-sea fishery between 2002 and 2005 include sablefish, thornyhead rockfish (*Sebastolobus altivelis* and *Sebastolobus alascanus*), widow rockfish, and yellowtail rockfish. Yellowtail, chilipepper, thornyheads and lingcod are all considered to be healthy stocks. Sablefish is a precautionary zone species. Spiny dogfish has not been quantitatively assessed.

Yellowtail Rockfish

Of the healthy and precautionary zone stocks, yellowtail rockfish is the most common groundfish species caught with Pacific whiting. Yellowtail rockfish range from San Diego, California, to Kodiak Island, Alaska (Fraidenburg 1980; Gotshall 1981; Lorz, et al. 1983; Love 1991; Miller and Lea 1972; Norton and MacFarlane 1995). The center of yellowtail rockfish abundance is from Oregon to British Columbia (Fraidenburg 1980). Yellowtail rockfish are a common, demersal species abundant over the middle shelf (Carlson and Haight 1972; Fraidenburg 1980; Tagart 1991; Weinberg 1994). Yellowtail rockfish are most common near the bottom, but not on the bottom (Love 1991; Stanley, et al. 1994). Yellowtail rockfish adults are considered semi-pelagic (Stanley, et al. 1994; Stein, et al. 1992) or pelagic, which allows them to range over wider areas than benthic rockfish. Adult yellowtail rockfish occur along steeply sloping shores or above rocky reefs (Love 1991). They can be found above mud with cobble, boulder and rock ridges, and sand habitats; they are not, however, found on mud, mud with boulder, or flat rock (Love 1991; Stein, et al. 1992). Yellowtail rockfish form large (sometimes greater than 1,000 fish) schools and can be found alone or in association with other rockfishes (Love 1991; Rosenthal, et al. 1982; Stein, et al. 1992; Tagart 1991). These schools may persist at the same location for many years.

In the past five years, the yellowtail rockfish catch in the Pacific whiting shore-based fishery has ranged from a low of 41 mt in 2002 with a catch rate of 0.0009 mt of yellowtail rockfish per mt of Pacific whiting to a high of 172 mt in 2005 with a catch rate of 0.0017 mt of yellowtail rockfish per mt of Pacific whiting (Table A1). Yellowtail rockfish catch rates tend to be highest in ports in the north (Westport, Illwaco, and Astoria) than in the south. Catch rates for individual

trips between 1999 and 2003 show that the highest interception occurs around Astoria Canyon and south of Cape Flattery (Weidoff and Parker 2004). The mothership sector saw a similar increase in yellowtail interactions; landings were 1.42 mt in 2002 with a catch rate of .00002 and 59.28 mt in 2006 with a catch rate of 0.0011 (Table A1). Catcher processor encountered a range from a low of 1.75 in 2003 at a rate of 0.00004 to 44.74 mt at a rate of 0.0006 in 2005 (Table A1).

Sablefish

Sablefish, or black cod, are distributed in the northeastern Pacific ocean from the southern tip of Baja California, northward to the north-central Bering Sea and in the Northwestern Pacific ocean from Kamchatka, southward to the northeastern coast of Japan. Adults are found as deep as 1,900 m (1,039 fm), but are most abundant between 200 m (109 fm) and 1,000 m (547 fm) (Beamish and McFarlane 1988; Kendall, Jr. and Matarese 1987; Mason, et al. 1983). Adults and large juveniles commonly occur over sand and mud (McFarlane and Beamish 1983b; NOAA 1990) in deep marine waters. They were also reported on hard-packed mud and clay bottoms in the vicinity of submarine canyons (MBC 1987).

Sablefish is a precautionary zone species because the current biomass is below 40 percent but above 25 percent its unfished biomass. A coastwide sablefish stock assessment was prepared in 2005. The coastwide sablefish biomass was estimated to be at 35.2 percent of its unfished biomass in 2005. Projections indicate that the biomass is increasing and will be near 42 percent by 2008.

In the past five years, the sablefish catch in the EFP Pacific whiting shore-based fishery has ranged from a high of 128 mt in 2002 with a catch rate of 0.0028 mt of sablefish per mt of Pacific whiting to a low of 11 mt in 2006 with a catch rate of 0.0001 mt of sablefish per mt of Pacific whiting. The 2000 sablefish stock assessment predicted a strong year class would be entering the fishery in 2001. An analysis of the 2001-2002 sablefish caught in the Pacific whiting shore-based fishery, revealed a large occurrence of 1-2 year olds. In 2003, a moderate catch of 3 year old sablefish was seen. As the sablefish age and move to deeper water, they are less available to the mid-water trawl gear used to catch Pacific whiting.

Spiny dogfish

Spiny dogfish occur in temperate and subarctic latitudes in both the northern and southern hemispheres, ranging from the Bering Sea to Baja California (Allen and Smith 1988). Dogfish tend to migrate in large schools, and can travel long distances, feeding avidly on their journeys (Bannister 1989). The schools, numbering in the hundreds, exhibit north-south coastal movements and onshore-offshore movements. They also make diel migrations from near bottom during the day to near surface at night (NOAA 1990). Survey data indicate that most dogfish inhabit waters up to 350 m (191 fm).

Spiny dogfish has not been quantitatively assessed. In the past five years, the spiny dogfish catch in the EFP Pacific whiting shore-based fishery has ranged from a low of 4 mt in 2003 with a catch rate of 0.0001 mt of spiny dogfish per mt of Pacific whiting to a high of 95 mt in 2005 with a catch rate of 0.0010 mt of spiny dogfish per mt of Pacific whiting.

In the at-sea fishery for the catcher/processor fleet spiny dogfish catch has ranged from a low of 10.01 mt in 2003 with a catch rate of 0.0002 mt of spiny dogfish per mt of Pacific whiting to a

high of 331.31 mt in 2004 with a catch rate of 0.0045 mt of spiny dogfish per mt of Pacific whiting. For motherships the range has been between a low of 1.01 mt in 2003 with a catch rate of 0.00003 mt of spiny dogfish per mt of Pacific whiting and a high of 27.93 mt in 2005 with a catch rate of 0.0006 mt of spiny dogfish per mt of Pacific whiting.

Chilipepper Rockfish

Chilipepper rockfish are found from Magdalena Bay, Baja California, Mexico, to as far north as the Northwest Coast of Vancouver Island, British Columbia (Allen 1982; Hart 1988; Miller and Lea 1972). Chilipepper have been taken as deep as 425 m (232 fm), but nearly all in survey catches were taken between 50 m (27 fm) and 350 m (191 fm) (Allen and Smith 1988). Adults and older juveniles usually occur over the shelf and slope; larvae and small juveniles are generally found near the surface. In California, chilipepper are most commonly found associated with deep, high relief rocky areas and along cliff dropoffs (Love, et al. 1990), as well as on sand and mud bottoms (MBC 1987). They are occasionally found over flat, hard substrates (Love, et al. 1990). Chilipepper may travel as far as 45 m (25 fm) off the bottom during the day to feed (Love 1991). Chilipepper rockfish were last assessed in 1998 (Ralston, et al. 1998), at which time the stock was estimated to be at 46 to 61 percent of unfished biomass. Because the biomass is estimated to be above 40 percent of the unfished biomass, chilipepper rockfish is considered to be a healthy stock.

Chilipepper rockfish catch is greatest in California. In the EFP shore-based fishery during 2005, a high of 26 mt of chilipepper rockfish was taken with a catch rate of 0.0003 mt of chilipepper rockfish per mt of Pacific whiting, and a low of 0.52 mt or 0.00001 in 2002 (Table A1). In the mothership sector chilipepper landings were 0.88 mt with a rate of 0.00004 in 2004 (lowest) to 1.92 mt with a rate of 0.00007 in 2002. Catcher/processors had similar low encounters of chilipepper, the lowest in 2003 (0.11 mt or 0.000003) to 2.97 mt with a rate of 0.00008 in 2002 (highest).

Lingcod

Lingcod, a top order predator of the family Hexagrammidae, ranges from Baja California, Mexico, to Kodiak Island in the Gulf of Alaska. Lingcod are demersal at all life stages (Allen and Smith 1988; NOAA 1990; Shaw and Hassler 1989). Adult lingcod prefer two main habitat types: slopes of submerged banks 10 m to 70 m (5 to 38 fm) below the surface with seaweed, kelp, and eelgrass beds and channels with swift currents that flow around rocky reefs (Emmett, et al. 1991; Giorgi and Congleton 1984; NOAA 1990; Shaw and Hassler 1989). Juveniles prefer sandy substrates in estuaries and shallow subtidal zones (Emmett, et al. 1991; Forrester and Thomson 1969; Hart 1988; NOAA 1990). As the juveniles grow they move to deeper waters. Adult lingcod are considered a relatively sedentary species, but there are reports of migrations of greater than 100 km by sexually immature fish (Jagiello 1990; Mathews and LaRiviere 1987; Matthews 1992; Smith, et al. 1990). Mature females live in deeper water than males and move from deep water to shallow water in the winter to spawn (Forrester 1969; Hart 1988; Jagiello 1990; LaRiviere, et al. 1980; Mathews and LaRiviere 1987; Matthews 1992; Smith, et al. 1990). Mature males may live their whole lives associated with a single rock reef, possibly out of fidelity to a prime spawning or feeding area (Allen and Smith 1988; Shaw and Hassler 1989).

A new stock assessment was prepared for lingcod in 2005 and lingcod was determined to be a

healthy stock coastwide. However, the stock assessment estimates that the coastwide lingcod stock in 2005 is at 64 percent of its unfished biomass level, with the northern component of the stock (north of Cape Mendocino, CA) at 87 percent of its unfished biomass level and the southern component of the stock at 27 percent of its unfished biomass level.

In the past five years, the lingcod catch in the EFP Pacific whiting shore-based fishery has ranged from a low of 0.22 mt in 2002 with a catch rate of 0.000005 mt of lingcod per mt of Pacific whiting to a high of 6 mt in 2005 and 2006 with catch rates of 0.000060 of lingcod per mt of Pacific whiting. The change in incidental catch rates is consistent with the lingcod biomass increase since 2002.

Lingcod catch for at-sea processing vessels has ranged from .27 mt in 2002 with a catch rate of 0.000004 mt of lingcod per mt of Pacific whiting (overall for both mp and cp) to 3.11 mt in 2006 with catch rates of 0.00005 mt of lingcod per mt of Pacific whiting for the mothership sector and 0.000003 mt of lingcod per mt of Pacific whiting for the catcher/processor sector.

3.2.3 Overfished Species

The Magnuson-Stevens Act requires an FMP to rebuild overfished stocks. The term "overfished" describes a stock whose abundance is below its overfished/rebuilding threshold. Overfished/rebuilding thresholds are generally linked to the same productivity assumptions that determine the ABC levels. In 2007, seven groundfish species continue to be designated as overfished: bocaccio (south of Monterey) (*Sebastes paucispinis*), canary rockfish (*Sebastes pinniger*), cowcod (south of Point Conception) (*Sebastes levis*), darkblotched rockfish (*Sebastes crameri*), Pacific ocean perch (*Sebastes alutus*), widow rockfish (*Sebastes entomelas*), and yelloweye rockfish (*Sebastes ruberrimus*). The most common overfished groundfish species taken in Pacific whiting at-sea and shore-based fishery between 2002 and 2006 have been widow rockfish, darkblotched rockfish, canary rockfish, and POP (Tables 3-5). The Pacific whiting fishery has no impact on overfished cowcod stocks because these stocks are found farther south than where the Pacific whiting fishery has historically occurred. Limited impact on bocaccio rockfish has been reported.

Bycatch limits have been used to constrain the incidental catch of overfished rockfish species in the Pacific whiting fishery (i.e., all sectors) since 2004 (Table 6). If a bycatch limit is reached, all commercial Pacific whiting fisheries are closed for the remainder of the year, regardless of whether or not the Pacific whiting allocations have been reached. While fishery participants have generally demonstrated great sensitivity to the need to avoid rockfish and minimize their bycatch, so that all benefit from the total allowable catch, it is known that even one "disaster" tow can have very severe consequences for all the vessels involved, and disaster tows would be more likely with a race to fish than with a more stable season. The following tables outline historical bycatch limits and catch by sector from 2002-2006.

Table 3. Catch of Overfished Species in the Shore-based Sector, 2002-2006

SPECIES	YEAR					Grand Total
	2002	2003	2004	2005	2006	
Bocaccio rockfish	0.48	0.00	0.01	0.03	0.01	0.05
Canary rockfish	0.43	0.11	1.16	2.24	1.64	5.59
Darkblotched rockfish	0.01	0.26	0.84	5.51	2.27	8.89
Pacific Ocean perch	0.19	0.29	0.40	0.15	0.03	1.06
Yelloweye rockfish	0.00	0.00	0.00	0.01	0.06	0.07
Widow rockfish	5.32	12.54	28.26	77.24	49.51	172.87
Grand Total	5.96	13.20	30.67	85.16	53.46	188.53

Table 4. Catch of Overfished Species in the Mothership Sector, 2002-2006

SPECIES	YEAR					Grand Total
	2002	2003	2004	2005	2006	
Bocaccio rockfish	0.15	0.00	0.09	0.16	0.10	0.50
Canary rockfish	0.81	0.08	4.11	0.70	0.85	6.55
Darkblotched rockfish	0.93	0.10	3.02	5.08	4.24	13.37
Pacific Ocean perch	2.17	0.11	0.10	0.86	1.88	5.12
Yelloweye rockfish	0	0	0	0	0.02	.02
Widow rockfish	20.50	0.69	11.43	35.50	71.80	139.92
Grand Total	24.56	0.98	18.75	42.30	78.87	165.48

Table 5. Catch of Overfished Species in the Catcher-Processor Sector, 2002-2006

SPECIES	YEAR					Grand Total
	2002	2003	2004	2005	2006	
Bocaccio rockfish	0.04	0.06	0.07	0.11	0.01	0.29
Canary rockfish	1.59	0.17	0.48	0.34	0.10	2.68
Darkblotched rockfish	2.19	4.21	4.36	5.95	6.73	23.44
Pacific Ocean perch	1.45	5.04	0.95	0.78	0.75	8.97
Yelloweye rockfish	0.02	0	0	0	0.01	0.03
Widow rockfish	115.10	11.56	8.37	43.14	66.99	245.16
Grand Total	120.37	21.04	14.23	50.32	74.56	280.57

Table 6. Range of bycatch limits (mt) set by the Council for the non-tribal whiting fishery.

	2004	2005	2006	2007 ^a
Canary	6.2 – 7.3	4.7	4.0 – 4.7	4.7
Darkblotched	9.5	n/a	25	25
Widow	n/a	200 – 212	200 – 220	220

^a Year 2007 values represent the numbers currently outlined in the Federal Regulations, which can be modified by the Council during inseason action.

Widow Rockfish

Widow rockfish range from Albatross Bank off Kodiak Island to Todos Santos Bay, Baja California, Mexico (Eschmeyer, et al. 1983; Miller and Lea 1972; NOAA 1990). They occur over hard bottoms along the continental shelf (NOAA 1990) and prefer rocky banks, seamounts, ridges near canyons, headlands, and muddy bottoms near rocks. Large widow rockfish concentrations occur off headlands such as Cape Blanco, Cape Mendocino, Point Reyes, and Point Sur. Adults form dense, irregular, midwater and semi-demersal schools deeper than 100 m (55 fm) at night and disperse during the day (Eschmeyer, et al. 1983; NOAA 1990; Wilkins 1986). All life stages are pelagic, but older juveniles and adults are often associated with the bottom (NOAA 1990). Pelagic larvae and juveniles co-occur with yellowtail rockfish, chilipepper, shortbelly rockfish, and bocaccio larvae and juveniles off Central California (Reilly, et al. 1992).

Similar to other rockfish species, the biomass of widow rockfish has decreased steadily since the early 1980s, and recruitment during early 1990s is estimated to have been considerably smaller than before the mid 1970s. The reason for the lower recruitment during the period could be due to lower spawning stock biomass, but it could also be due to environmental conditions. Widow rockfish was declared overfished on January 11, 2001, because the stock was assessed and believed to be below 25 percent of its unfished biomass. A 2005 coastwide stock assessment and rebuilding analysis were completed for widow rockfish. The 2005 stock assessment estimated that the widow rockfish stock was at 31.1 percent of its unfished biomass in 2004. In retrospect, the 2005 stock assessment shows that the widow rockfish biomass may not have declined below the overfished species threshold of 25 percent of its unfished biomass as has been estimated in previous stock assessments.

In 2006, the widow rockfish bycatch limit was 200 mt at the start of the season but was later revised to 220 mt (Table 6). In the past five years, the widow rockfish catch in the Pacific whiting shore-based fishery has ranged from a low of 5 mt in 2002 with a catch rate of 0.0001 mt of widow rockfish per mt of Pacific whiting to a high of 77 mt in 2005 with a catch rate of 0.0008 mt of widow rockfish per mt of Pacific whiting (Table 3). In 2006, the mothership sector encountered the largest amount of widow rockfish in the 5 year period with a catch rate of 0.0013 mt of widow per whiting mt, but in most years the catch was lower than 40 mt (Table 4). The catcher/processor sector encountered the lowest amount of widow rockfish in 2004, 8.34 mt with a catch rate of 0.00011 and a high of 115.50 mt with a catch rate of .0032 mt widow per mt of whiting (Table 5).

Darkblotched Rockfish

Darkblotched rockfish (*Sebastes crameri*) are found from the Bering Sea to near Santa Catalina Island, California at depths of 29-549 m (16-300 fm) (Eschmeyer et al.1983). Commercially important concentrations are found from Northern CA through the Canadian border, on or near the bottom, in depths of approximately 183-366 m (100-200 fm) . This species co-occurs with other slope rockfish, including Pacific ocean perch (*Sebastes alutus*), splitnose rockfish (*Sebastes diploproa*), yellowmouth rockfish (*Sebastes reedi*), and sharpchin rockfish (*Sebastes zacentrus*).

In 2006, the darkblotched rockfish bycatch limit was 25 mt (Table 6). In the past five years, the darkblotched rockfish catch in the Pacific whiting shore-based fishery has ranged from a low of

0.01 mt in 2003 to a high of 5.51 mt in 2005 (Table 3). The change in incidental catch rates coincides with the darkblotched rockfish biomass increase since 2002. Alternately, the increased catch rates in the 2005 Pacific whiting shore-based fishery may have resulted from increased fishing effort in deeper water to avoid Chinook salmon catch. The at-sea processing sectors tend to fish in deeper waters where darkblotched rockfish are more abundant. The mothership sector maintained low levels of darkblotched rockfish in 2002 and 2003, and in later years their catches have been less than or equal to 5 mt (Table 4). The catcher/processor sector encountered the largest amount of darkblotched rockfish in 2006 (6.73 mt); in earlier years the catchers were less than 6 mt (Table 5).

Canary Rockfish

Canary rockfish range from northern Baja California, Mexico, to southeastern Alaska (Boehlert and Kappenman 1980; Hart 1988; Love 1991; Miller and Geibel 1973; Richardson and Laroche 1979). There is a major population concentration of canary rockfish off Oregon (Richardson and Laroche 1979). Canary rockfish primarily inhabit waters that are 91 m (50 fm) to 183 m (100 fm) deep (Boehlert and Kappenman 1980). In general, they inhabit shallow water when they are young, and deep water as adults (Mason 1995). Adult canary rockfish are associated with pinnacles and sharp drop-offs (Love, et al. 1991) and are most abundant above hard bottoms (Boehlert and Kappenman 1980).

Canary rockfish recruitment has shown a steady decline over the last 50 years. Recent recruitments have generally been low, with 1998 producing the largest estimated year-class of recruitment in the last decade. Canary rockfish was declared overfished on January 4, 2000 (65 FR 221). A canary rockfish stock assessment and rebuilding analysis was prepared in 2005. The results of the stock assessment estimated that the canary rockfish stock was at 9.4 percent of its unfished biomass coastwide in 2005. The 2005 stock assessment estimated that the canary rockfish spawning stock biomass was at its lowest level in 2000, but has been increasing since percent of its unfished biomass in 2000. The result of the 2005 stock assessment estimated that darkblotched rockfish was at 16 percent of its unfished biomass in 2005, and was notably lower in 2000 (8 percent) than had been estimated in the previous stock assessment. However, the stock assessment indicates that the spawning output has more than doubled since 1999. This growth is resulting in rapid rebuilding of the stock due to the strong numbers of fish spawned in 1999 and 2000 that are maturing and entering the fishery. This strong recruitment combined with low exploitation rates in recent years has resulted in more rapid rebuilding than was projected following the 2000 stock assessment.

In 2006, the canary rockfish bycatch limit was initially set at 4.7 mt, but was revised downward to 4.0 mt during the season due to higher than expected canary rockfish research catch (Table 6). Canary catch in the shore-based fishery in the last 5 years has ranged from a low of 0.11 mt to a high of 2.24 mt (Table 3). The mothership sector has maintained low levels of canary bycatch, except in 2004 when 4.11 mt was landed with an associated catch rate of 0.00002 mt canary per mt whiting (Table 4). The majority of this catch, 3.9 mt, occurred in a single tow of fish. Canary catch in the catcher/processor sector was highest in 2002 (1.59 mt catch rate of 0.00004 mt canary per mt whiting) and has been low since (Table 5).

Pacific Ocean Perch

POP are found from La Jolla, California to the western boundary of the Aleutian Archipelago

(Eschmeyer, et al. 1983; Gunderson 1971; Ito, et al. 1986; Miller and Lea 1972), but are common from Oregon northward (Eschmeyer, et al. 1983). They primarily inhabit waters of the upper continental slope (Dark and Wilkins 1994) and are found along the edge of the continental shelf (Archibald, et al. 1983). POP are found in waters as deep as 825 m, but are usually found in depths of 100 m to 450 m (55 to 246 fm) and along submarine canyons and depressions (NOAA 1990). Throughout their range, POP are generally associated with gravel, rocky, or boulder type substrate (Ito 1986). Larvae and juveniles are pelagic; subadults and adults are benthopelagic (living and feeding on the bottom and in the water column). Adults form large schools 30 m wide, to 80 m deep, and as much as 1,300 m long (NOAA 1990). They also form spawning schools (Gunderson 1971). Juvenile POP form ball-shaped schools near the surface or hide in rocks (NOAA 1990).

POP was formally declared overfished in March 3, 1999, but had been managed as a depleted stock prior to being declared overfished. From 1965 to 1998, POP recruitment was relatively stable and showed recruits per spawning output as an increasing trend over time. However, when compared with the 1950s and 1960s, POP recruitment has been rather poor in recent years, although the 1999 and 2000 year classes (2002 and 2003 recruitment years) appear to be the largest since the early 1970s. A new stock assessment was prepared for POP in 2005 that updates the stock assessment from 2003 for the U.S. waters north of 43° N. lat. Like the 2003 stock assessment, the 2005 stock assessment did not show an obvious increasing trend in recruits per spawning output, nor are the recruitments completely stable. The updated stock assessment estimated the stock to be at 23.4 percent of its unfished biomass in 2005. Despite this, the low exploitation rate (1 percent) since 2000, has allowed the stock to rebuild slowly. Since that time, the POP stock has increased from 20.9 percent of the unfished biomass to 23.4 percent.

In the past five years, the POP catch in the Pacific whiting shore-based fishery has ranged from a low of 0.15 mt in 2006 to a high of 0.40 mt in 2004 (Table 3). Like darkblotched rockfish, POP is a shelf species that is found in deeper waters and is more commonly seen as incidental catch in the at-sea sectors of the Pacific whiting fishery. The mothership sector range of POP bycatch ranged from 0.11 mt (2003) to 2.17 mt (2002) (Table 4). The catcher/processor sector saw a high of POP bycatch in 2003 (5.04 mt, catch rate of 0.0001) and less than one mt in recent years (Table 5).

Yelloweye Rockfish

Yelloweye rockfish range from the Aleutian Islands, Alaska, to northern Baja California, Mexico, and are common from Central California northward to the Gulf of Alaska (Eschmeyer, et al. 1983; Hart 1988; Love 1991; Miller and Lea 1972; O'Connell and Funk 1986). Yelloweye rockfish occur in water from 25 m (14 fm) to 550 m (301 fm) deep with 95 percent of survey catches occurring in waters between 50 m (27 fm) and 400 m (219 fm) (Allen and Smith 1988). Yelloweye rockfish are bottom dwelling, generally solitary, rocky reef fish, found either on or just over reefs (Eschmeyer, et al. 1983; Love 1991; Miller and Lea 1972; O'Connell and Funk 1986). Boulder areas in waters deeper than 180 m (98 fm), are the most densely populated habitat type for adult yelloweye rockfish. Juveniles prefer shallow-zone broken-rock habitat (O'Connell and Carlile 1993). Yelloweye rockfish also occur around steep cliffs and offshore pinnacles (Rosenthal, et al. 1982).

Yelloweye rockfish was declared overfished on January 11, 2002. In March 2006, a new stock

assessment was prepared for yelloweye rockfish. The results of the coastwide stock assessment estimated that yelloweye rockfish is at 17.7 percent of its unfished biomass coastwide in 2006 and projected that the stock is lagging behind the original rebuilding schedule.

In the past five years, the yelloweye rockfish catch in the Pacific whiting shore-based fishery has ranged from a low of 0 mt in 2002 and 2003 to a high of 0.06 mt in 2006 (Table 3). Yelloweye rockfish is encountered even more infrequently in the at-sea sector, from a low of 0 mt in 2002 to 2005 to a high of 0.03 mt in 2006 (Tables 4-5). Because yelloweye rockfish is less vulnerable to trawl gear than the fixed gears, it is not commonly seen as incidental catch.

Bocaccio

Bocaccio is a common rockfish occurring in coastal waters of the northeastern Pacific from Kruzof and Kodiak Islands in the Gulf of Alaska to central Baja California, Mexico (Hart 1988; Miller and Lea 1972). Historically, bocaccio are most abundant in waters off central and southern California. The population is considered to be two stocks, northern and southern, which are separated by an area of scarcity off northern California and southern Oregon (Macall and He 2002). The northern stock of bocaccio, which is taken in the Pacific whiting fishery, has not been assessed nor has the northern stock been declared overfished like the southern stock. In the past five years, the bocaccio catch in the Pacific whiting fishery for all sectors has remained below 0.5 mt (Tables 3-5).

3.2.4 Non-groundfish Species (state managed or under other FMPs)

Non-groundfish species are also encountered in the Pacific whiting fishery. Species managed under the Coastal Pelagic Species Fishery Management Plan were incidentally taken in the Pacific whiting shore-based fishery between 2000 and 2006, including jack mackerel (*Trachurus symmetricus*), Pacific/chub mackerel (*Scomber japonicus*), and squid. Jack mackerel, Pacific/chub mackerel and Pacific sardine were taken in the at-sea fishery between 2000 and 2006. Like Pacific whiting, mackerel are schooling species that are not associated with the ocean bottom, and that migrate in coastal waters. Historical catches of chub and Jack mackerel in the shore-based and at-sea fisheries are presented in Tables 7 and 8. In addition, walleye pollock (*Theragra chalcogramma*), American shad (*Alosa sapidissima*) and miscellaneous species in smaller numbers including squid, sardine, shark, Pacific cod, flatfish (other than halibut), skates, octopus, sunfish and jellyfish were observed in both the at-sea and shore-based fishery between 2001 and 2006.

Table 7. Landings of Chub and Jack Mackerel in the Shore-based Whiting Fishery, 1994-2006.

YEAR	CHUB MACKEREL (MT)	JACK MACKEREL (MT)	Grand Total
1994	223.28	185.37	408.66
1995	189.34	103.70	293.04
1996	52.31	233.68	285.99
1997	1606.67	372.08	1978.75
1998	534.70	724.55	1259.25
1999	258.17	545.00	803.18
2000	86.01	162.77	248.78
2001	269.22	210.71	479.93
2002	0.01	7.11	7.12
2003	1.70	70.43	72.13
2004	0.79	108.22	109.01
2005	1.39	77.03	78.41
2006	0.05	5.67	5.72
Grand Total	3223.67	2806.30	6029.97

Table 8. Landings of Chub and Jack Mackerel for At-Sea Processing Vessels 1998-2006.

YEAR	CHUB MACKEREL (MT)	JACK MACKEREL (MT)	Grand Total
1998	458.78	229.14	687.92
1999	1.47	53.84	55.31
2000	15.52	52.96	68.48
2001	47.29	107.43	154.72
2002	0.04	6.85	6.89
2003	0.00	12.38	12.38
2004	0.00	58.07	58.07
2005	0.03	4.44	4.47
2006	3.80	10.46	14.26
Grand Total	526.93	535.57	1062.5

3.2.5 Protected Species

Marine species listed as endangered or threatened under the ESA include marine mammals, seabirds, sea turtles, and salmon. Because several Chinook salmon runs are listed under the ESA, the incidental catch of Chinook salmon in the Pacific whiting fishery is a concern. Chinook is the salmon species most likely to be affected by the groundfish fishery because of the spatial/temporal overlap between the Pacific whiting fishery and the distribution of Chinook salmon such that it could result in incidental take of listed salmon. On an annual basis there is some temporal and spatial variation in bycatch that can be accounted for by the behavior and biology of Chinook salmon and Pacific whiting. Bycatch rates tend to be higher closer to shore

and earlier in the season (PFMC and NMFS, 2006). A summary of total salmon bycatch in the Pacific whiting fishery, from 1994-2006 is provided in Table 9. Chinook salmon by sector is provided, from 1994-2006 is provided in Table 10.

Table 9. Salmon Bycatch in the Pacific Whiting Fisheries For All Sectors, 1994-2006

Year	Whiting (mt)	Chinook (no)	Chinook rate (no/mt whiting)	Coho (no)	Coho rate (no/mt whiting)	Pink (no)	Pink rate (no/mt whiting)	Chum (no)	Sockeye (no)	Steelhead (no)	Inident	Total Salmon (no)	Total Salmon (rate)
1994	179,073	3,626	0.020	65	0.000	32	0.000	214	0	0		4,335	0.025
1995	102,159	11,579	0.113	1,379	0.014	1,575	0.016	181	6	0		15,249	0.150
1996	127,774	3,152	0.025	64	0.001	0	0.000	178	0	0		1,918	0.015
1997	146,012	3,922	0.027	348	0.002	497	0.003	114	0	0		5,373	0.037
1998	144,961	3,562	0.025	114	0.001	4	0.000	30	0	0		3,681	0.025
1999	141,103	8,888	0.063	117	0.001	496	0.004	465	0	0		9964	0.071
2000	120,906	8,207	0.068	75	0.001	18	0.000	18	2	0	18	8,293	0.073
2001	100,531	3,527	0.035	103	0.001	0	0.000	55	3	0	312	4,000	0.040
2002	84,728	2,697	0.031	169	0.002	0	0.000	76	0	0	4	2,946	0.035
2003	86,610	6,093	0.070	186	0.002	3,774	0.044	20	0	0	192	10,265	0.119
2004	120,590	4,495	0.037	208	0.002	0	0.000	66	0	0	9	4,778	0.040
2005	150,880	7,822	0.052	430	0.003	431	0.003	22	0	0	8	8,713	0.058
2006	134,219	1,192	0.009	28	0.000	0	0.000	87	0	0	0	1,307	0.010

Table 10. Chinook Salmon Bycatch in the Pacific Whiting Fisheries For All Sectors and the Tribal Fisheries 1994-2006

	1995*	1996*	1997*	1998	1999	2000	2001	2002	2003	2004	2005	2006
MOTHERSHIP												
CHINOOK (number of fish)	8487	795	845	966	1687	4421	1721	709	2078	417	2206	1080
WHITING (mt)	40588	44416	50402	50087	47580	46840	35823	26593	26021	24102	48571	55355
RATE: (# chinook/mt whiting)	0.2091	0.0179	0.0168	0.0193	0.0355	0.0944	0.048	0.2269	0.0798	0.0173	0.045	0.01951
CATCHER/PROCESSOR												
CHINOOK (number of fish)	3092	650	553	511	2704	1839	847	970	570	388	1754	112
WHITING (mt)	61571	68359	70771	70365	67679	67815	58628	36341	41214	73175	78890	78864
RATE: (# chinook/mt whiting)	0.0502	0.0095	0.0078	0.0073	0.04	0.0271	0.0144	0.0265	0.0138	0.0053	0.0222	0.00142
TOTAL NONTRIBAL ATSEA												
CHINOOK (number of fish)	11579	1445	1398	1477	4391	6260	2568	1679	2648	805	3960	1192
WHITING (mt)	102159	112775	121173	120452	115259	114655	94451	62934	67235	97277	127461	134219
RATE: (# chinook/mt whiting)	0.1133	0.0128	0.0115	0.0123	0.0381	0.0546	0.0272	0.0267	0.0394	0.0083	0.0311	0.008881
TRIBAL (MOTHERSHIP)												
CHINOOK (number of fish)	na	1707	2524	2085	4497	1947	959	1018	3430	3690	3862	652
WHITING (mt)	na	14999	24839	24509	25844	6251	6080	21793	19375	23313	23419	5545
RATE: (# chinook/mt whiting)	na	0.1138	0.1016	0.0851	0.174	0.3115	0.1577	0.0467	0.177	0.1583	0.1649	0.117583
TOTAL OF ALL ATSEA												
CHINOOK (number of fish)	11579	3152	3922	3562	8888	8207	3527	2697	6078	4495	7822	1844
WHITING (mt)	102159	127774	146012	144961	141103	120906	100531	84727	86610	120590	150880	139764
RATE: (# chinook/mt whiting)	0.1133	0.0247	0.0269	0.0246	0.063	0.0679	0.0351	0.0318	0.0701	0.0373	0.0518	0.013194
TRIBAL SHORE-BASED												
CHINOOK (number of fish)	na	9	50	76	1271							
WHITING (mt)	na	4079	5335	10938	29896							
RATE: (# chinook/mt whiting)	na	0.0021	0.0094	0.0069	0.042514							
SHORE-BASED												
CHINOOK (number of fish)	2954	651	1482	1699	1696	3306	2627	1062	425	4206	4018	839
WHITING (mt)	73397	84680	87499	87627	83388	85563	73326	45276	51061	89670	97378	96619
RATE: (# chinook/mt whiting)	0.0402	0.0077	0.0169	0.0194	0.0203	0.0386	0.0358	0.0235	0.0083	0.0469	0.0413	0.008684

	1995*	1996*	1997*	1998	1999	2000	2001	2002	2003	2004	2005	2006
TOTAL ALL FISHERIES												
CHINOOK (number of fish)	14533	3803	5404	5261	10584	11513	6154	3759	6512	8751	11916	3954
WHITING (mt)	175556	212454	233511	232588	224453	206471	173857	130003	141885	215176	259196	266279
RATE: (# chinook/mt whiting)	0.0828	0.0179	0.0231	0.0226	0.0472	0.0558	0.0354	0.0289	0.0459	0.0409	0.046	0.014849

* NOTE: 1991-1997 is based final inseason data files and may vary from estimates derived from NORPAC data. Shore-based data updated from Nottage and Parker 2005.

2002 shore-based landings does not include 432 mt of whiting or salmon taken in trip limit fishery

2003 shore-based landings does not include 195 mt of whiting or salmon taken in trip limit fishery

2004 shore-based landings does not include 1,644 mt of whiting or salmon taken in trip limit fishery - first year of video monitoring at-sea

2005 shore-based landings does not include 310 mt of whiting or salmon taken in trip limit fishery

2006 does not include 678 mt of whiting that was sorted at sea or associated salmon take

For further information on salmon bycatch as it applied to the entire Pacific whiting fishery, readers are referred to Section 5.1.1 of the EIS for the Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2007-2008 Pacific Coast Groundfish Fishery. It is available from the Pacific Management Council at 7700 NE Ambassador Place, Suite 200, Portland, OR 97220-1384; by calling 503-820-2280; or online at <http://www.pcouncil.org>.

Infrequent encounters with marine mammals have also been documented in the Pacific whiting shore-based fishery. The Pacific Coast groundfish fisheries are considered to have a remote likelihood of, or no known serious injuries or mortalities, to marine mammals.

The biological environment and its relation to the Pacific whiting shore-based fishery were fully described in the April 2007 EA titled “Catch Accounting Requirements for Pacific Whiting Shore-based Processors/First Receivers Participating in the Shore-based fishery” and are not duplicated in this EA. For further biological information including information on the status of the groundfish resources, readers are referred to Section 4.0 of the EIS, prepared for the Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2007-2008 Pacific Coast Groundfish Fishery. Copies of the EIS can be obtained from the Council, by writing to 7700 NE Ambassador Place, Suite 200, Portland, OR 97220-1384; or calling 503-820-2280; or viewing the internet posting at <http://www.pcouncil.org>. Appendix B2 to the final EFH EIS titled: The Pacific Coast Groundfish Fishery Management Plan, EFH Designation and Minimization of Adverse Impacts, also contains detailed information on the life histories of the groundfish species. A copy of the EFH EIS can be obtained by contacting the Sustainable Fisheries Division, Northwest Region, NMFS, 7600 Sand Point Way, NE, Seattle, WA 98115-0070; or viewing the internet posting at www.nwr.noaa.gov/Groundfish-Halibut/Groundfish-Fishery-Management/NEPA-Documents/index.cfm.

3.3 Socioeconomic Characteristics of the Affected Environment

3.3.1 Management Structure of the Pacific Whiting Fishery- Past, Present and Reasonably Foreseeable Future

The Pacific groundfish limited entry program was implemented in 1994. Vessels that did not initially qualify for a permit had to buy or lease one from qualifying vessels to gain access to the fishery. To harvest whiting, all at-sea catcher/processers had to purchase permits. This changed the composition of the at-sea processing fleet considerably, increasing the number of motherships, because permits are not required for vessels that only process fish (PFMC 1998).

Regulations at 50 CFR 660.323(a)(4) divide the commercial OY into separate allocations for the non-tribal catcher/processor, mothership, and shore-based sectors of the Pacific whiting fishery. The catcher/processor sector is comprised of vessels that harvest and process Pacific whiting. The mothership sector is comprised of catcher vessels that harvest Pacific whiting for delivery to mothership processors. Motherships are vessels that process but do not harvest Pacific whiting. The shore-based sector is comprised of vessels that harvest Pacific whiting for delivery to shore-based processors. Each sector receives a portion of the commercial OY, with the

catcher/processors getting 34 percent, motherships getting 24 percent, and the shore-based sector getting 42 percent. Prior to the formal three-sector whiting allocation of 1997 (62 FR 27519, May 19, 1997,) 60 percent of the OY was available in open competition between the shore-based and at-sea sectors and the remaining 40 percent was reserved for the shore-based fishery.

Since May 1997, when the U. S. Department of Justice approved allocation of whiting shares among the members of a cooperative, the catcher/processor fishery has operated as a voluntary quota share program where each of the catcher/processor companies has agreed to take a specific share of the harvest. The cooperative arrangement is named the Pacific Whiting Conservation Cooperative (PWCC). The PWCC is comprised of four member companies that operate 10 catcher/processor vessels licensed to participate in the U.S. West Coast Pacific whiting fishery. Since formation of the PWCC, only 6 or 7 of the 10 eligible catcher/processor vessels have participated in the fishery, providing a significant reduction in fishing effort. The PWCC members share real-time information among themselves on vessel bycatch experiences and sponsor scientific research that benefits the West Coast groundfish fishery.

The Pacific whiting fishery is managed under a "primary" season structure where vessels harvest Pacific whiting until the sector allocation is reached and the fishery is closed. This is different from most West Coast groundfish fisheries, which are managed under a "trip limit" structure, where catch limits are specified by gear type and species (or species group) and vessels can land catch up to the specified limits. Incidental catch of other groundfish species in the Pacific whiting fishery, however, is managed under the trip limit structure.

Since 2004, the Council has adopted the ABC/OY of Pacific whiting relative to bycatch projections, in order to promote harvesting of the whiting OY relative to overfished species constraints. Bycatch projections for the non-whiting groundfish fishery are considered first and then bycatch limits for the whiting fishery are proposed based on the projections. To allow the Pacific whiting industry to have the opportunity to harvest the full Pacific whiting OY, the non-tribal commercial fishery is managed with bycatch limits for certain overfished species. To date, bycatch limits have been established for darkblotched, canary, and widow rockfish.

Regulations provide for the automatic closure of the commercial (non-tribal) portion of the Pacific whiting fishery, upon attainment of a bycatch limit. This is different from the bottom trawl fishery where harvest availability of target species is often constrained by the projected catch of overfished species. Under bycatch management for the Pacific whiting fishery, each sector of the fishery remains open for fishing until its sector allocation is reached. However, the entire non-tribal commercial fishery could be closed before the sector allocations are attained if one of the overfished species bycatch limits were reached.

Bycatch projections for the 2007 whiting season were developed using the weighted average approach, similar to the approach used in 2004, 2005, and 2006 to predict mortality of canary, darkblotched, POP, and yelloweye rockfish. The methodology for projecting bycatch for widow rockfish was different as widow rockfish which shows an increasing trend as a result of rebuilding success. Widow projections for 2007 were based on a linear interpolation of the bycatch rate from 2004-2006. Projections for canary, darkblotched, and widow rockfish are used to create the bycatch limits.

A confounding issue for the whiting fishery is what has become known as the rebuilding paradox. As an overfished stock increases in abundance, it becomes more likely some of those fish will be caught, unless fishing effort is reduced. Depending on the particular rebuilding strategies, this could lead to even greater management restrictions in the future.

Management of the salmon and groundfish fisheries has also changed substantially since the early 1990's. Since 1992, new salmon evolutionarily significant units (ESUs) have been listed under the ESA, and several groundfish species that are incidentally taken in the Pacific whiting fishery have been declared overfished. These changes have affected management of the Pacific whiting fishery and were summarized previously in this chapter.

The Council's recently-recommended shore-based whiting full retention and monitoring program would, among other things, establish whiting vessel certifications. The alternative actions proposed under Amendment 15 may restrict vessel eligibility for whiting certifications.

3.3.2 Fishery Harvests and Values

Figures 1 to 3 show annual trends in Pacific whiting harvests, ex-vessel revenues and ex-vessel prices per ton. (Note that for purposes of determining industry revenues, mothership and catcher/processor harvests have been multiplied by whiting shore-based ex-vessel prices) These figures show the recent increase in landings, revenues and ex-vessel prices. As discussed previously, in 2005 and 2006 market conditions for Pacific whiting changed dramatically with prices paid to fishermen increasing from an average price of \$0.04 per pound (\$88 per ton) in the 1992-2005 period to more than \$ 0.062 per pound (\$143 per ton) in 2006. Industry projections for 2007 were for prices to increase to \$.08 to \$.10 per pound (\$176 to \$220 per ton). Preliminary information for Oregon shore-based landings of whiting indicates an increase from \$0.07 in 2006 to \$0.08 in 2007, excluding zero or minimal prices for "weighbacks" or fish not in useable or marketable condition (unpublished data Oregon Department of Fish and Wildlife, July 26, 2007).

There is some information indicating at-sea ex-vessel prices are about 15 percent lower than prices for shore-based deliveries (Personal communication with Shannon Davis, The Research Group, August 2007). According to Davis, each catcher vessel has its own contract with a mothership, so there are some differences among contracts. The intuitive reason why at-sea prices may be lower is that costs are lower per delivery, because vessels delivering to motherships and catcher/processors don't have to run to shore between deliveries. Additional research is needed to more precisely identify the price differences between shore-based and at-sea deliveries, and among at-sea deliveries.

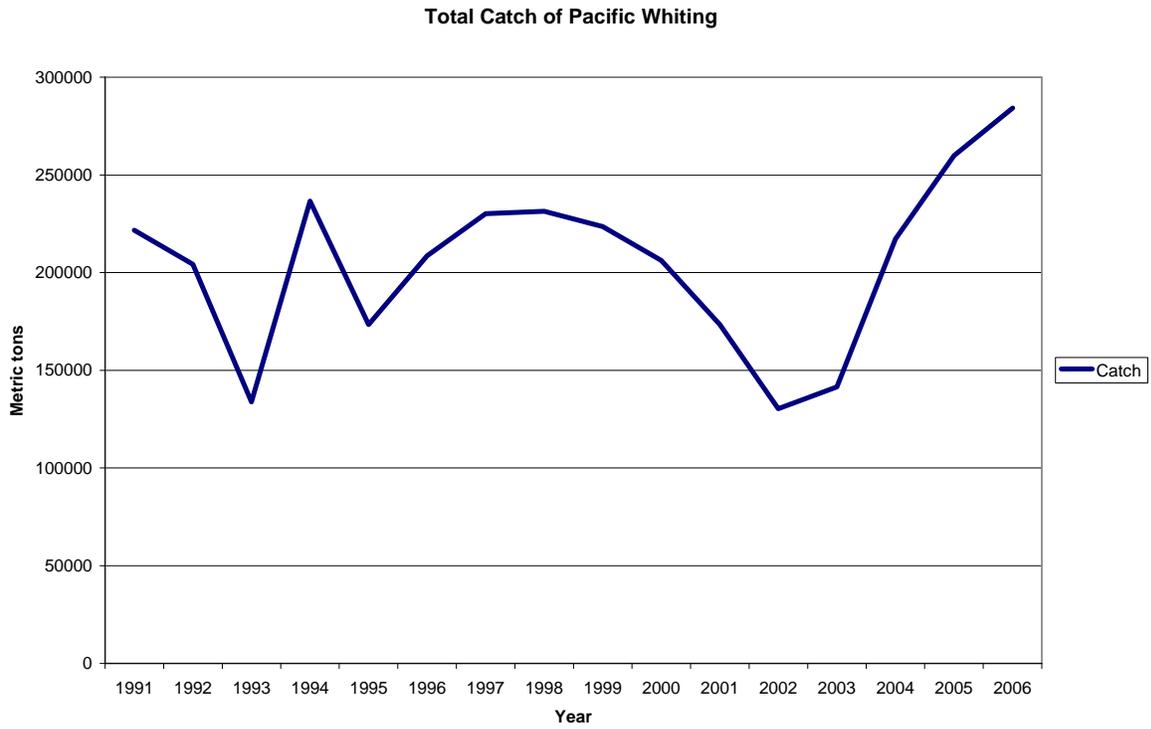


Figure 1. Total catch (mt) of whiting, 1991 - 2006

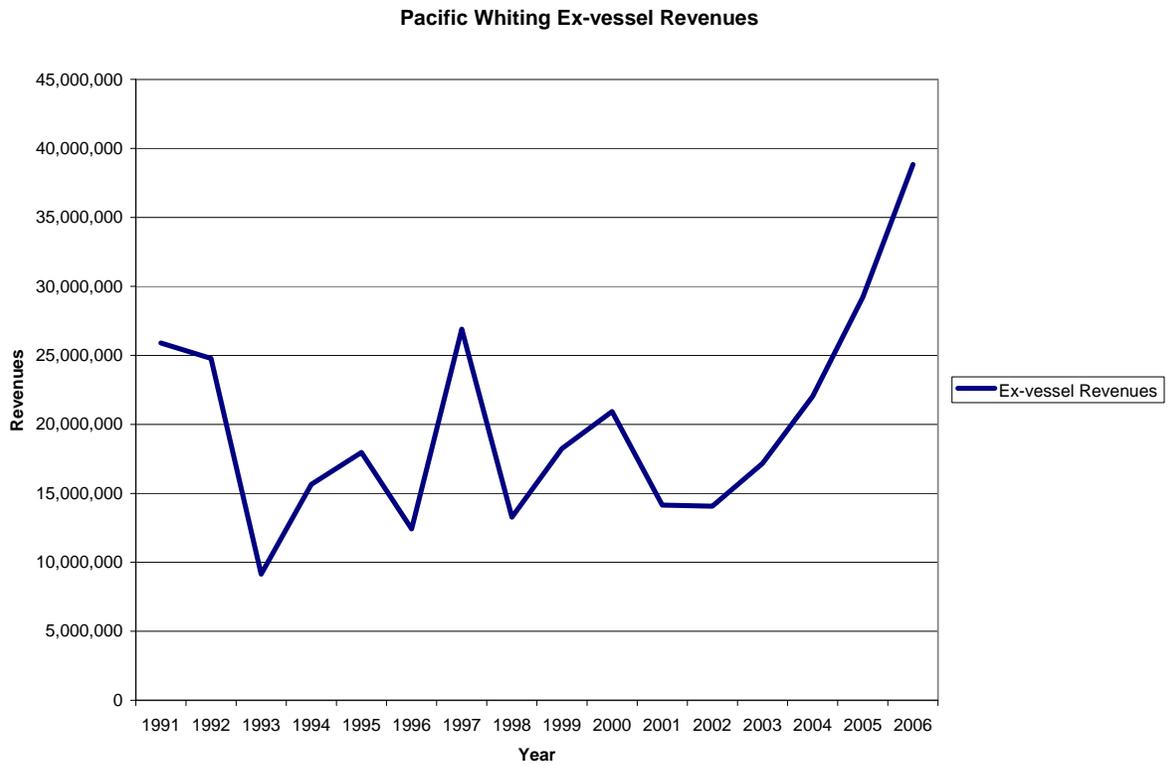


Figure 2. Total ex-vessel revenue from whiting 1991-2006

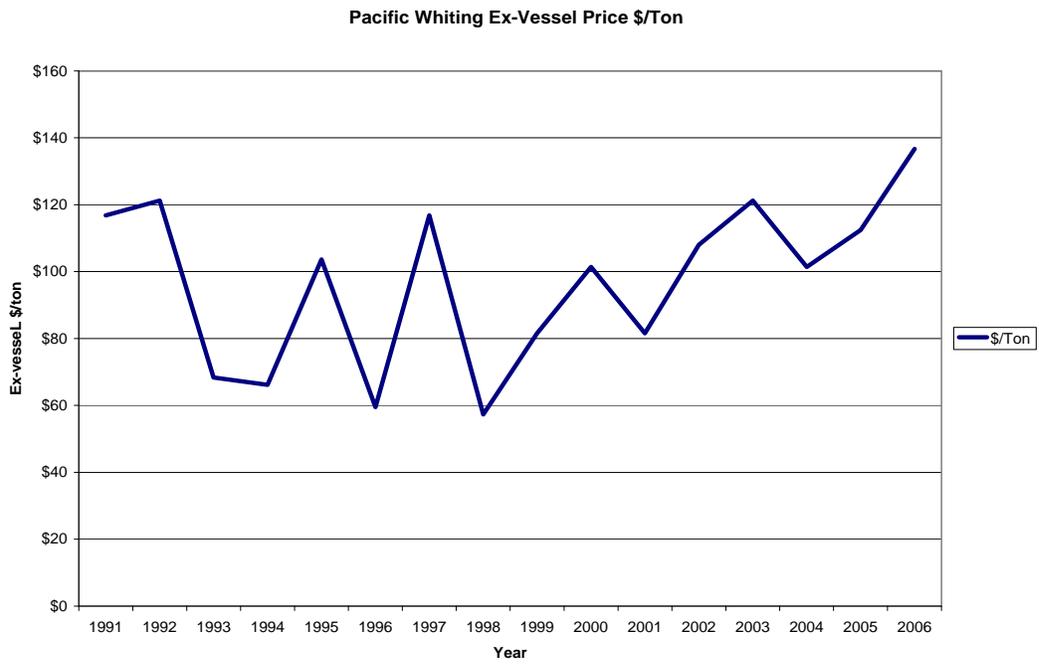


Figure 3. Ex-vessel price per ton for whiting, 1991-2006

3.3.3 Characteristics of Vessels in the Pacific Whiting Fishery

There are two classes of vessels in the at-sea processing sector of the whiting fishery, catcher/processors that harvest and process their own catch, and mothership vessels that process unsorted catch received from smaller catcher vessels. The processing vessels are greater than 250 feet in length, and carry crews of 65-200 people, who mostly work in shifts to keep the factories operating day and night. Some of the processing vessels operate in the Alaskan pollock fisheries, but move south to the Washington, Oregon, California area to fish for whiting between pollock seasons.

Table 11 shows the trends in the number of vessels participating by sector. These trends show changes in the number of catcher/processors, motherships, and mothership catcher vessels participating in the fishery.

Table 11. Number of vessels in the at-sea sector, 1997-2006

Year	Catcher/processors	Motherships	Mothership-Catcher Vessels
1994	9 ¹	9 ¹	43
1995	9	6	36
1996	10 ²	8 ²	28
1997	10	6	27
1998	7	6	24
1999	6	6	24
2000	8	6	23
2001	7	5	20
2002	5	4	11
2003	6	4	12
2004	6	4	10
2005	6	5	18
2006	9	6	20

¹ In 1994, one vessel participated in both the catcher/processor sector and the mothership sector.

² In 1996, two vessels participated in both the catcher/processor sector and the mothership sector.

Table 12 shows the at-sea fishing dates, allocations and landings for 1994 – 2006.

Table 12. Pacific Whiting At-Sea Fishery Allocations, Landings and Fishing Dates 1994-2006

Year	Fishing Dates	ALLOCATION		LANDINGS	
		Catcher-Processor (mt)	Mothership (mt)	Catcher-Processor (mt)	Mothership (mt)
1994	4/15-5/13	60% of harvest guideline (156,000 mt) shared with shore-based in open competition.		87,147	91,926
1995	4/15-5/4	60% of harvest guideline (107,000) shared with shore-based open competition.		61,571	40,588
1996	5/15-6/1	60% of harvest guideline (118,200 mt) shared with shore-based open competition.		63,359	44,416
1997	5/15-6/1 MS 5/15-6/11 CP	70,400	49,700	70,771	50,401
1998	5/15-5/31 MS 5/15-8/7 CP	70,400	49,700	70,365	50,087
1999	5/15-6/2 MS 5/15-6/21 CP	67,800	47,900	67,679	47,580
2000	5/15-6/9 MS 5/15-11/6 CP	67,830	47,880	67,815	46,840
2001	5/15 – 12/31 MS 5/15 – 11/13 CP	58,786	41,496	58,628	41,903
2002	5/15 -6/6 MS 5/15 -10/16 CP	36,353	25,661	36,341	26,593
2003	5/15 – 12/31 MS 5/15 – 10/24 CP	41,208	29,088	41,214	26,021
2004	5/15-10/1 MS 5/15- 11/11 CP	73,270	51,720	73,175	24,102
2005	5/15 – 12/31 MS 5/15-10/18 CP	78,903	55,696	78,147	39,599
2006	5/15-09/29 MS 5/15-11/3 CP	78,903	55,696	78,864	55,355

Table 13 shows the annual shore-based allocation and season dates from 2000 to 2006. During this period the duration of the season has varied from 93 days in 2000 with a moderately high allocation to 30 day in 2003 when the allocation was at one of its lowest points.

Table 13. Pacific Whiting Shore-based Fishery Allocations and Season Dates, 1994-2006

Year	Coastwide Allocation (mt)	Length of Primary Season & Season dates	Early Season Allocation (mt)	Early Season Allocation Reached	Reapportioned (mt)
1994	97,000	261 (4/15-12/31)	4,850	No	No
1995	75,776	101 (4/15-7/24)	3,789	No	No
1996	87,001	119 (5/15-9/10)	4,350	No	No
1997	86,900	69 (6/15-8/22)	4,345	Yes (5/27)	No
1998	86,900	121 (6/15-10/13)	4,345	No	No
1999	83,800	91 (6/15-9/13)	4,190	No	No
2000	83,790	93 days (6/15-9/15)	4,190	Yes (6/8)	No
2001	68,418	78 days (6/15-8/21 9/17-9/26)	3,421	No	4,200
2002	44,906	33 days (6/15-7/17)	2,245	No	No
2003	50,904	30 days (6/15-7/14)	2,545	No	No
2004	90,510	61 days (6/15-8/14)	4,526	Yes (5/22)	No
2005	79,469	65 days (6/15-8/18)	4,873	No	No
2006	97,469	49 days (6/15-8/2)	4,873	Yes (5/25)	No

Table 14 shows the recent history of landings, ex-vessel revenues (harvester revenues) and ex-vessel prices for the shorebased whiting fishery.

Table 14. Landings, ex-vessel revenues and ex-vessel prices for the shorebased fishery

Year	Ex-vessel Revenue (millions \$)	Percent Change	Landings mt	Landings millions of lbs	Percent Change	Ex-vessel price (\$)	Ex-vessel price percent change
2000	8.0		88,842	195.86		0.041	
2001	5.7	-28%	73,411	161.84	-17%	0.035	-13%
2002	4.6	-21%	45,707	100.77	-38%	0.045	27%
2003	5.5	21%	55,333	121.99	-21%	0.045	0%
2004	7.7	40%	96,364	212.44	74%	0.036	-2-%
2005	12.6	64%	109,395	241.17	14%	0.052	44%
2006	17.4	38%	127,167	280.35	16%	0.062	19%

The value of the shore-based sector to the communities in which whiting processing has become an important part of the local economic structure, in some respects replaces or mitigates for lost processing capacity that resulted from cutbacks in other groundfish fishery sectors. A concern is that, with additional entrants, the duration of the fishing season will be further shortened. The shorter the season, the less employment benefit and the less the whiting fishery can mitigate for or replace other lost groundfish fishery activities. Table 15 presents a summary of operational data for the shore-based fishery for 1994 - 2006.

Table 15. Operational Data on Shore-based Whiting Fishery 1994-2006

Year	Start Date	End Date	Duration (days)	# Vessels	# Processors
1994	4/15	12/31	261	33	14
1995	4/15	7/24	101	37	13
1996	5/15	9/10	119	37	13
1997	6/15	8/22	69	41	12
1998	6/15	10/13	121	36	12
1999	6/15	9/13	91	39	14
2000	6/15	9/15	93	36	14
2001 ¹	6/15	9/26 ¹	78	29	13
2002	6/15	7/17	33	30	8
2003	6/15	7/14	30	33	9
2004	6/15	8/14	61	26	9
2005	6/15	8/18	65	29	10
2006	6/15	8/2	49	37	14

¹In 2001, the fishery closed on 8/21/01. The Makah tribe then returned 10,000 mt of its allocation to NMFS, which reallocated it to the other fishery sectors. The shore-based component then re-opened from 9/17/01 – 9/26/01.

The short seasons in 2002 and 2003 reflect the low OYs for the U.S. in those years. As the stock improved and as the OY increased, the season duration lengthened as well. However, in 2006, notwithstanding the more favorable allocation to the shore-based fishery, the season was only 49 days, compared to 65 days in 2005. The increase in the number of vessels participating from 29 in 2005 to 37 in 2006, contributed to the shorter season.

The data reported below are based on PacFIN, Shorebased Hake Observation Program (SHOP) and NWR Federal Permits Office data. There are a few discrepancies between these data systems that still need to be explored. These discrepancies mainly affect the counts of vessels in particular years. Two non-AFA vessels were eliminated because they had relatively minor landings compared to the other vessels while one vessel reported by the SHOP in the early years does not show up in the PacFIN fish ticket system. One AFA vessel only had 10,000 pounds of landing in one year and so it was considered a non-participant in that year.

As a result of increases in the commercial OY since 2003 and changes in the market, shorebased landings and revenues have increased per year, as have the number of vessels participating in the fishery. On land, prices have increased dramatically in recent years but so have fuel prices as shown in Table 16.

Table 16. Shorebased Fishery Landings, Revenues, Ex-vessel price, and other data for 2002 - 2006

Year	Landings Million lbs	Revenues Million \$	Ex-Vessel Price \$/lb	Fuel Price \$/gallon	Number Vessels	Revenue/Vessel \$1,000
2002	101	4.5	0.045	0.94	28	161
2003	113	5.1	0.046	1.23	31	166
2004	198	6.9	0.035	1.69	25	266
2005	215	11.3	0.053	2.00	29	389
2006	213	13.3	0.060	2.52	35	380

Using 2002 as the baseline, over the years there have been vessels entering and exiting the fishery and these vessels have been from both the AFA and non-AFA fleets. A large percentage of AFA-permitted vessels that fish whiting are associated with mothership operations. The non-AFA fleet was significantly affected by the buyback program, since four of the seven vessels that exited the fishery after the 2003 season were buyback vessels. Because of the high quotas and revenues in the 2005 and 2006 seasons, there were no exits in either fleet -- only entrants. Table 17 shows entry and exit patterns for the period 2002 – 2006.

Table 17. Entry and Exit Patterns in the Shorebased Fisheries, 2002 – 2006

Comparison Years	Total Entrants	Total Departures	AFA Entrants	AFA Departures	Non-AFA Entrants	Non-AFA Departures
2003-2002	6	3	2	0	4	3
2004-2003	4	9	0	2	4	7
2005-2004	3	0	2	0	1	0
2006-2005	6	0	3	0	3	0

During the period 2002-2006, 15 different AFA-permitted vessels participated in shorebased whiting fisheries -- 14 of these vessels fished under Pacific Groundfish permits prior to 1999, and the remaining AFA vessel first entered the Pacific groundfish fishery in 2006.

Data indicates that AFA-permitted vessels have higher per vessel revenues and landings than non-AFA vessels. Although both the AFA and non-AFA fleets expanded by 3 vessels in 2006, the larger capacity of the AFA-permitted vessels took a greater proportion of the shore-based allocation in 2006 than in 2005. In 2005, AFA-permitted vessels landed 51 percent of the shore-based allocation and 58 percent in 2006. Despite the increase in ex-vessel prices, the average non-AFA revenues fell in 2006 compared to 2005. The following tables show the details, first for the combined set of vessels (Table 18), and then for the separated AFA and non-AFA vessels (Table 19).

Table 18. Number, landings and revenues for AFA and non-AFA vessels combined 2002 – 2006

Year	Number of Vessels	Landings per Vessel Million lbs	Revenues per Vessel (\$1,000)
2002	28	3.6	161
2003	31	3.7	167
2004	26	7.6	262
2005	29	7.4	391
2006	35	6.1	373

Table 19. Number, landings and revenues for AFA and non-AFA vessels, 2002 – 2006

Year				AFA Landings per vessel Million lbs	Non-AFA Landings per vessel Million lbs	AFA Revenues per Vessel (\$1,000)	Non-AFA Revenues per Vessel (\$1,000)
	Number AFA Vessels	Number Non-AFA Vessels	% of Landings AFA				
2002	10	18	43	4.4	3.2	196	142
2003	12	19	47	4.4	3.2	200	146
2004	10	16	49	9.6	6.3	336	216
2005	12	17	51	9.2	6.2	482	327
2006	15	20	58	8.2	4.5	510	271

Table 20 shows the bycatch of overfished rockfish by whiting sector for the period 2003 – 2006.

Table 20. Bycatch limit species, in metric tons, by whiting sector 2003 - 2006

Species	Year	CP (mt)	Mothership (mt)	Shore- based (mt)	Total (mt)
Canary	2003	0.2	0.1	0.1	0.4
	2004	0.5	4.1	0.8	5.4
	2005	0.3	0.7	2.2	3.2
	2006	0.1	0.9	1.6	2.6
Darkblotched	2003	4.2	0.1	0.3	4.6
	2004	4.4	3.0	0.7	8.1
	2005	5.9	5.1	5.3	16.4
	2006	6.7	4.2	2.3	13.2
POP	2003	5.0	0.1	0.3	5.4
	2004	1.0	0.1	0.8	1.8
	2005	0.8	0.9	0.5	2.2
	2006	0.7	1.9	0.0	2.7
Widow	2003	11.6	0.7	9.0	21.2
	2004	8.2	11.4	28.6	48.2
	2005	43.1	35.5	77.2	155.8
	2006	66.9	72.3	49.4	188.5

Vessels participating in the Pacific whiting shore-based fishery are required to have a general limited entry groundfish permit with a trawl endorsement. In 2007, there are approximately 176 limited entry permits with trawl endorsements. These permits may be available to new vessels wishing to participate in the Pacific whiting shore-based fishery, provided the vessel intending to join the fishery is able to find a trawl-endorsed permit that is also endorsed with a vessel length appropriate to the vessel in question (50 CFR 660.334(c).)

The number of catcher vessels participating in the Pacific whiting primary season fishery (EFP and non-EFP vessels) has varied somewhat over the past several years. Though most Pacific whiting shore-based vessels are less than 80 feet in length, the proportion of vessels less than 80 feet has decreased from 68 percent of the fleet in 2002 to 58 percent of the fleet in 2006. Table 21 shows the numbers of vessels by length group that participated in the Pacific whiting shore-based fishery between 2002 and 2006.

In addition to the Pacific whiting primary season, vessels participating in the Pacific whiting shore-based fishery also participate in other West Coast fisheries, specifically the bottom trawl groundfish fishery. Many Pacific whiting shore-based vessels also landed catch in the coastal pelagic and crab fisheries. Catch data shows that Pacific whiting shore-based vessels have landed catch in every other West Coast fishery management group; however revenues from the shrimp, salmon, and highly migratory fisheries may be considered minor compared to revenues from the general groundfish and crab fisheries.

Table 21 also shows the estimated revenues by fishery that vessels actively engaged in the EFP Pacific whiting shore-based fishery received from their participation in the Pacific whiting and other West Coast fisheries between 2002 and 2006. In addition to West Coast fisheries, several

whiting vessels also participate in the Alaska groundfish fisheries. Revenues from participation in the Alaska fisheries are not shown here.

Table 21. Number of Active EFP Vessels and Exvessel Revenue by Year, Vessel Length Category, and Species Type, 2002-2006. (PacFIN January 2007)

Year	Vessel Length	No. of EFP Vessels	Pacific Whiting USD	Crab USD	Other Groundfish USD	Other Species USD	Shrimp/Prawn USD
2002	<70	5	412,086	407,138	715,279	(D)	172,494
	70-74	5	914,620	91,871	397,033	(D)	160,585
	75-79	10	1,403,347	252,184	597,202	(D)	46,746
	80-84	4	770,883	389,005	421,834	2,932	-
	85-89	4	687,231	-	177,398	(D)	-
	>89	2	(D)	(D)	(D)	(D)	(D)
2002 Total		30	4,188,166	1,140,198	2,308,745	4,414	379,824
2003	<70	8	537,890	1,238,027	1,103,348	(D)	279,582
	70-74	4	931,816	237,971	545,605	(D)	98,839
	75-79	11	1,877,797	1,267,603	1,171,440	1,607	36,114
	80-84	3	595,391	794,243	236,531	(D)	-
	85-89	5	856,464	-	54,049	2,085	-
	>89	3	916,421	1,722,694	107,358	7,678	-
2003 Total		34	5,715,780	5,260,538	3,218,331	11,915	414,535
2004	<70	4	808,740	1,673,677	819,442	(D)	-
	70-74	6	2,055,228	726,841	1,640,110	3,835	-
	75-79	6	2,193,020	802,903	968,681	7,262	-
	80-84	4	1,681,745	454,976	840,124	19,092	(D)
	85-89	4	1,151,754	-	60,870	2,673	-
	>89	2	(D)	-	(D)	(D)	-
2004 Total		26	7,890,487	3,658,397	4,329,226	39,682	(D)
2005	<70	4	872,374	894,509	417,607	(D)	-
	70-74	6	2,447,081	189,484	1,389,033	59,131	158,797
	75-79	7	3,256,265	326,055	1,030,668	68,546	44,124
	80-84	4	2,392,754	476,212	426,068	7,538	-
	85-89	4	1,962,455	(D)	122,014	41,843	-
	>89	3	1,801,452	(D)	129,051	15,727	-
2005 Total		28	12,732,381	1,941,264	3,514,441	192,785	202,921
2006	<70	6	1,265,587	2,172,725	744,687	(D)	-
	70-74	7	2,131,813	604,605	1,170,100	(D)	21,632
	75-79	6	2,513,579	601,905	707,860	2,150	-
	80-84	4	1,325,662	699,112	92,375	7,400	-
	85-89	6	3,135,570	(D)	235,788	8,715	-
	>89	4	2,135,240	210,593	250,464	16,373	-
2006 Total		33	12,507,451	4,288,940	3,201,272	37,676	21,632

note: (D) indicates data concealed for disclosure/confidentiality purposes
 totals may not reflect confidential cells
 vessels with an unknown length were not included in this table

Average gross revenues per vessel have more than doubled since 2002. Gross revenues from Pacific whiting in 2002 were approximately \$139,606 per vessel and have increased to \$454,728 and \$379,014 per vessel in 2005 and 2006 respectively (Table 22). During this same period, the ex-vessel price of Pacific whiting increased from approximately \$0.045 per pound in 2002 to \$0.062 per pound in 2006 as the demand for Pacific whiting has increased, particularly in the export market for headed and gutted product. With higher OYs in 2005 and 2006 than were available from 2002 to 2004, the average number of pound harvested by each vessel also increased from 2002 to 2006 (Table 23). Assuming that changes in gross revenues are an indicator of changes in net revenues, then the increased interest in participation in the Pacific whiting shore-based fishery in 2007 is likely due to increasing net revenues.

Table 22. Average Per Vessel Revenue of Pacific Whiting and Non-whiting, 2002-2006 (PacFIN January 2007)

Year	Whiting revenue per vessel (\$)	Non-whiting revenue per vessel (\$)
2002	139,606	127,773
2003	168,111	261,905
2004	303,480	308,480
2005	454,728	207,015
2006	379,014	228,773

Note: values in table are not all encompassing and protect confidentiality

Table 23. Pacific Whiting Shore-based Fishery, Number of Vessels by Weight of Whiting, 2002-2006 (PacFIN January 2007)

Year	Number of Vessels				
	< 2 million lb (907mt)	2-5 million lb (907-2,268 mt)	5-7 million lb (2,268-3,175 mt)	7-9 million lb (3,175-4,082 mt)	> 9 million lb (> 4,082 mt)
2002	7	19	4	1	
2003	7	26	4	1	
2004	3	6	7	7	9
2005	2	7	5	13	7
2006	5	7	8	8	5

In 2006, a shore-based vessel headed and gutted Pacific whiting at sea. The vessel uses a smaller net and tows of short duration to maintain quality. Head and gut machines were used at sea and the product was immediately placed in thick slurry of ice. As a result, the vessel was able to significantly increase its at-sea production of Pacific whiting in 2006. Because fish that are

headed and gutted (i.e., leaving the tail on) with no further processing (such as freezing) are not considered to be a final product, the vessel's activities do not qualify as a catcher/processor. The operation which occurred during the primary season for the shore-based sector was allowed to operate within the RCAs without an EFP and electronic monitoring system (EMS). The ex-vessel price of the partially processed catch was approximately four times greater than the price for whiting landed whole in unsorted EFP landings, and approximately double the price when taking the weight conversion from dressed headoff form to round weight into account, i.e., when comparing prices on the basis of a common weight measure.

3.3.4 Processor Characteristics in the Pacific Whiting Fishery

This section presents information on processors, communities, and states where Pacific whiting is landed. Table 24 shows that the highest percentage of Pacific whiting landings occur in Oregon, followed by Washington, and then California. Since 2004, the proportion of overall Pacific whiting landings has decreased in Oregon. Communities receiving landings of Pacific whiting have historically included Westport and Ilwaco, Washington; Astoria, Newport, and Charleston, Oregon; and Eureka, and Crescent City, California.

Table 24. Pacific Whiting Shore-based Landings by State, 2001-2006

State	Year	Number of Landings	Pacific whiting catch (mt)	Percent of Pacific whiting by weight
Oregon	2000	838	68,701	80%
	2001	773	53,422	73%
	2002	454	32,168	71%
	2003	514	36,594	71%
	2004	815	59,006	66%
	2005	826	61,460	63%
	2006	748	60,654	63%
California & Washington	2000	266	16,952	20%
	2001	257	19,904	27%
	2002	176	13,147	29%
	2003	186	14,602	29%
	2004	319	30,245	34%
	2005	356	35,918	37%
	2006	387	35,964	37%

Table 25 shows the number of Pacific whiting shore-based processors by state and year, and identifies the processing communities based on EFP data.

Table 25 Pacific Whiting Shore-based Processors and Processing Communities, 2000 – 2006

Year	Number of designated EFP processors	Processing communities
2000-all	12	Westport WA, Ilwaco WA, Astoria OR, Newport OR, Charleston OR, Crescent City CA, Eureka CA
Washington	2	
Oregon	7	
California	3	
2001-all	12	Westport WA, Ilwaco WA, Astoria OR, Newport OR, Charleston OR, Crescent City CA, Eureka CA
Washington	2	
Oregon	7	
California	3	
2002-all	8	Westport WA, Astoria OR, Newport OR, Charleston OR, Eureka CA
Washington	1	
Oregon	6	
California	1	
2003-all	9	Westport WA, Ilwaco WA, Astoria OR, Newport OR, Charleston OR, Eureka CA
Washington	2	
Oregon	6	
California	1	
2004-all	9	Westport WA, Ilwaco WA, Astoria OR, Newport OR, Charleston OR, Crescent City CA, Eureka CA
Washington	2	
Oregon	5	
California	2	
2005-all	10	Westport WA, Ilwaco WA, Warrenton OR, Newport OR, Charleston OR, Crescent City CA, Eureka CA, Moss Landing CA
Washington	2	
Oregon	5	
California	3	
2006-all	12	Westport WA, Ilwaco WA, Warrenton OR, Astoria, OR, Newport OR, Charleston OR, Crescent City CA, Eureka CA
Washington	2	
Oregon	8	
California	2	

There has been an increase in the number of shore-based processing facilities entering the whiting fishery whiting since a low in 2002 when the OY was restricted to allow for rebuilding. Based on the concept that a primary processor of Pacific whiting typically processes one million pounds (454 mt) or more, Table 26 shows the entry and exit trends in the Pacific whiting shore-based processing sector on a processor basis. Over the 2000-2006 period there were 17 different processors that processed at least one million pounds (454 mt) in any one year. However there were eight dominant processors who processed more than one million pounds (454 mt) in at least seven of the eight years during this period. Because of entry and exit of processors, the composition of the “other” processor group changes significantly in most years. In 2005, there were no “other” processors. In 2006, five new processors entered the fishery, only one of which had operated before beginning in 2004. The dominant processors typically process 90 to 100 percent of the Pacific whiting.

Table 27 shows the number of processors by state based on PacFIN data which includes tribal landings. In 2006, there were 23 processors that purchased Pacific whiting from fishermen with

10 of these processors purchasing from 4 pounds to 8,000 pounds (3.6 mt) of Pacific whiting. The other 13 processors all processed at least 1 million pounds of Pacific whiting each. During 2006 these 13 processors purchased 280 million pounds (127,000 mt) of whiting worth \$17.4 million ex-vessel, and 110 million pounds (49,896 mt) of other fish and shellfish worth \$78.5 million.

Table 26. Trends in Number of Processing Plants Consistently Processing Over One Million Pounds of Whiting Per Year, 2000 - 2006

Year	Number of Processors					Percent of total lbs processed by major processors
	Total	Major Processors	Others	Exit	Enter	
2000	12	8	4			75%
2001	10	8	2	2	0	91%
2002	9	8	1	1	0	90%
2003	9	8	1	0	0	90%
2004	9	8	1	1	1	97%
2005	8	8	0	1	1	100%
2006	13	8	5	0	5	92%

Table 27. Shore-based Trawl Landings of Groundfish and Exvessel Revenue, by State and Year, 2000 - 2005. (Pacfin, May 2006)

State		2000	2001	2002	2003	2004	2005
California	Non-whiting Landed Weight (mt)	9,764	7,929	8,026	7,330	6,101	5,760
	Ex-vessel Revenue (1000's \$)	11,859	9,546	10,068	8,618	7,090	7,021
	Pacific whiting Landed Weight (mt)	4,986	2,306	2,773	1,695	4,742	3,062
	Ex-vessel Revenue (1000's \$)	765	171	274	166	641	338
Oregon	Non-whiting Landed Weight (mt)	15,952	12,152	8,410	10,499	10,245	10,786
	Ex-vessel Revenue (1000's \$)	17,974	14,687	10,150	12,897	11,833	12,441
	Pacific whiting Landed Weight (mt)	68,702	53,376	32,305	36,581	59,075	61,463
	Ex-vessel Revenue (1000's \$)	6,081	4,132	3,219	3,642	4,641	7,107
Washington	Non-whiting Landed Weight (mt)	5,593	4,896	8,370	4,258	3,481	3,315
	Ex-vessel Revenue (1000's \$)	4,601	4,319	4,189	3,598	3,148	3,191
	Pacific whiting Landed Weight (mt)	12,156	17,730	10,630	12,934	25,838	32,291
	Ex-vessel Revenue (1000's \$)	1,122	1,439	1,061	1,283	1,993	3,848

Based on the Small Business Administration (SBA) criteria and a review of Pacific whiting shore-based processing company websites, state employment websites, newspaper articles, personal communications, and “The Research Group” (2006), it appears that the thirteen major Pacific whiting processors can be grouped into nine SBA businesses based on analysis of affiliates. Within these nine SBA businesses, there are three businesses that each generated at least \$500 million in sales in 2003 (Seafood Business, May 2004, “Big Brands Head List of Top Suppliers”). One of these three companies reported employing 4,000 people. It is presumed that the other two companies have employment levels much higher than 500 employees. Four of the nine SBA businesses have employment level estimates that range from 100-250 employees, while the remaining two appear to be in the 50-100 employee range (due to missing data, one of these relatively small businesses may have less than 50 employees). In terms of the SBA size standard of 500 or fewer employees for small businesses, there are six “small” businesses that participated in the shorebased Pacific whiting processing sector in 2006.

Annual sales information for these “small” businesses is unavailable, but total ex-vessel revenues (i.e., the values of the fish purchased from fishermen) are available. In 2006, these six businesses purchased approximately \$40 million in Pacific whiting and other fish and shellfish from West Coast fishermen. This compares to the \$60 million in Pacific whiting and other fish and shellfish purchased by the three large businesses.

The entry and exit of processors can be associated with market trends and the size of the Pacific whiting quotas. Processor consolidation appears to have occurred during the 2002-2004 period. Declines in the Pacific whiting OY in 2002 and 2003 may have caused processors to close their operations, or to consolidate with other operations. However, the increases in OY since 2004 combined with greater market demand, appears to have increased processor interest.

3.3.5 Participation Requirements, Restrictions, Licensing

Participation requirements for harvesters and processors are described in detail in sections 3.3.3 and 3.3.4, respectively. Catcher vessels in the shore-based and mothership sectors and catcher/processors are required to have limited entry permits. Most catcher vessels in the shore-based sector have operated under EFPs since 1991. However, beginning in 2008 the shore-based fishery is expected to operate under federal regulation. The EFPs have routinely required vessels to deliver EFP catch to state designated processors. Like shore-based processors, no federal permits are required of motherships. Shore-based processors must have the appropriate state licenses. Under EFPs, designated shore-based processors have been identified by the states and have maintained signed agreements that specify the standards and procedures they agree to follow when accepting unsorted EFP catch.

In June 2007, the Council took final action under Amendment 10 to the FMP to adopt a maximized retention and monitoring program Pacific whiting shore-based fishery. The Council’s preferred alternative contemplates a maximized retention fishery, where most catch in the shore-based whiting trawl fishery, including that for prohibited species, is to be retained and delivered to shore-based plants. At-sea monitoring to ensure full catch retention would be accomplished using federal- or industry-funded EMS. In addition to a limited entry permit with a trawl endorsement, vessels participating in future shore-based whiting fisheries would need to apply

for and obtain an annual whiting endorsement, which will serve as a declaration to participate. EMS providers would also need a NMFS permit to ensure that the equipment and services meet NMFS standards. As with the 2007 EFP, the Council recommended that the vessels continue to pay 100% of the EMS equipment costs while NMFS will continue to provide funding for data analysis and reports. Data quality monitors would be stationed at the processing facility to ensure that the catch is sorted and weighed according to federally-defined standards. Data quality catch monitors will be third-party employees trained to NMFS specifications who would be responsible for observing all unsorted Pacific whiting catch delivered to shore-based plants, verifying fish ticket weights, collecting biological data, and collecting data necessary to determine species composition. In addition, each state may choose to continue using industry samplers or port biologists to meet state biological data collection goals. As is current practice under state law, the Council recommended all catch in excess of limited entry trawl cumulative limits (overages) be reported on state fish tickets and abandoned by the vessel to the state of landing. Each state would continue to be responsible for donating the prohibited species, receiving the value of the processed overage catch, and tracking compliance.

Under the alternative actions, NMFS would maintain a list of vessels eligible to participate in the whiting fishery. Implementing regulations would specify the application procedures.

3.3.6 Market Trends in the Pacific Whiting Fishery

During the 2000-2006 period, there has also been a shift in the major products being produced. When looking at estimates of wholesale production by major product form (surimi, fillets, and headed and gutted), U.S. export statistics show an upward trend in the prices and production of headed and gutted (H&G) Pacific whiting and a downward trend in the production of Pacific whiting surimi. (Export statistics do not isolate Pacific whiting fillets from other species fillets, so exports of Pacific whiting fillets are unknown).

In the early 2000s, the amount of Pacific whiting being processed into surimi for export was far greater than that of H&G products. Simultaneous with the decline in the Pacific whiting OY, one of the three major surimi processors stopped production in 2003 and has yet to return to production. Meanwhile, a new foreign market has spurred the production of H&G products to the extent that in 2006, H&G exports now greatly exceed surimi exports.

The Seafood Trend Newsletter (June 26, 2006) reported the following market trends:

Is it time to wave the yellow flag in the red-hot Pacific whiting market? While demand remains strong, wholesale prices may be getting out of hand for price-conscious buyers. The West Coast fishery is going gangbusters. Last year, 571.1 million pounds of Pacific whiting was landed, the highest since 1966. Even as landings set a record, value and prices also grew.

And this year looks to continue the upward trend. The OY is the same as last year, the resource remains strong, and landings are good. As of June 19, (2006) the catch for the non-tribal fishery was at 185.7 million pounds out of a commercial allocation of 511.7 million pounds. This allocation is divided among three sectors of the fishery -- 214.9

million pounds to shore-based, 122.8 million pounds to motherships, and 174.0 million pounds to catcher/processors. In addition 77.2 million pounds go to the tribal fishery.

Pacific whiting (*Merluccius productus*) stocks remain healthy even as the big 1999 year-class dies off. The 2002 and 2004 year classes may keep the fishery going at its current pace. The main constraint on the fishery is the bycatch of several rockfish species, especially POP, canary rockfish, darkblotched rockfish, and widow rockfish.

Demand for Pacific whiting has blossomed over the last couple of years, especially in the export market. Such countries as Russia and Ukraine have taken to H&G Pacific whiting. Last year (2005) exports of Pacific whiting increased nine percent in volume, to 95.7 million pounds, but increased 27 percent in value to \$59.3 million, and gained 17 percent on a per pound basis to \$0.62/lb., compared to 2004. So far this year (2006), the overall trend has, if anything, accelerated, with export volume and value growing. Through April (2006), 11.4 million pounds of Pacific whiting were exported through West Coast ports, a 73 percent gain over 2005. Value jumped 119 percent to \$7 million.

But the seeds of potential problems may be visible in the comparatively slower growth in per-pound value, which gained only 27 percent going from \$.48 a year ago to \$.61/lb though April. Giving pause is word that inventory is beginning to pile up in some European markets. Marketers there are advising their American suppliers to sit on their inventory for the time being.

H&G is the place to be, but newer players could be behind the curve. Pushing too much product too quickly could come back to haunt the fishery this fall. If inventory piles up, prices may have to drop to move it, which could have repercussions throughout the Pacific whiting industry.

That's not to say that this will happen because demand is strong, especially in Russia and the Ukraine. Consumers there are moving up from lower-priced fish such as herring to higher quality and higher-priced fish such as Pacific whiting. And with the rapidly developing processing industry demanding more frozen fish, the U.S. is in a good position to satisfy demand.

Another factor in the success of the U.S. in entering export markets for Pacific whiting has been the relative absence of H&G Pacific whiting from Argentina and Peru over the last year or so. The U.S. has taken advantage of the situation and gained a solid foothold in the market.

The strength of the export market has had an impact on the domestic market for Pacific whiting. While the export market is garnering most of the attention and available product, the U.S. market is scrambling for Pacific whiting. This has resulted in higher prices in the U.S. as well as the drying up any spot market. Retailers are purchasing on contract to ensure their supply. Today, West Coast H&G whiting is wholesaling for \$0.57-\$0.59/lb., up from a more typical \$0.45-\$0.48 lb. West coast fillets are wholesaling for as much as \$0.96/lb., up from \$0.72/lb." (Seafood Trend Newsletter, June 26, 2006).

It should be noted that the Seafood Trend's discussion of whiting stock trends turned out not to be completely accurate. According to the Pacific Fisheries Management Council's Groundfish Management Team (Agenda Item E.3.B Supplemental GMT Report, March 2007, page 1):

Year class trends suggest that the stock is still heavily comprised of the 1999 year class, with near average recruitment from the 2003 and 2004 year classes. There is no indication of another strong year class emerging. As a consequence, the management decisions facing the Council with respect to whiting harvest levels are strikingly similar to those faced in 2006; stock size is projected to continue declining even with greatly reduced harvest rates....

It turns out that the Seafood Trend forecast of slower growth did not come to fruition in 2006. Not only did the annual growth rate in exports from West Coast ports (Seattle, Portland, San Francisco, and Los Angeles) in tonnage increase but so did the per-pound value. Through December 2006, 123 million pounds (55,792 mt) and \$88 million worth of H&G products were exported through West Coast ports, an increase almost 30 percent in tonnage and 50 percent in value. The export price increased 16 percent to \$0.73 per pound compared to the average export price for 2005. These export growth rates appear to have affected ex-vessel prices as well. Ex-vessel prices increased by 44 percent in 2005 and 19 percent in 2006.

The Seafood Trend Newsletter from April 9, 2007 also noted:

The market for Pacific whiting has done anything but slow down, especially after the recent decisions on 2007 fishing regulations. In short, supply is down and looks to stay down for the foreseeable future. Export demand is fired up and may leave domestic needs short again.

Pacific whiting—often called hake, especially in Canada—is the major groundfish species off the Lower 48-British Columbia coast. The coastal stock is considered one stock and is managed as such. However, fishing in the U.S. and Canada are managed separately, though a treaty between the two countries specifies shares of the resource. The U.S. gets 73.88% of the ABC and Canada gets 26.12%. The treaty, formulated in 2003 is not yet signed, but the two nations follow its provisions since it prevents over-running the quota and hurting the resource.

There are also small inshore whiting populations (Strait of Georgia, Puget Sound, Gulf of California) but the coastal stock features larger fish, seasonal migration, and average recruitment except for occasional very large year-classes that sustain the population for several years.

At its March meeting, the Pacific Fishery Management Council decided on this year's fishery. It approved an acceptable biological catch of 612,068 metric tons, down 7.5% from last year. The drop came because the huge 1999 year-class had passed its peak. For the last several years, the fishery has depended on this strong year-class to sustain the

fishery. Scientists do not see any major year-class coming along. The 2003 and 2004 year-classes are deemed “average.”

With the drop in acceptable biological catch, the annual quota, or optimum yield was set at 328,358 tons, down 10.1% from the 364,842 tons last year. The optimum yield is divided between the U.S. and Canada, with the U.S. getting 242,591 tons and Canada receiving 85,767 tons. The U.S. share is further divided among tribal and non-tribal fishermen, with the tribes at 32,500 tons.

Last year, U.S. fishermen (tribal and non-tribal) landed 266,000 tons of whiting about the same as 2005. B.C. fishermen (foreign, joint venture, and shore-based) landed 94,000 tons, down slightly from the 100,000 tons of the previous year. Total landings last year were 360,000 tons.

Fishing this year started April 1 for the California shore-based fishery. Further north, the shorebased fishery opens June 15. The major U.S. at-sea fishery is set to open May 15.

As for the whiting market, it looks as strong as ever, barely taking a breather from last year’s strong finish. Foreign demand for headed and gutted fish is driving the market, and will continue to drive it. The export demand has grown stronger because traditional sources of whiting, including the major producers of Argentina are having resource problems and reduced production. This has made H&G whiting from the U.S. and B.C. a valuable commodity.

Look at U.S. whiting/hake exports for the first month of the year. Export volume went from 2.9 million pounds a year ago to 7 million pounds this past January. More telling, the average price gained 16.9% going from \$.65/lb a year ago to \$.76/lb this year.

The major export markets for Pacific whiting continue to be Russia and the Ukraine. Russian buyers took 2.9 million pounds in January, up 84% from a year ago. The Ukraine took nearly as much, buying 2.4 million pounds, about seven times as much as January.

Activity is already heating up this year. There are reports that buyers are looking to tie up Canadian production. And U.S. processors are looking at export market again this year.

All this gives U.S. marketers a major case of heartburn. They have no certain source of product, and certainly not in the volumes they need. This continues the trend that began last year when many domestic marketers had a hard time meeting customer needs. But there is no turning back when export demand and prices continue to increase. As well, export markets want H&G, while the U.S. markets want some H&G but also fillets, which are more expensive to produce.

The above analysis addresses price trends for H&G products, but the major industry newsletters and magazines do not provide conquerable analysis of whiting fillet and surimi products. These are the major products of the at-sea sectors. The market for such products is strongly influenced

by the market for Alaska pollock fillets and surimi. The following was reported in the January 22, 2007 Seafood Trend Newsletter:

There could be a tug of war this year between the fillet and surimi markets in the Alaska pollock business. Fillets have been on the rise, but surimi may have a trick or two up its sleeve.

With a limited supply of Alaska pollock, how much should go to major pollock products. Despite fluctuations in Alaska pollock stocks, the total allowable catch has remained stable over time thanks to careful management by the North Pacific Fishery Management Council. Each year, fishermen are allowed to catch about 3.5 billion pounds of Alaska pollock in the BSAI and Gulf of Alaska fisheries. This year will be the same with fishermen chasing 3.503 billion pounds, down 4.9 million pounds (or 0.1%) from last year.

The fillet market has continued to gain strength over the last two years. Look at export figures for perspective. Through November 2006, the U.S. exported 189.4 million pounds of pollock fillets, an increase over the previous year. At the same time that export volume was growing, prices also increased, a good indication of market strength. The average price of pollock fillets gained 19% in 2006 over 2005.

For surimi, the opposite situation—exports have fallen and so has average price. Through November, pollock surimi exports totaled 356.1 million pounds, a drop of 12% from the previous year. The per-pound value, however, dropped, albeit by only a penny a pound. Surimi prices are softening, but not by much, suggesting the market is weak but not dead.

The surimi market may strengthen this year, if for no other reason than reduced supplies.

If whiting surimi and fillet prices follow pollock prices, the above analysis indicates that whiting surimi prices in 2007 are likely to stay the same or increase compared to 2006, while fillet prices are likely to continue to increase. It should be noted that the analysis above misstates the percentage reduction in Alaska pollock quotas. According to Seafood.Com (March 13, 2007):

As a result, the overall TAC for Alaska will see a decline of 7%, with that for the roe season falling by 1% lower by 8%. Industry observers are watching with caution that, in view of the large size of the quota, the difference of even 1% might significantly affect the production of pollock roe, surimi and fillets in this season.

In a recent report done for the Oregon Department of Fish and Wildlife and the Oregon Coastal Zone Management Association, The Research Group (2007) noted the following regarding recent developments in the markets for alternative forms of whiting:

Ex-processor prices for surimi improved somewhat starting in 2003 due to a weaker U.S. dollar and the decreased supplies to market from downturns in other historical surimi based world fisheries. The expected trend in improved prices is being dampened by increased yield in both the Pacific whiting and the pollock fisheries with the use of

"decanter" technology. There are also other countries, like India, that are starting to produce a lower grade surimi. This will increase the downward pressure on surimi prices. However, in late 2004 the Indian Ocean tsunami destroyed a large part of the fish harvesting and fish processing industry that produced a low quality surimi. This had the effect for raising the expected prices for surimi products in 2005. Because of increased awareness of health aspects of fish consumption and the general decline of wild caught white fish availability in the world, and some collapses of "hake" resources, the prices of all Pacific whiting products have increased.

At the present time, two surimi plants along the West Coast have the capacity to process up to 20 million pounds per week. Except for a couple of years in the early 2000's, an average 150 million pounds of whiting has been delivered onshore annually. The surimi product form's prices are subject to the Alaska pollock surimi market and downturns in the Japanese market have lowered prices in past years. However, surimi price has increased in 2006 and is expected to increase along with other whiting products in 2007. As a consequence, more whiting is being directed to the developing fillet and H&G market. Filleting and H&G processing also require smaller capital investments. Several smaller processors have moved into whiting processing, especially in the Astoria area.

With the use of on-board super-chilling technology, there is an opportunity for an improved headed and gutted product for whiting in the eastern U.S. market and some parts of Europe and Israel.

Tables 28 to 30 present summary information on some key whiting industry market data.

Table 28. Key Pacific Whiting Market Indicators 2000 – 2006 Landings, Ex-vessel Revenues, and Ex-vessel Prices

Year	Ex-vessel Revenue (millions \$)	Percent Change	Landings mt	Landings millions of lbs	Percent Change	Ex-vessel price (\$)	Ex-vessel price percent change
2000	8.0		88,842	195.86		0.041	
2001	5.7	-28%	73,411	161.84	-17%	0.035	-13%
2002	4.6	-21%	45,707	100.77	-38%	0.045	27%
2003	5.5	21%	55,333	121.99	-21%	0.045	0%
2004	7.7	40%	96,364	212.44	74%	0.036	-2-%
2005	12.6	64%	109,395	241.17	14%	0.052	44%
2006	17.4	38%	127,167	280.35	16%	0.062	19%

Table 29. West Coast Exports of Headed and Gutted Pacific Whiting 2000 - 2006

Year	Export Revenue (millions \$)	Percent Change	Exports millions of kg	Exports millions of lbs	Percent Change Export Weight	Export price (\$/lb)	Export price percent change
2000	3.7		4.2	9.24		0.400	
2001	14.4	289%	12.9	28.38	207%	0.507	27%

2002	7.5	-48%	6.6	14.52	-49%	0.517	2%
2003	14.9	99%	12.5	27.50	89%	0.542	5%
2004	44.7	200%	38.0	83.60	204%	0.535	-1%
2005	59.2	32%	43.4	95.48	14%	0.620	16%
2006	88.2	49%	55.9	122.98	29%	0.717	16%

Table 30. West Coast Exports of Pacific Whiting Surimi 2000 - 2006

Year	Export Revenue (millions \$)	Percent Change	Exports millions of kg	Exports millions of lbs	Percent Change Export Weight	Export price (\$/lb)	Export price percent change
2000	18.2		11.4	25.08		0.726	
2001	28.0	54%	17.4	38.28	53%	0.731	1%
2002	16.8	-40%	9.3	20.46	-47%	0.821	12%
2003	10.6	-37%	5.9	12.98	-37%	0.817	-1%
2004	25.6	142%	16.3	35.86	176%	0.714	-13%
2005	28.5	11%	14.5	31.90	-11%	0.893	25%
2006	6.3	78%	3.2	7.04	-78%	0.895	0%

3.3.7 Counties Affected by the Pacific Whiting Shore-based Industry

Counties that are actively involved in the Pacific whiting shore-based industry include Pacific County, Washington; Grays Harbor County, Washington; Clatsop County, Oregon; Lincoln County, Oregon; Coos County, Oregon; Del Norte County, California; and Humboldt County, California. These counties tend to have economies that are based on tourism, natural resources, and government. The largest industries reported by the Bureau of Economic Analysis in counties associated with the Pacific whiting shore-based industry are generally forestry, fishing, and other, manufacturing, government and government enterprise, health care and social assistance, accommodation and food services, and retail trade. Industries falling within the forestry, fishing, and other, and manufacturing sectors are largely made up of timber and fishing industry related business, and timber and seafood processing. Food services, accommodation, and retail trade are largely made up of businesses reliant on the tourism sector.

Readers interested in further information on Counties and communities, are referred to Section 7 of the EIS, prepared by the Pacific Fishery Management Council staff, for the Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2007-2008 Pacific Coast Groundfish Fishery. Copies of the EIS can be obtained from the Pacific Fishery Management Council, by writing to 7700 NE Ambassador Place, Suite 200, Portland, OR 97220-1384; or calling 503 820-2280; or viewing the internet posting at <http://www.pcouncil.org>.

4. ENVIRONMENTAL CONSEQUENCES

This section examines the environmental consequences that could be expected to result from adoption of the action alternatives. Alternatives 1-3 would prohibit entry of vessels into the fishery with no sector-specific significant historical participation in the Pacific whiting fishery.

4.1 Effects on the Physical Environment

Action Alternatives 1-3 would implement a limited entry program for the non-tribal Pacific whiting fishery in addition to the current West Coast limited entry program. Physical impacts generally associated with fishery management actions are effects resulting from changes in the physical structure of the benthic environment as a result of fishing practices (e.g. gear effects and fish processing discards). Midwater trawl gear is required in the Pacific whiting primary season fishery. At this time, there are no habitat protection areas that prohibit the use of midwater trawl gear in the geographic areas where the Pacific whiting fishery occurs. Because the alternative actions are administrative in nature and are not expected to change current fishing areas or gear used, none of the alternatives to any of the issues detailed in this EA are expected to have notable or measurable effects on the physical environment, either individually or cumulatively.

4.2 Effects on the Biological Environment

Direct effects on the biological environment resulting from fishery management actions primarily include changes in species mortality levels resulting from implementation of the alternatives. Under status quo, ABCs and OYs for Pacific whiting will continue to be set annually and will be based on the best scientific information available and based on the sustainability principles of the Magnuson-Stevens Act or the U.S.-Canada Pacific Whiting Treaty. Allocation of Pacific whiting between the U.S. and Canada and the allocation between commercial sectors will continue as specified in regulations at 50 CFR 660.323 (a)(2), and the allocation to the treaty tribes will continue to be specified at 50 CFR 660.385 (e). Similarly, the ABCs and OY for groundfish stocks taken incidentally with Pacific whiting will be based on the best scientific information available and on the sustainability principles of the Magnuson-Stevens Act. Consistent with the Magnuson-Stevens Act requirements, the ABCs and OYs for overfished species will continue to be based on overfished species rebuilding plans adopted under Amendment 16-4 regulations (71 FR 78638, December 29, 2006). The Pacific whiting fishery will continue as a primary season fishery, as specified in regulations at 50 CRF 660.373, and with the same season dates as have been in place since 1997. Monitoring and maximized retention measures proposed to be implemented in 2008 for the shore-based sector are expected to strengthen the ability to effectively manage the Pacific whiting fishery.

At its April 2007 meeting, the Council expressed its desire to continue managing the Pacific whiting fishery with bycatch limits for the most constraining overfished species. With bycatch limit management, the Pacific whiting industry has the opportunity to harvest the full Pacific whiting OY, provided the bycatch limits are not reached. The bycatch limits used in the Pacific whiting fishery will continue to be based on: the rebuilding OYs for each species; the amount projected to be taken in other fisheries; the more abundant overfished species historical weighted averages or linear interpolation (widow) of incidental catch as reported by observers in the at-sea fisheries; and fish tickets in the shore-based fishery.

Under status quo, the Pacific whiting fishery is being effectively managed to stay within the specific OYs for Pacific whiting and incidental groundfish (healthy, precautionary, and overfished species) stocks as well as Chinook salmon. While the management structure of the fishery is the same under status quo, the absolute number of fish killed would be more than under the action alternatives. The fishery would likely occur earlier in the year, when the yield per fish is lower, meaning that for a ton of catch, there would be more fish caught.

If participation in the fishery were increased under status quo and effort were difficult to manage, indirect biological impacts such as overfishing could result. The impacts on a stock of exceeding an OY depend on how sensitive the stock is to catch level changes. If an allowable harvest level for precautionary zone and healthy groundfish species or species groups is exceeded, the risk to the stock is generally lower than it is for overfished species. If an allowable harvest level of a constraining overfished species was greatly exceeded due to unreported discarding at sea, inaccurate catch accounting, or delayed catch reporting, the risk of exceeding rebuilding-based OYs is increased. The risk to the stock of exceeding the rebuilding based OY is particularly a concern for canary rockfish because it is sensitive to changes in harvest levels. For example, if the 2007 canary rockfish OY were exceeded by 3 mt, it is projected to result in the rebuilding time being extended by 11 years (PFMC and NMFS 2006). There are many variables that affect the time it takes a stock to rebuild; fishing mortality is only one of those variables. However, exceeding the rebuilding based OY could result in an extended rebuilding period for an overfished species.

The consequences of excess harvesting capacity are typically severe biological overfishing (Department of Commerce, 2006). Presumably, effects on protected species correlate with changes in the level of fishing effort. Increased fishing effort could lead to an increase in interactions between fishing vessels and protected species, while a decrease in fishing effort would have the opposite effect (PFMC, 2004). The action alternatives would be more likely to provide additional protection to overfished species of rockfish and to endangered or threatened salmon by prohibiting entry and diminishing the likelihood of an accelerated race for fish as compared to no action. There is likely to be less bycatch of these species than if there were unlimited access to the fishery. The fishery is likely to remain more stable and well paced than under the no action alternative such that bycatch will be controlled as it has been through industry cooperation and efforts to share information so that areas of high bycatch will be avoided. There will be less early season fishing, thus lessening the likelihood of high salmon bycatch. To the extent the alternatives result in lower rockfish bycatch, there will be less likelihood of an early closure of the whiting fishery and a shift of effort from whiting to other groundfish, so that the pressure on these other stocks should not increase above the status quo level.

To the degree that reducing the overall universe of potential whiting fishery participants buffers the fishery against the possibility of exceeding allowable harvest levels for either whiting or non-target species, Alternative 3 could be expected to have the greatest beneficial effect on the biological environment (56 shore-based catcher vessels, 39 mothership catcher vessels, 7 motherships, 10 catcher/processors), followed by Alternative 1 (56 shore-based catcher vessels, 64 mothership catcher vessels, 10 motherships under 1A and 6 motherships under 1B, 11 catcher/processors under 1A and 10 catcher/processors under 1B), followed by Alternative 2 (63

shore-based catcher vessels, 64 mothership catcher vessels, 11 motherships under 2A and 7 motherships under 2B, 11 catcher/processors under 2A and 10 catcher/processors under 2B, followed by status quo, where participation is limited only by the availability of limited entry trawl permits.

4.2.1 Non-groundfish Species (state managed or under other FMPs)

The alternative actions are not expected to affect non-groundfish species in any way.

4.2.2 Protected Species

The alternative actions are expected to minimize the risk of excessive bycatch of salmon in the whiting fishery, by reducing pressure to fish early in the season when salmon bycatch is highest.

Under the Endangered Species Act (ESA), NMFS has completed Section 7 consultations for the West Coast groundfish fisheries, and NMFS has concluded that the fisheries as prosecuted under the Groundfish Fishery Management Plan are not likely to jeopardize the continued existence of any listed species. However, if the whiting fishery were to change in character, with more intensive fishing early in the season, the situation may need to be reevaluated. Salmon bycatch rates are much higher early in the year than later in the year. Additional capacity or associated effort in the fishery may lead to high salmon bycatch rates and additional capacity or effort may also make it difficult for NMFS to react in a timely way to unanticipated conditions in the fishery.

4.3 Effects on the Socioeconomic Environment

4.3.1 Changes in Management Structure of the Fishery

None of the alternatives would revise whiting harvest levels, monitoring procedures, season dates, inseason management processes, or inter-sector allocations. Action Alternatives 1-3 would restrict the universe of potential participants in the fishery, and would require vessels to prove their qualifications from historical catch in order to be allowed to participate in future Pacific whiting seasons. Any changes to the management structure of the fishery would be administrative in nature, as they would require vessel owners to complete applications for participation in the fishery, and would require NMFS to review and approve or disapprove of those applications.

4.3.2 Changes in Fishery Harvests and Values

Since at least the 1990s the National Marine Fisheries Service has recognized that overcapacity is a common problem in many domestic (and international) fisheries (Department of Commerce, 2004). Overcapacity may be defined as that part of the difference between what a fleet could produce if fully utilized under normal operating conditions (during a given period of time, under given stock conditions) and what it actually produces *which results specifically from market failures* (Ward, et al., 2005). Further, Ward et al. note that overcapacity is a structural problem that is not self correcting over time. “Overcapacity occurs in open-access, limited entry, and regulated open-access fisheries because of a specific market failure: when any given boat catches

a fish, it does not bear the cost that it imposes on other boats by reducing their opportunities to catch fish.” (Ward, 2005).

NMFS has taken recent steps to produce a national plan of action for the management of fishing capacity (U.S. Department of Commerce, 2004). NMFS has also sponsored an analysis of overcapacity in five federally managed fisheries, one of which was the West Coast groundfish fisheries (U.S. Department of Commerce, 2006). The analysis, undertaken by NOAA economists and academic researchers and documented in a NOAA Technical Memorandum, determined the five fisheries all had substantial overcapacity, with the more severe level of overcapacity occurring in the West Coast groundfish fisheries.

In particular, the Pacific whiting fishery was determined to be in overcapacity status (U.S. Department of Commerce, 2006). The report of the analysis concluded that the efficient reduction of overcapacity will likely require a combination of capacity reduction actions. According to the report, this combination of actions could include the use of various management/regulatory strategies, one of which is individual fishing quotas.

Amendment 15 does not contain provisions for individual fishing quotas; however, such provisions are being actively considered through the proposed Amendment 20 to the Groundfish Management Plan. Until a management/regulatory approach, such as Amendment 20 or other fisheries rationalization amendment is adopted, the prevention of additional eligible entrants to the Pacific whiting fishery could be accomplished through the adoption of an alternative to the status quo situation. The alternatives to the status quo proposed for Council consideration represent ways to avoid allowing additional eligibility to enter the Pacific whiting fishery, and thus provide an opportunity for the Council to avoid additional complications prior to adoption of a method for rationalizing the fishery.

In a derby style fishery that is at capacity or overcapacity status, new entry encourages more intensive fishing, or an accelerated race for fish, because participants fear they will not catch a fair share of the available fish if they do not fish early. The race for fish can result in wasteful fishing practices of both target and incidentally caught species. The presence of excess capacity and overcapacity in commercial fisheries causes substantial economic waste in the form of higher than necessary costs of production and reduced net benefits to society (Department of Commerce, 2006).

On May 14, 2007, NMFS adopted a temporary rule to prohibit any vessel from participating in either the mothership, catcher/processor or shore-based delivery sector of the directed Pacific whiting fishery off the West Coast in 2007 if it did not have a history of sector-specific participation in the whiting fishery between January 1, 1997, and January 1, 2007. This rule was intended to prevent serious conservation and management problems that could be caused by new entrants in 2007 and to maintain the status quo while the Council addresses the issue of increased capacity in the whiting fishery through Amendment 15 and capacity reduction through Amendment 20, trawl rationalization. For purposes of section 4.3, we refer to the pre-2007 situation as the status quo.

Under status quo, harvesters have shared information with each other on incidental catch of bycatch limit species and Chinook salmon during the season. The at-sea fleet has used a third party to summarize observer sample data on a daily basis and to provide a summary of all activity to other members of the fleet. In the shore-based sector, fishers have notified SHOP representatives when high bycatch has occurred and SHOP has provided information to the fleet. The exchange of information allows harvesters to understand where the areas of high bycatch may be, so they may choose to voluntarily avoid those areas and help to extend the season with the hope of each sector attaining its allocation. This cooperation may be less likely to continue if a large number of new entrants were allowed into the fishery and fishing were conducted more intensely. If the new entrants consisted of more vessels with higher operational costs, there is a greater likelihood that meeting vessel costs would outweigh the individual's incentive to exchange information. If this were to occur, the fishery may be closed earlier than it otherwise would have, assuming that the loss of bycatch information exchange would result in earlier attainment of bycatch limits.

More fishing capacity exerted earlier in the year is expected to increase the likelihood of early achievement of the Pacific whiting allocations. An early season closure would produce negative economic impacts for the harvesters, processors, and communities involved in whiting operations. If capacity increases, there would be a greater likelihood of more intensive fishing early in the season and achievement of Chinook salmon limits early in the season, as bycatch of this species has historically been higher earlier in the season (PFMC and NMFS, 2006). While some vessels, especially AFA-permitted vessels or vessels receiving benefits from other rationalization programs, would be able to shift to Alaska fisheries, other vessels have less opportunity and may join or increase participation in the bottom trawl fisheries such as nearshore flatfish, deepwater complex, and slope rockfish. Vessels may also join or increase participation in Dungeness crab fishery and the pink shrimp fishery. It should be noted that vessels must have (or be able to acquire) the necessary state permits to participate in either of these fisheries.

Intensive early fishing on whiting will result in early achievement of the harvest limit for the shore-based sector. This means that West Coast-based vessels that do not have access to Alaska fisheries or other stocks may be pushed into alternative West Coast fisheries earlier than normal. In turn, the normal pace of groundfish catches will be accelerated and bimonthly vessel catch limits would likely be achieved earlier in each period. In an accelerated race for fish, there also would be higher risk of exceeding bycatch limits for the established fisheries. At best, there would be short periods in which vessels would be forced to sit idle; at worst, the idle periods would be long, with serious disruption of processing facilities that are already under great economic pressure because of the severe cutbacks in groundfish fisheries the past 10 years.

As described above, achieving any of the bycatch limits will close all whiting fishery sectors. In addition, using bycatch limits helps to prevent the Pacific whiting fishery from affecting the non-whiting other groundfish fisheries. While fishery participants have generally demonstrated great sensitivity to the need to avoid rockfish and minimize their bycatch, so that all benefit from the total allowable catch, the relationships between the bycatch limit species and Pacific whiting are not well understood. Incidental catch tends to occur in rare and sporadic events. In some cases, large occurrences of canary and widow rockfish have been documented in single tows referred to

as “disaster tows”. Even one disaster tow can have severe consequences for all commercial whiting vessels and possibly the non-whiting groundfish fisheries.

A confounding issue for the whiting fishery is what has become known as the rebuilding paradox. As an overfished stock increases in abundance, it becomes more likely some of those fish will be caught, unless fishing effort is reduced. Depending on the particular rebuilding strategies, this could lead to even greater management restrictions in the future.

Generally speaking, for all sectors, bycatch of rockfish species occurs at a higher rate in the spring than later in the year (National Marine Fisheries Service Northwest Regional Office, 2007a.). An accelerated race for fish early in the season, due to new entrants or increased capacity by existing participants, is likely to result in greater emphasis on maximizing individual catches of the available whiting as quickly as possible without time or opportunity to refine methods to minimize the catch of bycatch limit species or Chinook salmon. Indeed, if bycatch limits in the whiting fishery are greatly exceeded, there could be pressure to further constrain non-whiting fisheries to ensure that total bycatch does not exceed the levels set by the Council. This could be devastating to the non-whiting groundfish fisheries that have already declined to less than 50-60 percent of historic levels due to fishery controls to rebuild overfished stocks.

The overcapacity and the associated race for fish are often associated with the potential for increased fishery waste. The yield per fish in usable meat for surimi and the marketability of the fish for direct consumption both improve as the fish recover from spawning in the spring. This is why the cooperative vessels generally focus on fishing later in the season. To the extent new vessels enter the fisheries and promote earlier fishing in all sectors, whiting products will likely be less refined, resulting in less revenue and value from the fishery.

Increased levels of participation by eligible vessels may occur under any of the alternatives; however, the alternatives prohibit addition of new harvest capital through new entrants. Under status quo, the number of new entrants is limited by the number of available limited entry permits with trawl endorsements. In addition, changes in OYs for Pacific whiting and constraining bycatch limits species, market conditions, profitability relative to each vessels operational costs, and other economic factors will drive the number of new vessels that may choose to enter the fishery.

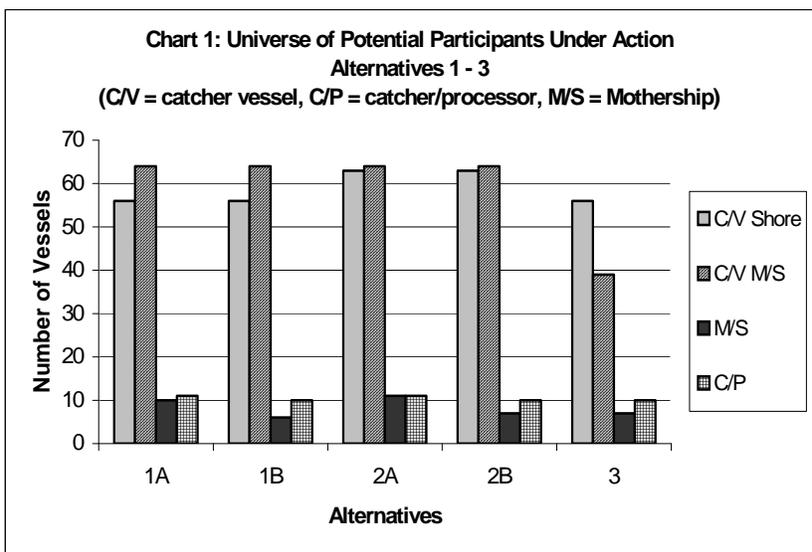
Under status quo, additional harvest capital may also be introduced in the fisheries by existing vessels, which could result in an accelerated race for fish. The harvest capacity on individual vessels may continue to increase if vessels acquire new permits to increase vessel size, or if more efficient harvest gear or equipment becomes available. The proposed Amendment 20 to the Pacific Groundfish Fishery Management Plan examines the creation and implementation of a capacity rationalization plan that increases net economic benefits, creates individual economic stability, provides for full utilization of the trawl sector allocation, considers environmental impacts, and achieves individual accountability of catch and bycatch. If the whiting fishery is rationalized under Amendment 20, the proposed action under Amendment 15 would be an interim measure. Nothing under status quo limits the entrance of new shore-based processors.

Since 1997, the fishery under status quo has been fairly stable, except for reduced participation

from 2002-2004 due to reduced OYs for Pacific whiting and a shift in the marketplace. As in many fisheries, when the fishery is stable, participants often know each other and have a shared interest in maintaining a stable fishery.

The total number of unique catcher vessels that would be qualified to participate in the Pacific whiting fishery, under either Alternative 1A or 1B, is 56 in the shore-based sector and 64 in the mothership sector. This is in contrast to 29 catcher vessels in the 2005 shore-based fishery and 18 catcher vessels in the mothership fishery. The total number of unique catcher/processors that would qualify to participate in the Pacific whiting fishery is 11 under Alternative 1A and 10 under Alternative 1B. This is in contrast to 6 catcher/processors in 2005. The total number of unique motherships that would qualify to participate in the Pacific whiting fishery, is 10 under alternative 1A and 6 under Alternative 1B, in contrast to 5 motherships that participated in 2005.

The total number of unique catcher vessels that would be qualified to participate in the Pacific whiting fishery, under either Alternative 2A or 2B, is 63 in the shore-based sector and 64 in the mothership sector. This is in contrast to 37 catcher vessels in the 2006 shore-based fishery and 20 catcher vessels in the 2006 mothership fishery. The total number of unique catcher/processors that would qualify to participate in the



Pacific whiting fishery is 11 under Alternative 2A and 10 under Alternative 2B. This is in contrast to the 9 catcher/processors that participated in 2006. The total number of unique motherships that would qualify to participate in the Pacific whiting fishery is 11 under Alternative 2A and 7 under Alternative 2B, in contrast to 6 motherships that participated in 2006.

The total number of unique catcher vessels that would be qualified to participate in the Pacific whiting fishery, under Alternative 3 is 56 in the shore-based sector and 39 in the mothership sector. The total number of unique catcher/processors that would qualify to participate in the Pacific whiting fishery is 10 under Alternative 3. The total number of unique motherships that would qualify to participate in the Pacific whiting fishery is 7 under Alternative 3. In 2006, there were 37 boats participating in the shore-based sector and 14 processors. At sea participation consisted of 9 catcher/processors, 6 motherships, and 20 mothership catcher vessels.

Under Alternatives 1A, 1B, 2A, 2B, and 3, the number of vessels eligible to enter the fishery is greater than the number that has operated in the fishery in recent years. For the shore-based sector, buyback vessels that qualified under each alternative were easily identified and removed from the set of effective vessels. However, qualifying vessels that no longer hold limited entry

permits with a trawl endorsement, vessels that have sunk or are rendered inoperable were not identified.

Vessels that have not been active in the whiting fishery in recent years, but qualify under the proposed alternatives, could choose to re-enter the fishery. These vessels could increase harvest capacity over trends seen in recent years. The decision to participate in the whiting fishery would be based on the available limited entry permits, adequate for the size of the vessel, with trawl endorsements and costs to secure those permits through lease or purchase. Additional factors determining participation include market conditions for whiting products, processor capacity (both shorebased and at-sea), cost of gear, opportunity in other West Coast groundfish fisheries and other fishing opportunities such as the BSAI pollock fishery. The Pacific whiting OY and overfished species constraints may also effect the decision to participate in the fishery. Additionally, vessels that do not have recent history of participation in recent years may speculate on future fishery benefits under Amendment 20 or other potential management programs and re-enter the whiting fishery in an attempt to secure those benefits.

The status quo alternative would likely have adverse impacts on other fisheries, and especially other groundfish fishing sectors. If significant new entry to the whiting fishery were to occur such that there was an accelerated race for fish, then the whiting fishery likely would close early, due to either early achievement of the whiting quota or early achievement of a rockfish bycatch limit. An early closure of the whiting fishery would reduce the harvest and ex-vessel value of the fishery because the yield per fish is lower earlier in the year. It is also important to note that if a rockfish bycatch limit is reached, even if only by one sector, fishing by all sectors of the whiting fishery must cease.

In the case of an early closure of the whiting fishery it should also be expected that some of the fishing effort previously directed at whiting would be shifted to other groundfish fishery sectors, increasing the competition in those already stressed fishery sectors. Further, if rockfish bycatch limits for the whiting fishery were exceeded, then additional limits on groundfish fishery sectors targeting healthy stocks would need to be implemented to ensure that the overall catch and mortality of overfished rockfish stocks would not be grossly exceeded. The Council is committed to taking action to rebuild overfished rockfish stocks to carry out rebuilding plans. The Council will further restrict sectors taking healthy stocks to ensure that overall rockfish limits are not exceeded, which would reduce the harvests and values of the non-whiting groundfish stocks.

Under the action alternatives, fishing effort could increase, but could only increase to a level below that which could occur under the status quo. It is still possible that such an increase in effort could potentially result in early closure for the same reasons as under the status quo; however, the situation would not be exacerbated by additional entrants who might potentially join the fishery under the status quo.

Under alternatives other than the status quo, fishing effort could increase, but could only increase to a level below that which could occur under the status quo. It is still possible that such an increase in effort could result in early closure for the same reasons as under the status quo; however, the situation would not be exacerbated by additional entrants who might join the fishery under the status quo. To the degree that reducing the overall universe of potential

whiting fishery participants provides increased access to allowable whiting harvest levels and increases the value of the fishery to participants and fishing communities, Alternative 3 could be expected to have the greatest beneficial effect on the socio-economic environment (56 shore-based catcher vessels, 39 mothership catcher vessels, 7 motherships, 10 catcher/processors), followed by Alternative 1 (56 shore-based catcher vessels, 64 mothership catcher vessels, 10 motherships under 1A and 6 motherships under 1B, 11 catcher/processors under 1A and 10 catcher/processors under 1B), followed by Alternative 2 (63 shore-based catcher vessels, 64 mothership catcher vessels, 11 motherships under 2A and 7 motherships under 2B, 11 catcher/processors under 2A and 10 catcher/processors under 2B), followed by status quo, where participation is limited only by the availability of limited entry trawl permits.

The continued functioning of a whiting cooperative is expected to keep harvesting and bycatch avoidance by the catcher-processor segment relatively efficient under the alternatives compared to the status quo, provided the cooperative is preserved.

It is possible, but unlikely, that substantial increases in OY might lead to a short-run situation where harvesters and processors might not have adequate capacity to take fish when they are schooled and available. As mentioned earlier, according to the recent NMFS document on reducing capacity in U.S. managed fisheries (U.S. Department of Commerce, 2006), the whiting fishery has been judged to be “overcapacity” under expected levels of output. The degree of overcapacity for the whiting fishery estimated in (Department of Commerce, 2006) also suggests that even if vessels age, leave the fishery or are lost at-sea, there would still be adequate capacity to harvest the OY. Additionally, the forecast from the recent whiting stock assessment provides no such indication of an OY larger than current capacity.

4.3.3 Changes in the Economic Situation of Vessels, Processors and the Fishing Communities Associated with the Pacific Whiting Fishery

Every assessment of potential management strategies includes a “no action” baseline against which other alternatives are compared. Under the “no action” alternative, any eligible vessel registered to a limited entry permit with a trawl endorsement could enter one or more sectors of the Pacific whiting fishery in 2008.

As mentioned above in section 4.3.2, the whiting fishery has been estimated to be in an “overcapacity” status by the U.S. Department of Commerce (2006). Given this conclusion, it is not likely that the alternatives to the status quo would do much more than remove the chances a further degree of “overcapacity” would be reached in the whiting fishery compared to the status quo.

Under the status quo that prevailed before 2007, it is likely that the number of vessels participating in each sector would be increased because of increasingly high prices for whiting products and the associated high ex-vessel prices. As each sector is allocated a specific amount of whiting, new entrants to the fishery would cause average revenues per vessel to be reduced and likely raise the total costs of harvesting, as theoretically the catch per unit of effort would also be reduced. If the whiting fishery closed early, whiting vessels would suffer reduced harvests and ex-vessel revenues because the yield per fish is lower earlier in the year. If, as a

result of new entrants, bycatch rates increased so as to cause an early closure of the fishery, all sectors could suffer economic losses.

The status quo alternative, since it could adversely affect other fisheries, would have adverse economic effects overall as well. The adverse effects would be felt by West Coast-based fishers who would face increasing competition for catch in the non-whiting sectors; by West Coast-based fishers in the whiting fleet who do not have the ability to relocate to other areas or to shift to other groundfish sectors except at high cost; by fishers in other groundfish fishing sectors who would be faced with greater competition for catches in healthy stocks if there were shifts of effort from whiting to those other stocks; by fishers in any groundfish fishing sectors that would have to be further limited in fishing for healthy stocks because of overages of rockfish bycatch in the whiting fishery; and by coastal and at-seas processors who would have less product to work with and/or a shorter season in which to process whiting, or who would have to pay higher prices to obtain supplies of whiting from the fleet.

Such changes would also exacerbate fishing community problems (both social and economic) arising from declines that have already occurred in other groundfish fishery sectors (e.g., the flatfish trawl fishery and the non-trawl fisheries for groundfish). The magnitude of these impacts cannot be determined with precision due to the inability to predict how fishers and processors will react to different situations, and how prices or costs will change in the future with and without the proposed action. However, all other things being equal, the no action alternative will have adverse economic effects across the shorebased fishing communities compared to the proposed action.

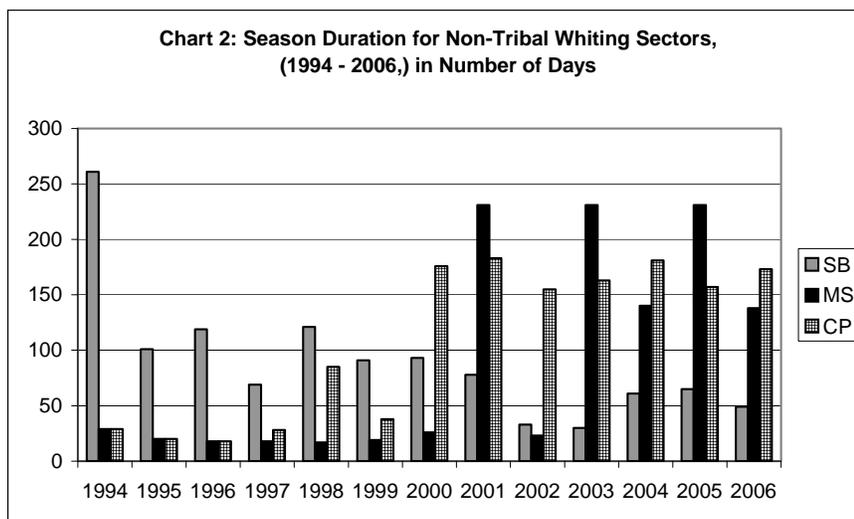
The alternatives, as compared to the status quo, are expected to provide comparative economic benefits to current fishery participants and fishing communities by reducing the potential for an accelerated race for fish, and by reducing the potential for additional disruption to the fishery, other fisheries, and fishing communities from premature season closures. By roughly maintaining the current state of capacity, average revenues per vessel in each sector would not be reduced by newly eligible entrants. Similarly, total aggregated fleet fishing costs would probably not increase simply because of new entrants in 2008 and later years. Associated impacts on the shoreside processing sector and on dependent fishing communities would be avoided. Because the whiting fishery is already overcapacity, adoption of alternatives other than the status quo would at least not create further overcapacity from additional new entry to the fishery by vessels looking for short-term gain at the expense of those with a long-standing interest in the fishery. Table 31 summarizes the number of vessels eligible to participate by sector for each of the action alternatives.

Table 31. Summary of Numbers of Eligible Vessels by Sector and Alternative

Vessel Category	Alternative 1A 1/1/94-1/1/06	Alternative 2A 1/1/94-1/1/07	Alternative 3 1/1/97-1/1/07
Shore-based catcher vessels	56 [68] ¹	63 [75] ¹	56 [65] ¹
Mothership catcher vessels	64	64	39
Catcher/processor	11	11	10
Mothership	10	11	7
	Alternative 1B 1/1/97-1/1/06	Alternative 2B 1/1/97-1/1/07	
Catcher/processor	10	10	
Mothership	6	7	

¹Numbers in brackets indicate the actual number of vessels qualified, including those purchased during the buyback program.

In the context of the proposed action, the fishery sector of greatest concern may be the shore-based sector. This arises from the value of this sector to the communities in which whiting processing has become an important part of the local economic structure, in some respects replacing or mitigating lost processing capacity due to cutbacks in other groundfish fishery sectors. The concern is that, with an accelerated race to fish, the duration of the fishing season will be further shortened. The shorter the season, the less employment benefit and the less the whiting fishery can mitigate for or replace other lost groundfish fishery activities. Tables 12, 13, and 15 as well as Chart 2 present a summary of operational data on whiting fishery from 1994-2006.



To the degree that reducing the overall universe of potential whiting fishery participants increases the economic benefit that the fishery can provide to vessels, processors and fishing communities, Alternative 3 could be expected to have the greatest beneficial effect on the socio-

economic environment (56 shore-based catcher vessels, 39 mothership catcher vessels, 7 motherships, 10 catcher/processors), followed by Alternative 1 (56 shore-based catcher vessels, 64 mothership catcher vessels, 10 motherships under 1A and 6 motherships under 1B, 11 catcher/processors under 1A and 10 catcher/processors under 1B), followed by Alternative 2 (63 shore-based catcher vessels, 64 mothership catcher vessels, 11 motherships under 2A and 7 motherships under 2B, 11 catcher/processors under 2A and 10 catcher/processors under 2B, followed by status quo, where participation is limited only by the availability of limited entry trawl permits.

4.3.4 Changes in Participation Requirements, Restrictions, Licensing

Under the status quo, no changes in participation requirements, restrictions or licensing would occur, other than whiting certification being proposed for the shore-based under Amendment 10. Participation requirements would be specified under Alternatives 1A, 1B, 2A, 2B or 3. Requirements would be in terms of qualifying period dates in the whiting fishery. NMFS would maintain a list of eligible participants. Vessels may be required to provide proof of participation during the qualifying periods. Under Alternatives 1A, 1B, 2A, 2B catcher/processors and motherships may need to show evidence of “significant participation”.

Under any of the action alternatives, costs to NMFS are expected to increase, since the agency would need to implement a historical participation review and whiting certification application process. Some of the costs associated with implementing Amendment 15 may be reimbursed by the whiting certification recipients, in the form of permit fees.

4.3.5 Changes in Revenue and Cost to State and Federal Governments

Revenue to the state governments is primarily determined by the Pacific whiting OY and the availability and successful avoidance of overfished species. As mentioned earlier, under all alternatives, the ABCs and OYs for Pacific whiting will continue to be set annually and will be based on the best scientific information available and based on the sustainability principles of the Magnuson-Stevens Act or the U.S.-Canada Pacific Whiting Treaty. The ABCs and OYs for overfished species will continue to be based on overfished species rebuilding plans adopted under Amendment 16-4 regulations (71 FR 78638, December 29, 2006). The action alternatives will not effect the Pacific whiting OY or bycatch limits and how they relate to government revenue.

Market conditions for whiting are a significant factor in determining cost and revenue to the state and federal governments. Action alternatives are not likely to influence the market and the associated government revenues.

Catch fee revenue from shorebased harvesters and processors accruing to state governments may decline if the status quo situation resumes in 2008, and additional harvesting capacity results in an earlier closure of the fishery than under the alternatives. State income tax revenue from residents of fishing communities are likely to decline if the income of harvesters, processors and their employees declines in response to earlier whiting fishery closures or to the more restrictive

fishing regulations that may become necessary if new entrants are permitted. The consequences of excess harvest capacity also include increasingly restrictive management that can be quite costly in terms of the expenditures required to support management and regulation (Department of Commerce, 2006). State and federal government costs of regulation may also increase under the status quo if monitoring and regulatory actions occur earlier and more frequently in both the whiting and non-whiting groundfish fisheries.

To the degree that reducing the overall universe of potential whiting fishery participants positively affects state catch fee revenues from harvesters and processors, Alternative 3 could be expected to have the greatest beneficial effect for state governments (56 shore-based catcher vessels, 39 mothership catcher vessels, 7 motherships, 10 catcher/processors), followed by Alternative 1 (56 shore-based catcher vessels, 64 mothership catcher vessels, 10 motherships under 1A and 6 motherships under 1B, 11 catcher/processors under 1A and 10 catcher/processors under 1B), followed by Alternative 2 (63 shore-based catcher vessels, 64 mothership catcher vessels, 11 motherships under 2A and 7 motherships under 2B, 11 catcher/processors under 2A and 10 catcher/processors under 2B, followed by status quo, where participation is limited only by the availability of limited entry trawl permits. As discussed above in 4.3.4, costs to NMFS associated with implementing a license limitation program would increase under all of the action alternatives; however, NMFS anticipates that these costs would be greatest in the first year of implementation, when vessel qualifications must be reviewed, and would decrease in subsequent years.

4.3.6 Environmental Justice

The proposed alternatives, other than a return to the status quo in 2008, will probably have no significant impacts or implications in terms of environmental justice. As noted in 4.3.3, it is highly likely that not restricting entry to the whiting fishery would result in adverse effects on other fisheries. If so, this could exacerbate problems arising from declines that have already occurred in other groundfish fishery sectors (e.g., flatfish trawl fishery and non-trawl fisheries for groundfish). This would most likely have greater socio-economic effects on fishermen who are less educated and have fewer employment options. There also could be adverse impacts on shorebased processors, whose employees would typically be persons with lower educational levels and lower incomes, and who would also have fewer employment alternatives. Fishing communities that depend on the non-whiting groundfish fisheries and the shore-based whiting fishery would be adversely affected economically and socially as a result of higher unemployment among fishermen, processor employees and dependent secondary employment in the communities.

4.4 Cumulative Effects

Cumulative effects of the alternatives must be considered. Cumulative impacts are those combined effects on quality of human environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what Federal or non-federal agency undertakes such actions (40 CFR 1508.7, 1508.25 (a), and 1508.25 (c)).

Of the past, proposed, and reasonably foreseeable future actions that are expected to also affect these same waters, the most significant is the action to the implementation of Pacific Coast groundfish fishery management measures. Fishing for Pacific whiting occurs in the same waters and affects the same habitats as fishing for other Pacific Coast groundfish species. The effects of the 2007-2008 groundfish specifications and management measures have been described and analyzed by Council staff in an Environmental Impact Statement (PFMC and NMFS, 2006).

Actions considered in this EA for Pacific whiting management are not expected to have effects on the environment that, when considered in combination with groundfish specifications and management measures, measurably alter the effects of the groundfish specifications and management measures. The alternatives are intended to minimize the potential economic and environmental harm to the Pacific whiting fishery from adverse impacts caused by unlimited entry into the fishery. This is consistent with Pacific Coast groundfish fishery management.

Amendment 15, whiting limitation, could be minimal provided it is followed with a subsequent management program to further constrain capacity in the whiting fishery. Amendment 15 is intended to be an interim measure until the Council completes Amendment 20, West Coast trawl rationalization. Therefore, the cumulative effects under Amendment 15, whiting limitation, could be minimized over the long-term, and potentially eliminated if it is replaced with an overall trawl fishery rationalization program.

As discussed above, the Council has recommended implementing a regulatory program to implement a maximized retention and monitoring program for the shore-based whiting sector for 2008 and beyond. Depending on the Council's preferred alternative under Amendment 15, the Council's recommendations for an annual whiting endorsement for participants in the shore-based sector may be somewhat modified. In particular, the maximized retention and monitoring program did not consider limiting participation in the shore-based sector, but instead assumed that whiting endorsements would be issued annually to any applicants. The effects of modifying this program with the preferred alternative from Amendment 15 are expected to be minimal because NMFS anticipates that it could implement both programs simultaneously in order to minimize confusion for the public.

[Insert cumulative effects for the Council preferred alternative]

In the event the status quo alternative is chosen for trawl rationalization, the Council would need to reconsider the harvest capacity in the Pacific whiting fishery relative to resource productivity. In the event trawl rationalization is not completed, the expected cumulative effects of this action are expected to be:

- Non-existent for the physical environment, since the areas fished and gear type used are not expected to change as a result of this action, and since mid-water trawl gear is assumed to have fewer habitat-altering properties than bottom gear.
- Effects on the biological environment resulting from fishery management actions primarily include changes in species mortality levels, while still within the allowable harvest levels, resulting from implementation of the alternatives. Implementation of the action alternatives is expected to have neutral to positive effects on species mortality levels to the extent that bycatch is more likely less than it would be under the no action

alternative. Increased fishing effort could lead to an increase in interactions between fishing vessels and protected species, while a decrease in fishing effort would have the opposite effect (PFMC, 2004). Alternative actions decrease the potential for harvest limit overruns that can result from the difficulty of monitoring catches during short fishing seasons. The action alternatives would be more likely to provide additional protection to overfished species of rockfish and to endangered or threatened salmon by prohibiting entry and diminishing the likelihood of an accelerated race for fish as compared to no action. To the extent the alternatives result in lower rockfish bycatch, there will be less likelihood of an early closure of the whiting fishery and a shift of effort from whiting to other groundfish, so that the pressure on these other stocks will not increase above the status quo level. To the extent that the number of actual participants is lower in the future than it has been in the past, those participants may be more willing to cooperate with each other to minimize bycatch in the whiting fishery. If bycatch amounts or rates decrease as a result of this action, the cumulative effects of this action, in combination with the fishery specifications and management measures, would be expected to be beneficial to bycatch species abundance levels.

- Significant for the socio-economic environment, since, as mentioned above, new entrants could come into the fishery. It should be noted that the action may not reduce the effort of eligible fishery participants while it would certainly reduce the universe of potential participants. The number of actual participants in the fishery in any given year may be more strongly correlated to the whiting OY in that year and to ex-vessel prices for whiting. To the extent that an increase in the number of fishery participants is precluded, this action may provide more stability for fishery participants, and for fishing communities that participate in the whiting fisheries when OYs and prices might produce and attract new entrants to the fishery.

5.0 CONSISTENCY WITH THE FMP AND OTHER APPLICABLE LAWS

5.1 Consistency with the FMP

The socio-economic framework in the FMP requires that proposed management measures and viable alternatives be reviewed and consideration be given to the following criteria: a) how the action is expected to promote achievement of the goals and objectives of the FMP; b) likely impacts on other management measures; c) biological impacts; d) and economic impacts, particularly the cost to the fishing industry; and e) accomplishment of one of a list of criteria defined in Section 6.2.3 of the FMP.

The alternative actions are consistent with goals and objectives of the FMP as discussed below.

Goal 1 Conservation

Objective 1. Maintain an information flow on the status of the fishery and the fishery resource which allows for informed management decisions as the fishery occurs.

The alternative actions will assist in maintaining a more stable whiting fishery compared to that under status quo. Alternative actions will continue the existing data collection burden. Preventing an accelerated race for fish limits the potential for additional difficulties in monitoring the fishery

and obtaining quality data on catch, effort, and bycatch. Alternative actions decrease the potential for harvest limit overruns that can result from the difficulty of monitoring catches during short fishing seasons.

Objective 2. Adopt harvest specifications and management measures consistent with resource stewardship responsibilities for each groundfish species or species group. Achieve a level of harvest capacity in the fishery that is appropriate for a sustainable harvest and low discard rates, and which results in a fishery that is diverse, stable, and profitable. This reduced capacity should lead to more effective management for many other fishery problems.

The proposed actions limit capacity in the Pacific whiting fishery by reducing the number of potential fishery participants. These actions would not change harvest specifications or management measures. An accelerated race for fish, like that which would ensue under the no action alternative, does not promote resource stewardship or sustainable fishing. The action alternatives limit competition, which provides a greater opportunity (i.e., time) to reduce unwanted incidental catch and minimize waste, resulting in a fishery that is more stable and profitable. Slowing the race for fish, with the proposed action alternatives, will also limit the number and timing of entrants into other West Coast groundfish fisheries that are also operating under strict overfished species limits. Limiting the overall impacts to overfished species and endangered or threatened species is expected to aid in the success of the rebuilding plans. Further, the alternatives limit disruption to the existing whiting cooperatives that have been successful at minimizing bycatch. Action alternatives promote sustainable harvest by reducing the possibility of harvest limit overruns that can result from the difficulty of monitoring catches during short fishing seasons.

Goal 3 - Utilization.

Objective 9. Develop management measures and policies that foster and encourage full utilization (harvesting and processing), in accordance with conservation goals, of the Pacific Coast groundfish resources by domestic fisheries.

The alternative actions, by limiting entry, promote conditions in the fishery such that focusing fishing effort later in the season is favorable. The yield per fish in usable meat for surimi and the marketability of the fish for direct consumption both improve as the fish recover from spawning in the spring, therefore under the alternative actions there is likely to be more production of whiting products along with revenue and value from the fishery. Action alternatives effectively slow the race for fish, which should improve the handling and processing of whiting, resulting in full utilization of the catch.

Objective 11. Develop management programs that reduce regulations-induced discard and/or which reduce economic incentives to discard fish. 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. Promote and support monitoring programs to improve estimates of total fishing-related mortality and bycatch, as well as those to improve other information necessary to determine the extent to which it is practicable to reduce bycatch and bycatch mortality.

Under the alternative actions there is less likelihood of an accelerated race for fish in which participants may be less likely to avoid areas and times in which rockfish and salmon bycatch would be higher. Therefore, the action alternatives may minimize the interactions of the fishery with non-target species and associated mortality of incidental catch.

Objective 14. When considering alternative management measures to resolve an issue, choose the measure that best accomplishes the change with the least disruption of current domestic fishing practices, marketing procedures, and the environment.

The proposed alternatives are intended, in part, to constrain the universe of potential Pacific whiting fishery participants to those vessels with some historic level of participation in the fishery. By preventing entry of new vessels into the fishery and excessive fleet growth, Amendment 15 ensures continued participation by those vessels with Pacific whiting history, and may minimize future disruption to current domestic fishing practices and marketing procedures.

Furthermore, the Pacific whiting fishery is currently managed under a limited entry system, in addition to the West Coast limited entry program, via the May 2007 emergency rule (72 CFR 27759). Therefore, the least disruption of current fishing practices, marketing procedures, and the environment would occur through the alternative actions. The no action alternative could result in shorter seasons, economic waste, unsafe fishing conditions, and more complicated resource management and conservation efforts.

Objective 15. Avoid unnecessary adverse impacts on small entities.

As with Objective 14, preventing the entry of new vessels into the fishery and excessive fleet growth is expected to minimize potential future adverse impacts to small entities that could result from participating in a greater competitive pool than under status quo.

Objective 16. Consider the importance of groundfish resources to fishing communities, provide for the sustained participation of fishing communities, and minimize adverse economic impacts on fishing communities to the extent practicable.

By preventing new entry to the whiting fishery, the alternatives will minimize adverse impacts on fishing communities to the extent practicable. Action alternatives may enable harvesters and processors to continue to participate at about the current pace, depending on how many eligible vessels decide to participate in future fisheries. Failure to prevent new entry would be expected to reduce the current harvest and processing levels, either due to excessive bycatch of overfished rockfish species or endangered or threatened salmon, or due to the accelerated race to fish that would be more likely to occur under the status quo.

Objective 17. Promote the safety of human life at sea.

The alternative actions are intended to limit the entry and constrain future participation in the Pacific whiting fishery. The accelerated race for fish, or derby fishing, which is often a consequence of overcapacity in a fishery, will be lessened by limiting access. Derby fishing compromises vessel safety at sea, as vessels may fish in unsafe conditions to get as much as

possible, as quickly as possible. Under the alternative actions there would be less competition for the available harvest, thus less incentive to fish and take risks in dangerous conditions.

5.2 Magnuson-Stevens 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. Section 104-297 of the Magnuson-Stevens Act defines the term “optimum”, with respect to the yield from the fishery, as the amount of fish which

- (A) will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities, and taking into account the protection of marine ecosystems;
- (B) is prescribed as such on the basis of the maximum sustainable yield from the fishery, as reduced by any relevant economic, social, or ecological factor; and
- (C) in the case of an overfished fishery, provides for rebuilding to a level consistent with producing the maximum sustainable yield in such fishery.

Action alternatives under Amendment 15 are designed to limit access in the whiting fishery, which should provide the greatest overall benefit to the Nation and considers the relevant economic, social, and ecological factors.

Further Magnuson-Stevens states that Councils can

(6) establish a limited access system for the fishery in order to achieve optimum yield if, in developing such system, the Council and the Secretary take into account--

- (A) present participation in the fishery,
- (B) historical fishing practices in, and dependence on, the fishery,
- (C) the economics of the fishery,
- (D) the capability of fishing vessels used in the fishery to engage in other fisheries,
- (E) the cultural and social framework relevant to the fishery and any affected fishing communities, and
- (F) any other relevant considerations;

Currently, entry into the West Coast groundfish fisheries is governed by a limited entry system and action alternatives would further limit entry into the whiting fishery. The alternatives consider present participation in the fishery (end dates through 2005 and 2006) as well as historical fishing practices in, and dependence on, the fishery, (start dates 1994 or 1997 as well as poundage requirements for catcher/processors and motherships). The EA explores the economics of the fishery and the impacts of the status quo alternative (i.e., participation limited only by the current LE permit). The EA also discusses the capability of fishing vessels used in the fishery to engage in other fisheries, and potential impacts on those fisheries. Finally, the cultural and social framework relevant to the fishery and affected fishing communities are discussed.

Overarching principles for fisheries management are found in the Act's National Standards. The alternative actions consistency with these standards is discussed below.

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 U.S. fishing industry.

Alternative action decrease the potential for harvest limit overruns that can result from the difficulty of monitoring catches during short fishing seasons. The alternative actions should help prevent conditions that would risk the rebuilding of overfished rockfish stocks or the biological opinion for endangered or threatened salmon. To the extent that the proposed actions results greater within fleet cooperation, the actions, compared to status quo, have a greater likelihood of allowing the whiting and other groundfish fishing sectors to achieve optimum yields.

National Standard 2 requires the use of the best available scientific information.

None of the alternatives considered under this action are expected to affect the collection or use of scientific information in the management of the Pacific whiting fishery.

National Standard 3 requires, to the extent practicable, that an individual stock of fish be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.

The Pacific whiting fishery is managed as a stock throughout its range as agreed upon by the U.S. and Canada. The alternative actions would not affect the management of the stock in this regard.

National Standard 4 requires that conservation and management measures not discriminate between residents of different States.

The alternative actions would not discriminate between residents of different States. The prohibition of new entry in the fishery would apply to any and all U.S. vessels.

National Standard 5 addresses efficiency in the utilization of fishery resources.

This action is intended to restrict the universe of potential participants in the whiting fishery. To the extent that the action alternatives can reduce the number of actual annual participants, this action is expected to result in a more efficient utilization of fishery resources.

National Standard 6 requires that conservation and management measures take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.

This action affects each of the non-tribal whiting sectors, and would require sector-specific catch history qualifications for future participation in the fishery.

National Standard 7 requires that conservation and management measures minimize costs and avoid unnecessary duplication.

Although this action is seen as an interim measure to be implemented during the development of Amendment 20, it is exclusive from Amendment 20 and from any other action, and none of the alternatives considered mirror action alternatives under development for Amendment 20.

National Standard 8 provides protection to fishing communities by requiring that conservation and management measures be 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.

By requiring vessels to meet historic participation qualifications in order to be permitted to participate in future years' fisheries, this action is intended to ensure that the universe of potential fishery participants is stabilized. The more stable potential universe of fishery participants is expected to maintain historic vessel connections to particular West Coast fishing communities.

Additionally, the alternative actions have less likelihood to result in early closure of the fishery which may lead to periods in which vessels are forced to sit idle and even serious disruption of processing facilities, both of which can mean adverse economic impacts to fishing communities.

National Standard 9 requires that conservation and management measures minimize to the extent practicable, bycatch and minimize the mortality of bycatch.

The alternative actions would serve to reduce bycatch by reducing the pressure for vessels to fish in areas and times when bycatch would be higher.

National Standard 10 Conservation and Management measures shall, to the extent practicable, promote the safety of human life at sea.

The alternative actions promote a stable and well-paced fishery. The accelerated race for fish, or derby fishing, which is often a consequence of overcapacity in a fishery, will be avoided by limiting access. Derby fishing compromises vessel safety at sea, as vessels may fish in unsafe conditions to get their share as quickly as possible. Under the alternative actions there will be less competition for the available harvest, thus less incentive to fish and take risks in dangerous conditions.

5.3 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 Pacific Coast groundfish FMP fisheries 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 spring, California coastal), coho salmon (Central California coastal, southern Oregon/northern California coastal), chum salmon (Hood Canal summer, 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). These biological opinions have concluded that implementation of the FMP for the Pacific Coast groundfish fishery was 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 reinitiated a formal Section 7 consultation under the ESA in 2005 for both the Pacific whiting midwater trawl fishery and the groundfish bottom trawl fishery. The December 19, 1999 Biological Opinion had defined an 11,000 Chinook incidental take threshold for the Pacific whiting fishery. During the 2005 Pacific whiting season, more than 11,000 Chinook were taken, triggering reinitiation. NMFS prepared a Supplemental Biological Opinion dated March 11, 2006, which addressed salmon take in both the Pacific whiting midwater trawl and groundfish bottom trawl fisheries. In that Supplemental Biological Opinion, NMFS concluded that catch rates of salmon in the 2005 Pacific whiting fishery were consistent with expectations considered during prior consultations. Chinook bycatch has averaged about 7,300 fish over the last 15 years and has only occasionally exceeded the reinitiation trigger of 11,000. Since 1999, annual Chinook bycatch has averaged about 8,450 fish. The Chinook ESUs most likely affected by the Pacific whiting fishery have generally improved in status since the 1999 Section 7 consultation.

Although these species remain at risk, as indicated by their ESA listing, NMFS concluded that the higher observed bycatch in 2005 does not require a reconsideration of its prior "no jeopardy" conclusion with respect to the fishery. For the groundfish bottom trawl fishery, NMFS concluded that incidental take in the groundfish fisheries is within the overall limits articulated in the Incidental Take Statement of the 1999 Biological Opinion. The groundfish bottom trawl limit from that opinion was 9,000 fish annually. NMFS will continue to monitor and collect data to analyze take levels. NMFS also reaffirmed its prior determination that implementation of the Groundfish FMP is not likely to jeopardize the continued existence of any of the affected ESUs.

Lower Columbia River coho (70 FR 37160, June 28, 2005) and the Southern Distinct Population Segment (DPS) of green sturgeon (71 FR 17757, April 7, 2006) were recently listed as threatened under the ESA. As a consequence, NMFS has reinitiated its Section 7 consultation on the Council's Groundfish FMP. Green sturgeon have been caught with midwater trawl gear in the commercial non-tribal Pacific whiting fishery, however it is unlikely that the green sturgeon caught were from the ESA-listed southern DPS (south of the Eel River, California, 40/40' N. lat.), as all documented catches were north of 44/49' N. lat. After reviewing the available information, NMFS concluded that, in keeping with Section 7(a)(2) of the ESA, allowing the fishery to continue under this action would not result in any irreversible or irretrievable commitment of resources that would have the effect of foreclosing the formulation or implementation of any reasonable and prudent alternative measures.

The fishery as managed under proposed alternatives does not affect endangered/threatened species listed under the ESA or their habitat in any way that would alter the conclusions referenced above. The alternative actions would actually increase the probability of reduced salmon bycatch in the fishery as compared to the no action alternative.

5.4 Marine Mammal Protection Act

Under the MMPA, marine mammals whose abundance falls below the optimum sustainable population level (usually regarded as 60 percent of carrying capacity or maximum population size) can be listed as "depleted". Populations listed as threatened or endangered under the ESA are automatically depleted under the terms of the MMPA. Currently, the Stellar sea lion population off the West Coast is listed as threatened under the ESA and the fur seal population is listed as depleted under the MMPA. Incidental takes of these species in the Pacific Coast fisheries are well under their annual Potential Biological Removals. The West Coast groundfish fisheries are considered Category III fisheries, where the annual mortality and serious injury of a stock by the fishery is less than or equal to one percent of the PBR level. The alternative actions are not expected to affect the incidental mortality levels of species protected under the MMPA.

5.5 Coastal Zone Management Act

Section 307(c)(1) of the CZMA of 1972 requires all Federal activities that directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. The proposed action is consistent to the maximum extent practicable with applicable State coastal zone management programs. A copy of this document will be submitted to the State coastal zone agencies in Washington, Oregon and California with a request for consistency determinations.

5.6 Paperwork Reduction Act

Each of the action alternatives contains a collection-of-information requirement needed to verify qualification for future participation in the whiting fishery.

[insert summary of PRA burden]

5.7 Executive Order 12866

This action is not significant under 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.

5.8 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 U.S. 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) of the Magnuson-Stevens

Act, a seat on the Council is to be reserved 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. The alternative actions do not alter the treaty allocation of whiting, nor does it affect the prosecution of the tribal fishery.

5.9 Migratory Bird Treaty Act and Executive Order 13186

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 U.S., 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. The alternative actions are not likely to affect the incidental take of seabirds protected by the Migratory Bird Treaty Act.

Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds) is intended to ensure that each Federal agency taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations develops and implements a Memorandum of Understanding (MOU) with the U.S. Fish and Wildlife Service that shall promote the conservation of migratory bird populations. The alternative actions are not likely to have a measurable effect, if any, on migratory bird populations.

5.10 Executive Order 12898 (Environmental Justice) and 13132 (Federalism)

There is no specific guidance on application of E.O. 12898 to fishery management actions. The E.O. states that environmental justice should be part of an agency's mission "by identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority or low-income populations." The alternative actions do not target low income or minority communities; they would affect all populations segments equally. None of the alternative actions would have federalism implications subject to EO 13132.

6.0 REGULATORY IMPACT REVIEW AND REGULATORY FLEXIBILITY ANALYSIS

In order to comply with Executive Order (EO) 12866 and the Regulatory Flexibility Act (RFA), this document also serves as a Regulatory Impact Review (RIR). The RIR and Initial Regulatory Flexibility Analysis (IRFA) have many aspects in common with each other and with EAs. Much of the information required for the RIR and IRFA analyses has been provided above in the EA.

Table 32 identifies where previous discussions in the EA relevant to the IRFA/RIR may be found in this document.

Table 32 Regulatory Impact Review and Regulatory Flexibility Analysis

RIR Elements of Analysis	Corresponding Sections in EA	IRFA Elements of Analysis	Corresponding Sections in EA
Description of management objectives	1.3	Description of why actions are being considered	1.3
Description of the fishery	1.4, 3.0	Statement of the objectives of and legal basis for actions	1.1, 1.2, 1.3
Statement of the problem	1.3	Description of projected reporting, recordkeeping and other compliance requirements of the proposed action	
Description of each selected alternative	2.0	Identification of all relevant Federal rules	5.0, 6.0
An economic analysis of the expected effects of each selected alternative relative to status quo	4.3		

6.1 Regulatory Impact Review

EO 12866, Regulatory Planning and Review, was signed on September 30, 1993, and established guidelines for promulgating new regulations and reviewing existing regulations. The EO covers a variety of regulatory policy considerations and establishes procedural requirements for analysis of the benefits and costs of regulatory actions. The RIR provides a review of the changes in net economic benefits to society associated with proposed regulatory actions. The analysis also provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the alternative action that could be used to solve the problems.

The RIR analysis and the environmental analysis required by NEPA have many common elements, including a description of the management objectives, description of the fishery, statement of the problem, description of the alternatives and economic analysis, and have, therefore, been combined in this document. See Table 32 above for a reference of where to find the RIR elements in this EA.

The RIR is designed to determine whether the proposed action could be considered a “significant regulatory action” according to E.O. 12866. 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. These tests are whether the action would: 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; 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.

Based on results of the economic analysis contained in Section 4.3, alternative actions are not expected to be significant under E.O. 12866. This action will not have an annual 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. In addition, the alternative action is not

expected to: create a serious inconsistency or otherwise interfere with action taken or planned by another agency; materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or raise novel legal or policy issues arising out of legal mandates.

6.2 Initial Regulatory Flexibility Analysis

[To be completed]

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8.0 LIST OF PREPARERS

9.0 AGENCIES CONSULTED

10.0 FINDING OF NO SIGNIFICANT IMPACT

11.0 Appendix

Table A-1. Summary of Rockfish Bycatch by Year and Sector, 1994-2006.

1994				
ROCKFISH SPECIES	MOTHERSHIP	CATCHER/PROCESSOR	SHORESIDE	TOTAL
Bocaccio	0.20	1.29	0.00	1.49
Other rockfish	23.81	19.06	26.15	69.01
POP	33.02	28.54	10.77	72.33
Thornyheads	0.01	0.20	4.49	4.70
Canary	2.82	2.01	0.00	4.83
Yellowtail	408.90	210.93	255.30	875.12
Widow	191.68	185.49	245.80	622.97
Chilipepper	0.70	5.15	0.00	5.86
Shortbelly	1.08	0.82	0.00	1.91
TOTAL ROCKFISH	662.21	453.50	542.51	1,658.22
Mt whiting	91,925.94	87,146.60	73,512.68	252,585.22
Mt rockfish/mt whiting	0.007203712	0.005203875	0.007379798	0.00656498

1995				
ROCKFISH SPECIES	MOTHERSHIP	CATCHER/PROCESSOR	SHORESIDE	TOTAL
Bocaccio	0.04	0.34	0.00	0.38
Other rockfish	12.76	78.96	33.35	125.07
POP	30.51	13.28	0.19	43.98
Thornyheads	0.12	5.66	0.01	5.79
Canary	0.18	0.13	0.50	0.81
Yellowtail	708.32	84.60	290.06	1,082.98
Widow	155.28	85.25	236.46	476.99
Chilipepper	0.15	28.02	0.00	28.17
Shortbelly	7.24	2.92	0.00	10.16
TOTAL ROCKFISH	914.60	299.16	560.56	1,774.32
Mt whiting	40,586.00	61,572.00	74,884.51	177,042.51
Mt rockfish/mt whiting	0.022534864	0.004858702	0.007485603	0.01002198

1996

ROCKFISH SPECIES	MOTHERSHIP	CATCHER/PROCESSOR	SHORESIDE	TOTAL
Bocaccio	0.11	0.05	0.00	0.16
Other rockfish	14.77	20.73	42.11	77.61
POP	2.32	3.68	20.71	26.71
Thornyheads	0.00	1.93	0.10	2.03
Canary	1.14	0.08	0.67	1.89
Yellowtail	379.36	251.59	519.32	1,150.27
Widow	141.89	124.68	576.06	842.63
Chilipepper	0.00	0.00	0.00	0.00
Shortbelly	0.00	6.15	0.00	6.15
TOTAL ROCKFISH	539.59	408.89	1,158.97	2,107.45
Mt whiting	44,416.70	68,359.40	84,935.07	197,711.17
Mt rockfish/mt whiting	0.012148359	0.005981474	0.01364533	0.01065922

1997

ROCKFISH SPECIES	MOTHERSHIP	CATCHER/PROCESSOR	SHORESIDE	TOTAL
Bocaccio	0.15	0.06	0.00	0.21
Other rockfish	12.30	69.30	23.02	104.62
POP	1.46	1.82	6.23	9.51
Thornyheads	0.02	0.44	0.36	0.82
Canary	0.70	1.11	0.95	2.76
Yellowtail	174.04	116.11	226.48	516.63
Widow	133.88	73.33	160.21	367.42
Chilipepper	0.01	0.00	0.00	0.01
Shortbelly	0.28	0.48	0.01	0.77
TOTAL ROCKFISH	322.84	262.65	417.27	1,002.76
Mt whiting	50,402.00	70,771.00	87,143.80	208,316.80
Mt rockfish/mt whiting	0.006405301	0.003711266	0.004788257	0.00481362

1998

ROCKFISH SPECIES	MOTHERSHIP	CATCHER/PROCESSOR	SHORESIDE	TOTAL
Bocaccio	1.17	0.03	0.00	1.20
Other rockfish	19.79	42.57	45.54	107.90
POP	6.50	14.78	16.66	37.94
Thornyheads	0.01	2.51	0.20	2.72
Canary	2.46	0.25	0.86	3.57
Yellowtail	313.26	63.72	496.41	873.39
Widow	171.84	120.92	360.31	653.07
Chilipepper	0.01	0.00	0.00	0.01
Shortbelly	0.00	0.02	1.28	1.30
TOTAL ROCKFISH	515.04	244.80	921.26	1,681.10
Mt whiting	50,087.10	70,365.00	87,573.35	208,025.45
Mt rockfish/mt whiting	0.010282887	0.003479002	0.010519848	0.00808121

1999

ROCKFISH SPECIES	MOTHERSHIP	CATCHER/PROCESSOR	SHORESIDE	TOTAL
Bocaccio	0.07	0.25	0.00	0.32
Other rockfish	14.32	18.83	15.77	48.92
POP	4.44	9.71	1.05	15.20
Thornyheads	0.00	0.02	0.68	0.70
Canary	0.19	1.03	1.89	3.11
Yellowtail	253.26	430.87	475.09	1,159.22
Widow	47.70	101.25	195.18	344.13
Chilipepper	0.54	0.00	0.01	0.55
Shortbelly	0.00	0.00	5.50	5.50
TOTAL ROCKFISH	320.52	561.96	695.16	1,577.64
Mt whiting	47,580.25	67,679.89	83,302.77	198,562.91
Mt rockfish/mt whiting	0.006736408	0.008303205	0.008345039	0.00794531

2000

ROCKFISH SPECIES	MOTHERSHIP	CATCHER/PROCESSOR	SHORESIDE	TOTAL
Bocaccio	2.20	0.45	0.48	3.13
Other rockfish	29.06	91.28	18.91	139.25
POP	3.03	6.57	0.21	9.81
Thornyheads	0.14	18.93	2.43	21.50
Canary	0.56	0.86	1.09	2.51
Yellowtail	285.54	270.02	190.29	745.85
Widow	150.65	69.97	76.56	297.18
Chilipepper	4.83	0.00	27.67	32.50
Shortbelly	0.00	0.86	2.33	3.19
TOTAL ROCKFISH	476.01	458.94	319.98	1,254.93
Mt whiting	46,840.32	67,814.63	85,756.78	200,411.73
Mt rockfish/mt whiting	0.010162399	0.006767566	0.003731274	0.00626177

2001

ROCKFISH SPECIES	MOTHERSHIP	CATCHER/PROCESSOR	SHORESIDE	TOTAL
Bocaccio	0.09	0.21		0.30
Other rockfish	20.48	57.74	5.46	83.68
POP	0.05	19.69		19.74
Thornyheads	0.02	15.19	0.02	15.23
Canary	0.95	0.65	1.39	2.99
Yellowtail	91.82	33.16	101.62	226.60
Widow	29.19	139.71	44.04	212.94
Chilipepper	3.34	0.22	1.03	4.59
Shortbelly	27.28	0.04	0.62	27.94
TOTAL ROCKFISH	173.22	266.61	154.20	594.03
Mt whiting	35,823.00	58,627.62	73,293.52	167,744.14
Mt rockfish/mt whiting	0.004835441	0.004547515	0.002103826	0.00354127

2002

ROCKFISH SPECIES	MOTHERSHIP	CATCHER/PROCESSOR	SHORESIDE	TOTAL
Bocaccio	0.15	0.04	0.00	0.19
Other rockfish	1.11	19.44	0.36	20.91
POP	2.17	1.45	0.19	3.81
Thornyheads	0.00	11.91	0.03	11.94
Canary	0.81	1.59	0.43	2.83
Yellowtail	1.42	12.86	41.38	55.66
Widow	20.50	115.10	5.32	140.92
Chilipepper	1.92	2.97	0.52	5.41
Shortbelly	0.10	0.49	0.05	0.64
Darkblotched rockfish	0.93	2.19	0.01	3.13
TOTAL ROCKFISH	29.11	168.04	48.30	245.45
Mt whiting	26,593.29	36,341.41	45,278.79	108,213.49
Mt rockfish/mt whiting	0.001094637	0.004623926	0.001066686	0.00226819

2003

ROCKFISH SPECIES	MOTHERSHIP	CATCHER/PROCESSOR	SHORESIDE	TOTAL
Bocaccio	0.00	0.06	0.00	0.06
Other rockfish	0.59	24.15	0.88	25.62
POP	0.11	5.04	0.29	5.44
Thornyheads	0.15	15.50	0.08	15.73
Canary rockfish	0.08	0.17	0.11	0.36
Yellowtail rockfish	0.57	1.75	43.92	46.24
Widow rockfish	0.69	11.56	12.54	24.79
Chilipepper rockfish	1.15	0.11	9.54	10.80
Shortbelly rockfish	0.02	0.48	0.04	0.54
Darkblotched rockfish	0.10	4.21	0.26	4.57
TOTAL ROCKFISH	3.46	63.03	67.66	134.15
Mt whiting	26,021.00	41,214.00	51,099.25	118,334.25
Mt rockfish/mt whiting	0.00013297	0.001529335	0.00132407	0.00113364

2004

ROCKFISH SPECIES	MOTHERSHIP	CATCHER/PROCESSOR	SHORESIDE	TOTAL
Bocaccio	0.09	0.07	0.01	0.17
Other rockfish	0.69	25.13	5.76	31.58
POP	0.10	0.95	0.40	1.45
Thornyheads	0.01	5.62	0.39	6.02
Canary rockfish	4.11	0.48	1.16	5.75
Yellowtail rockfish	12.16	6.33	117.63	136.12
Widow rockfish	11.43	8.37	28.26	48.06
Chilipepper rockfish	0.88	1.10	20.60	22.58
Shortbelly rockfish	0.02	0.00	0.01	0.03
Darkblotched rockfish	3.02	4.36	0.84	8.22
TOTAL ROCKFISH	32.51	52.42	175.05	259.98
Mt whiting	24,102.02	73,174.96	89,437.70	186,714.68
Mt rockfish/mt whiting	0.001348712	0.000716309	0.001957278	0.00139238

2005

ROCKFISH SPECIES	MOTHERSHIP	CATCHER/PROCESSOR	SHORESIDE	TOTAL
Bocaccio	0.16	0.11	0.03	0.30
POP	0.86	0.78	0.15	1.79
Thornyheads	0.74	6.34	0.29	7.37
Canary rockfish	0.70	0.34	2.24	3.28
Yellowtail rockfish	25.52	47.44	172.69	245.65
Widow rockfish	35.50	43.14	77.24	155.88
Chilipepper rockfish	0.89	0.26	25.85	27.00
Shortbelly rockfish	2.68	0.01	0.00	2.69
Darkblotched rockfish	5.08	5.95	5.51	16.54
Other rockfish	18.81	40.42	5.62	64.85
TOTAL ROCKFISH	90.94	144.79	289.62	525.35
Mt whiting	48,571.23	78,889.57	97,574.52	225,035.32
Mt rockfish/mt whiting	0.001872302	0.00183535	0.002968164	0.00233451

2006

ROCKFISH SPECIES	MOTHERSHIP	CATCHER/PROCESSOR	SHORESIDE	TOTAL
Bocaccio	0.10	0.01	0.01	0.11
POP	1.88	0.75	0.03	2.65
Thornyheads	0.03	0.49	0.08	0.60
Canary rockfish	0.85	0.10	1.64	2.59
Yellowtail rockfish	59.28	3.41	155.88	218.58
Widow rockfish	71.80	66.99	49.51	188.29
Chilipepper rockfish	1.29	2.54	12.65	16.48
Shortbelly rockfish	11.06	0.30	0.28	11.64
Darkblotched rockfish	4.24	6.73	2.27	13.24
Other rockfish	1.37	7.00	4.02	12.39
TOTAL ROCKFISH	151.90	88.30	226.37	466.57
Mt whiting	55,355.21	78,863.88	96,599.70	230,818.79
Mt rockfish/mt whiting	0.002744119	0.001119667	0.002343332	0.00202136