NOTICE OF OFFICE OF MANAGEMENT AND BUDGET ACTION

Date 12/15/2010

Department of Commerce
National Oceanic and Atmospheric Administration
FOR CERTIFYING OFFICIAL: Simon Szykman
FOR CLEARANCE OFFICER: Diana Hynek

In accordance with the Paperwork Reduction Act, OMB has taken action on your request received 12/15/2010

ACTION REQUESTED: Revision of a currently approved collection
TYPE OF REVIEW REQUESTED: Regular
ICR REFERENCE NUMBER: 201012-0648-016
AGENCY ICR TRACKING NUMBER:
TITLE: Northwest Region Groundfish Trawl Fishery Monitoring and Catch Accounting Program
LIST OF INFORMATION COLLECTIONS: See next page

OMB ACTION: Approved without change
OMB CONTROL NUMBER: 0648-0619
The agency is required to display the OMB Control Number and inform respondents of its legal significance in accordance with 5 CFR 1320.5(b).

EXPIRATION DATE: 11/30/2013 DISCONTINUE DATE:

BURDEN:	RESPONSES	HOURS	COSTS
Previous	0	0	0
New	6,059	1,784	392,536
Difference			
Change due to New Statute	0	0	0
Change due to Agency Discretion	6,059	1,784	392,536
Change due to Agency Adjustment	0	0	0
Change Due to Potential Violation of the PRA	0	0	0

TERMS OF CLEARANCE:

OMB Authorizing Official: Kevin F. Neyland
Deputy Administrator,
Office Of Information And Regulatory Affairs

List of ICs			
IC Title	Form No.	Form Name	CFR Citation
Catch monitor provider applications			50 CFR 660.17
Catch monitor provider appeals			50 CFR 660.17
Catch monitor qualifications			50 CFR 660.17
catch monitor appeals			50 CFR 660.17
catch monitoring plans			50 CFR 660.113
Catch monitoring plans - inspectiion following submission			50 CFR 660.13
Shorebased scales - inseason testing			50 CFR 660.15
Shorebased scale reports including printing			50 CFR 660.15
First receivers:catch monitor costs, Electronic fish tickets including hardware costs	NA	E-ticket (screen shots)	50 CFR 660.13
At-sea daily scale testing (includes printing)			50 CFR 660.15
At sea daily weight reporting (printing included)	NA	Record of daily flow scale test	50 CFR 660.15

PAPERWORK REDUCTION ACT SUBMISSION

Please read the instructions before completing this form. For additional forms or assistance in completing this form, contact your agency's Paperwork Clearance Officer. Send two copies of this form, the collection instrument to be reviewed, the supporting statement, and any additional documentation to: Office of Information and Regulatory Affairs, Office of Management and Budget, Docket Library, Room 10102, 725 17th Street NW, Washington, DC 20503.

1. Agency/Subagency originating request
DOC/NOAA/NMFS

2. OMB control number b. [✔] None
a. 0648 -

3. Type of information collection (*check one*)
a. [✔] New Collection
b. [ ] Revision of a currently approved collection
c. [ ] Extension of a currently approved collection
d. [ ] Reinstatement, without change, of a previously approved collection for which approval has expired
e. [ ] Reinstatement, with change, of a previously approved collection for which approval has expired
f. [ ] Existing collection in use without an OMB control number
For b-f, note Item A2 of Supporting Statement instructions

4. Type of review requested (*check one*)
a. [✔] Regular submission
b. [ ] Emergency - Approval requested by ____/____/____
c. [ ] Delegated

5. Small entities
Will this information collection have a significant economic impact on a substantial number of small entities? [ ] Yes [✔] No

6. Requested expiration date
a. [✔] Three years from approval date b. [ ] Other Specify:____/____

7. Title Northwest Region Groundfish Trawl Fishery Monitoring and Catch Accounting Program

8. Agency form number(s) (*if applicable*)

9. Keywords "Fishery" "Fisheries, " "Fishing" and "Fishing Vessels"

10. Abstract

As part of its fishery management responsibilities, the National Marine Fisheries Service (NMFS) collects information to determine the amount and type of groundfish caught by fishing vessels. This collection supports requirements for shorebased first receivers in the Pacific Coast groundfish fishery's shorebased individual fishing quota (IFQ) program to account for all landed catch and to send electronic catch data used to manage the catch allocations and limits. It also supports scale requirements for motherships and catcher/processors in the at-sea whiting fishery to account for all catch brought on board the processing vessel. The respondents are principally shorebased first receivers, catch monitor service providers, mothership processors, and catcher/processors which are companies/partnerships.

11. Affected public (*Mark primary with "P" and all others that apply with "x"*)
a. x Individuals or households d. ___ Farms
b. P Business or other for-profit e. ___ Federal Government
c. ___ Not-for-profit institutions f. x State, Local or Tribal Government

12. Obligation to respond (*check one*)
a. [ ] Voluntary
b. [ ] Required to obtain or retain benefits
c. [✔] Mandatory

13. Annual recordkeeping and reporting burden
a. Number of respondents 149
b. Total annual responses 6,059
1. Percentage of these responses collected electronically 50 %
c. Total annual hours requested 1,784
d. Current OMB inventory 0
e. Difference 1,784
f. Explanation of difference
1. Program change 1,784
2. Adjustment

14. Annual reporting and recordkeeping cost burden (*in thousands of dollars*)
a. Total annualized capital/startup costs 12
b. Total annual costs (O&M) 381
c. Total annualized cost requested 393
d. Current OMB inventory 0
e. Difference 393
f. Explanation of difference
1. Program change 393
2. Adjustment

15. Purpose of information collection (*Mark primary with "P" and all others that apply with "X"*)
a. ___ Application for benefits e. ___ Program planning or management
b. X Program evaluation f. ___ Research
c. X General purpose statistics g. P Regulatory or compliance
d. ___ Audit

16. Frequency of recordkeeping or reporting (*check all that apply*)
a. [✔] Recordkeeping b. [ ] Third party disclosure
c. [✔] Reporting
1. [✔] On occasion 2. [✔] Weekly 3. [ ] Monthly
4. [ ] Quarterly 5. [ ] Semi-annually 6. [✔] Annually
7. [ ] Biennially 8. [✔] Other (describe) Daily

17. Statistical methods
Does this information collection employ statistical methods
[ ] Yes [✔] No

18. Agency Contact (person who can best answer questions regarding the content of this submission)
Name: Jamie Goen
Phone: (206) 526-4656

19. Certification for Paperwork Reduction Act Submissions

On behalf of this Federal Agency, I certify that the collection of information encompassed by this request complies with 5 CFR 1320.9

NOTE: The text of 5 CFR 1320.9, and the related provisions of 5 CFR 1320.8(b)(3), appear at the end of the instructions. *The certification is to be made with reference to those regulatory provisions as set forth in the instructions.*

The following is a summary of the topics, regarding the proposed collection of information, that the certification covers:

(a) It is necessary for the proper performance of agency functions;

(b) It avoids unnecessary duplication;

(c) It reduces burden on small entities;

(d) It used plain, coherent, and unambiguous terminology that is understandable to respondents;

(e) Its implementation will be consistent and compatible with current reporting and recordkeeping practices;

(f) It indicates the retention period for recordkeeping requirements;

(g) It informs respondents of the information called for under 5 CFR 1320.8(b)(3):

- (i) Why the information is being collected;
- (ii) Use of information;
- (iii) Burden estimate;
- (iv) Nature of response (voluntary, required for a benefit, mandatory);
- (v) Nature and extent of confidentiality; and
- (vi) Need to display currently valid OMB control number;

(h) It was developed by an office that has planned and allocated resources for the efficient and effective management and use of the information to be collected (see note in Item 19 of instructions);

(i) It uses effective and efficient statistical survey methodology; and

(j) It makes appropriate use of information technology.

If you are unable to certify compliance with any of the provisions, identify the item below and explain the reason in Item 18 of the Supporting Statement.

Signature of Senior Official or designee	Date

Agency Certification (signature of Assistant Administrator, Deputy Assistant Administrator, Line Office Chief Information Officer, head of MB staff for L.O.s, or of the Director of a Program or StaffOffice)	
Signature signed by Emily Menashes	Date 08/13/2010
Signature of NOAA Clearance Officer	
Signature signed by Sarah Brabson	Date 08/16/2010

SUPPORTING STATEMENT FOR
NORTHWEST REGION GROUNDFISH TRAWL FISHERY
MONITORING AND CATCH ACCOUNTING PROGRAM
OMB CONTROL NO. 0648-XXXX

INTRODUCTION

This is a new information collection request that will replace OMB Control No. 0648-0563.

Under the authority of the Magnuson-Stevens Conservation and Management Act (16 U.S.C. 1801 *et seq*), the Pacific coast groundfish fishery is managed under the Pacific coast groundfish fishery management plan (FMP). Part of the groundfish fishery, the sector that has limited entry permits endorsed for trawl gear, is transitioning to a trawl rationalization program through Amendments 20 and 21 to the groundfish FMP (RIN 0648-AY68, Initial Issuance and Program Components). Amendment 20 would establish the trawl rationalization program and would consist of an individual fishing quota (IFQ) program for the shorebased trawl fleet; and co-operative (co-op) programs for the at-sea mothership (MS) and catcher/processor (C/P) trawl fleets. The trawl rationalization program is intended to increase net economic benefits, create individual economic stability, provide full utilization of the trawl sector allocation, consider environmental impacts, and achieve individual accountability of catch and bycatch. Amendment 21 would establish fixed allocations for limited entry trawl participants. These allocations are intended to improve management under the rationalization program by streamlining its administration, providing stability to the fishery, and addressing halibut bycatch.

The shorebased IFQ program differs from the previous management of the groundfish trawl fishery, which was managed with 2-month cumulative trip limits and bycatch limits that were shared among many fishermen. Because limits were shared among fishermen, there was a risk of managers lowering trip limits or closing seasons early if the catch of groundfish proceeded too quickly over the year. The shorebased IFQ program will allocate amounts of groundfish to individual fishermen to fish at any time during the year. This puts the individual fishermen in control of when they fish and reduces the risk of early season closures due to the activities of other fishermen. Under trawl rationalization, the at-sea MS and C/P fleets will primarily operate as co-ops and pool their available harvest of whiting and certain overfished species. The MS fishery will also have a non-co-op fishery option that would operate similar to recent management strategies for this fishery where multiple vessels are competing for the same amount of fish, risking early season closure.

While the at-sea whiting fishery (MS and C/P) targets whiting, the shorebased IFQ program has different groundfish target strategies. The shorebased IFQ non-whiting fishery targets any groundfish other than whiting and is required to sort their catch at sea; it also tends use bottom trawl gear (large or small footrope or selective flatfish gear). In addition, a gear switching provision for non-whiting fisheries in the shorebased IFQ program allows fishermen to target groundfish with groundfish non-trawl gear (generally

longline or pot). The shorebased IFQ whiting fishery targets whiting and may either operate as a maximized retention fishery or may sort at-sea.

In the Pacific whiting maximized retention fishery, vessels dump unsorted catch directly into refrigerated salt water tanks. Allowing unsorted catch to be retained allows the fishery to be prosecuted efficiently and the quality of Pacific whiting delivered to shorebased processors maintained. Pacific whiting deteriorates rapidly and must be handled quickly and immediately chilled to maintain product quality. Unsorted catch landed by Pacific whiting shoreside vessels includes species in excess of the trip limits, non-groundfish species, protected species, and prohibited species such as salmon. Some Pacific salmon caught in groundfish fisheries have been listed under the Endangered Species Act. An incidental take statement covers specific amounts of take of Chinook salmon in both the at-sea and shorebased Pacific whiting fisheries.[1]

To maintain the integrity of the catch retention requirements in the shorebased IFQ program, participating vessels must have an observer for the estimation of discards (for the whiting and non-whiting fisheries that sort at sea and for the maximized retention whiting fishery) and the verification of catch retention (maximized retention whiting fishery). In addition, vessels will be required to land their catch at shorebased IFQ first receivers that have a NMFS-approved catch monitoring plan and have employed the services of a catch monitor to verify the landed catch.

To achieve individual accountability for catch and bycatch and track total catch (landed catch and discards), the shorebased IFQ program will be subject to 100 percent monitoring both at-sea (with observer coverage) and dockside (with catch monitors). Groundfish caught under the shorebased IFQ program may only be landed at shorebased first receivers with a first receiver site license. To obtain a first receiver site license from NMFS, the first receiver must have a NMFS-approved catch monitoring plan, have been subject to a site inspection, meet the required equipment requirements (including scales), and report the landings through an electronic fish ticket system. The first receiver is responsible for having a catch monitor available to monitor the landing of fish from vessels participating in the IFQ program. The first receiver is also required to accurately weigh the catch from each landing and report them on the Federal electronic fish ticket system.

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[1] Since 1992, new evolutionarily significant units (a population of organisms that is considered distinct for purposes of conservation) of Pacific salmon have been listed under the Endangered Species Act (ESA). In response to the new listings, NMFS issued Biological Opinions under the ESA pertaining to the effects of the Pacific Coast groundfish FMP fisheries on Chinook salmon on August 10, 1990, November 26, 1991, August 28, 1992, September 27, 1993, May 14, 1996, and December 15, 1999. The August, 1992 Biological Opinion included an analysis of the effects of the Pacific whiting fishery on listed Chinook salmon. The analysis determined that there was a spatial/temporal overlap between the Pacific whiting fishery and the distribution of ESA listed Chinook salmon such that it could result in incidental take of ESA listed salmon. The incidental take statement authorized the take of 0.05 salmon per metric ton of Pacific whiting and identified the need for continued monitoring of the fishery to evaluate impacts on salmon. The Biological Opinion specifically emphasized the need to monitor the shoreside whiting fishery because fishing patterns and bycatch rates were likely to differ from those observed on the at-sea processors.

This shorebased monitoring and catch accounting system is an expansion of the program that has been conducted under exempted fisheries permits (EFPs) for the Pacific whiting

shoreside fishery since 1992 (previously OMB Control No. 0648-0563). The new collection of data would cover not only the Pacific whiting shoreside fishery but all groundfish delivered shoreside by vessels participating in the shorebased IFQ program. Thus, the use of shorebased catch monitors and electronic fish tickets will be broader than under OMB Control No. 0648-0563. In addition, the new collection of data would not use electronic monitoring systems (EMS) that had been used for at-sea monitoring of the whiting fishery under OMB Control No. 0648-0563. The Pacific Fishery Management Council, which makes management recommendations to NMFS, recommended 100% observer coverage on vessels at-sea and no EMS. In addition to 100% observer coverage on vessels at-sea, mothership processors and C/Ps will be subject to scale requirements that include daily testing, reporting, and an annual inspection.

A. JUSTIFICATION

1. Explain the circumstances that make the collection of information necessary.

The trawl rationalization program requires NMFS to accurately monitor the use of all quotas and allocations. A catch monitoring and accounting system are required in order to: 1) track the total catch (retained and discarded) of groundfish species, including Pacific halibut; and 2) adequately track the incidental take of Chinook salmon as required in the ESA Section 7 Biological Opinion (1999) for Chinook salmon catch in the Pacific whiting fishery. The primary tools for monitoring and accounting are:

1) The use of catch monitors at shorebased first receivers
2) First receivers' possession of a first receiver site license and operation under a NMFS-accepted catch monitoring plan
3) Weighing of all catch on certified scales for both shorebased and at-sea fisheries
4) Shorebased IFQ catch reported on electronic fish tickets.

First receivers who receive, buy, or accept deliveries if IFQ species must use a NMFS-approved electronic fish ticket software to send catch reports to the Pacific States Marine Fisheries Commission (PSMFC) within 24 hours of when the catch is landed. Electronic fish ticket reports are used to track the landed catch relative to allocations, quotas, and prohibited species catch.

To support the trawl rationalization program, NMFS requests that OMB Control No. 0648-0563 be replaced by the following new data collection requirements:

For catch monitor service providers

- The preparation and submission of an application to be a certified catch monitor service provider;
- Appeals submissions by businesses not issued certifications or decertified.
- The submission of qualification for catch monitors.

For catch monitors

- The preparation and submission of an application to be a certified catch monitor (submitted to the service provider only and not counted as burden for this information collection);
- Appeals submissions by individuals not issued certifications or decertified.

For first receivers

- The preparation and submission of an application for a first receiver site license, including a catch monitoring plan whose burden is part of this Shorebased Monitoring and Catch Accounting information collection. [The first received site license is included in a separate PRA submission, OMB Control No. 0648-XXXX, Trawl Rationalization Program Permit and License Information Collection, to be submitted concurrently with this request].
- The requirement to have an approved scale for weighing landings, and a printed record or report for each delivery.
- The preparation and submission of the electronic fish ticket for each landing.

For at-sea processors (MS and C/P)

- The requirement to have an approved scale for weighing catch at-sea, a printed record of catch weight and cumulative weights, and a printed record of daily scale tests.

2. Explain how, by whom, how frequently, and for what purpose the information will be used. If the information collected will be disseminated to the public or used to support information that will be disseminated to the public, then explain how the collection complies with all applicable Information Quality Guidelines.

- A catch monitor service provider application is a narrative application submitted to NMFS by businesses interested in being certified to provide catch monitor services. This is a one-time application process. NMFS will use the application to determine if a business can provide adequate services to support the catch monitor needs and that there is no apparent conflict of interest. Information provided includes contact and business information, prior related experience and description of ability to carry out a catch monitor provider's responsibilities. As an interim measure to ensure that providers are available at the start of the program, catch monitor providers previously certified in 2010 who deployed catch monitors in a NMFS-managed West Coast groundfish fishery or observers under the North Pacific Groundfish Program, are exempt from the requirement to apply for a permit in 2011 and will be issued a catch monitor provider permit effective through December 31, 2011.

- Catch monitor provider appeals submissions are narratives that may be received from businesses that were not issued catch monitor service provider certifications or business that have been decertified. The purpose of an appeals submission is to provide NMFS with information that may result in the business receiving a

certification or not being decertified. Fewer than two appeals letters are expected to be submitted annually.

- Catch monitor qualifications are copies of application materials submitted by the catch monitor applicants to catch monitor service providers. The catch monitor service provider then submits the qualifications to NMFS when an individual is initially hired to be a catch monitor. Each applicant must submit their qualifications prior to their initial training session and certification as a catch monitor. NMFS will use the documents to verify that candidates are qualified and do not have an apparent conflict of interest or obvious past experiences that may impair their objectivity as a catch monitor.

- Catch monitor appeals submissions are narratives that may be received from catch monitors that have been denied certifications or have been decertified. The purpose of an appeals submission is to provide NMFS with information that may result in an individual receiving a certification or not being decertified.

- Catch monitoring plans are prepared by the shorebased IFQ first receivers and are narrative responses to specific information requested in the proposed regulations. The catch monitoring plan is submitted to NMFS as part of the first receiver site license application but is considered a part of this information collection. The first receiver site license is addressed under the separate information collection request, Trawl Rationalization Program Permit and License Information Collection. The catch monitor plans are submitted annually with the first receiver site license renewal and are resubmitted if substantial changes are made in how fish are received, sorted or weighed. An onsite inspection is conducted before the plans are accepted. An acceptable catch monitor plan describes how landings can be monitored effectively by a catch monitor, that scales are certified and used appropriately, how adequate facilities will be made available for catch monitors, and how the first receiver will provide accurate landed catch data. NMFS will use the information to aid catch monitors in the completion of their duties and to determine if particular first receivers are capable of providing accurate landed catch data from both sorted and unsorted deliveries.

  Information to be required in the catch monitoring plan, as specified in the proposed regulations at 50 CFR 660.140 (f)(3)(iii)(C), as outlined in Proposed Rule 0648-AY68:

  (1) Catch sorting. Describe the amount and location of all space used for sorting catch, the number of staff assigned to catch sorting, and the maximum rate that catch will flow through the sorting area.

  (2) Monitoring for complete sorting. Detail how IFQ first receiver staff will ensure that sorting is complete; what steps will be taken to prevent unsorted catch from entering the factory or other areas beyond the location where catch sorting and weighing can be monitored from the observation area; and what steps will be taken if unsorted catch enters the

factory or other areas beyond the location where catch sorting and weighing can be monitored from the observation area.

(3) Scales used for weighing IFQ landings. Identify each scale that will be used to weigh IFQ landings by the type and capacity and describe where it is located and what it will be used for. Each scale must be appropriate for its intended use.

(4) Printed record. Identify all scales that will be used to weigh IFQ landings that cannot produce a complete printed record as specified at § 660.15(c), subpart C. State how the scale will be used, and how the plant intends to produce a complete and accurate record of the total weight of each delivery.

(5) Weight monitoring. Detail how the IFQ first receiver will ensure that all catch is weighed and the process used to meet the catch weighing requirements specified at paragraph (k) of this section. If a catch monitoring plan proposes the use of totes in which IFQ species will be weighed, or a deduction for the weight of ice, the catch monitoring plan must detail how the process will accurately account for the weight of ice and/or totes.

(6) Delivery points. Identify specific delivery points where catch is removed from an IFQ vessel. The delivery point is the first location where fish removed from a delivering catcher vessel can be sorted or diverted to more than one location. If the catch is pumped from the hold of a catcher vessel or a codend, the delivery point will be the location where the pump first discharges the catch. If catch is removed from a vessel by brailing, the delivery point normally will be the bin or belt where the brailer discharges the catch.

(7) Observation area. Designate and describe the observation area. The observation area is a location where a catch monitor may monitor the flow of fish during a delivery, including: access to the observation area, the flow of fish, and lighting used during periods of limited visibility. Standards for the observation area are specified at paragraph (j)(4)(ii) of this section.

(8) Lockable cabinet. Identify the location of a secure, dry, and lockable cabinet or locker with the minimum interior dimensions of two feet wide by two feet tall by two feet deep for the exclusive use of the catch monitor, NMFS staff, or authorized officers.

(9) Plant liaison. Identify the designated plant liaison. The plant liaison responsibilities are specified at paragraph (j)(6) of this section.

(10) First receiver diagram. The catch monitoring plan must be accompanied by a diagram of the plant showing:

(i) The delivery point(s);
(ii) The observation area;
(iii) The lockable cabinet;
(iv) The location of each scale used to weigh catch; and
(v) Each location where catch is sorted.

- Shorebased scales - printed scale reports are records made available to the catch monitor and, upon request, to NMFS. For scales used to weigh catch at IFQ first receivers, all scales identified in a catch monitoring plan must produce a printed record for each delivery, or portion of a delivery, weighed on that scale, unless specifically exempted by NMFS [Scales not designed for automatic bulk weighing may be exempted from part or all of the printed record requirements]. A first receiver must maintain printed scale reports on site until the end of the fishing year during which the printouts were made and make them available upon request by NMFS for 3 years after the end of the fishing year during which the printout was made. The printed record must include:

    (A) The IFQ first receiver's name;
    (B) The weight of each load in the weighing cycle;
    (C) The total weight of fish in each landing, or portion of the landing that was weighed on that scale;
    (D) The date the information is printed; and
    (E) The name and vessel registration or documentation number of the vessel making the delivery. The scale operator may write this information on the scale printout in ink at the time of printing.

- At-sea scales - printed scale reports for catch weight and cumulative weight, as well as, records of daily scale tests are records made available to NMFS staff or authorized officers.

    1) For scales used to weigh catch at-sea, belt scales and platform scales must produce a printed record for the catch weight and cumulative weight at least once every 24 hours. [Note: A platform scale used for observer sampling at-sea is not required to produce a printed record]. Printed scale reports must be maintained on board the vessel until the end of the fishing year during which the printouts were made and the vessel owner must make them available upon request by NMFS for 3 years after the end of the fishing year during which the printout was made. The printed report must be provided to the authorized scale inspector at each scale inspection. Reports must also be printed before any information stored in the scale computer memory is replaced. Scale weights must not be adjusted by the scale operator to account for the perceived weight of water, slime, mud, debris, or other materials. Scale printouts must show:

    (A) The vessel name and Federal vessel permit number;
    (B) The date and time the information was printed;
    (C) The haul number;
    (D) The total weight of the haul; and
    (E) The total cumulative weight of all fish and other material weighed on the scale since the last annual inspection.

    2) For scales used to weigh catch at-sea, belt scales and platform scales must have a record to show they have complied with daily scale test requirements, specified at 50 CFR 660.15(b)(4). Printed scale reports must be maintained on board the vessel until the end of the fishing year during which the printouts were made and

the report forms must be made available to observers, NMFS staff, or authorized officers upon request. In addition, the vessel owner must retain the scale test report forms for 3 years after the end of the fishing year during which the tests were performed. Each scale test report form must be signed by the vessel operator immediately following completion of each scale test. The vessel owner must ensure that the vessel operator maintains the scale in proper operating condition throughout its use, that adjustments made to the scale are made so as to bring the performance errors as close as practicable to a zero value, and that no adjustment is made that will cause the scale to weigh inaccurately. The vessel operator must ensure that vessel crew notify the observer at least 15 minutes before the time that the test will be conducted, and conduct the test while the observer is present. The vessel operator must also ensure that vessel crew conduct the scale test and record the following information on the at-sea scale test report form:

(1) Vessel name;
(2) Month, day, and year of test;
(3) Time test started to the nearest minute;
(4) Known weight of test weights;
(5) Weight of test weights recorded by scale;
(6) Percent error as determined by subtracting the known weight of the test weights from the weight recorded on the scale, dividing that amount by the known weight of the test weights, and multiplying by 100; and
(7) Sea conditions at the time of the scale test.

- Electronic fish tickets are submissions of IFQ landings data from the first receiver to NMFS. Specific computer hardware and software, including internet access, are required for the electronic fish ticket system. These requirements include:

  (1) Hardware and software requirements.
  (i) A personal computer with Pentium 75–MHz or higher. Random Access Memory (RAM) must have sufficient megabyte (MB) space to run the operating system, plus an additional 8 MB for the software application and available hard disk space of 217 MB or greater. A CD-ROM drive with a Video Graphics Adapter (VGA) or higher resolution monitor (super VGA is recommended).
  (ii) Microsoft Windows 2000 (64 MB or greater RAM required), Windows XP (128 MB or greater RAM required) or later operating system.
  (iii) Microsoft Access 2003 or newer.
  (2) NMFS approved software standards and internet access. The IFQ first receiver is responsible for obtaining, installing, and updating electronic fish tickets software either provided by PSMFC, or compatible with the data export specifications specified by PSMFC and for maintaining internet access sufficient to transmit data files via email.

As explained in the preceding paragraphs, the information gathered has utility. NMFS will retain control over the information and safeguard it from improper access,

modification, and destruction, consistent with NOAA standards for confidentiality, privacy, and electronic information. See response to Question10 of this Supporting Statement for more information on confidentiality and privacy. The information collection is designed to yield data that meet all applicable information quality guidelines. Although the information collected is not expected to be disseminated directly to the public, results may be used in scientific, management, technical or general informational publications. Should NMFS decide to disseminate the information, it will be subject to the quality control measures and pre-dissemination review pursuant to Section 515 of Public Law 106-554.

3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological techniques or other forms of information technology.

Catch monitor qualifications: The catch monitor qualification material could be submitted as electronic copies of original documents if the catch monitor provider chooses to do so.

All other information: may be emailed, but must be followed by mailed originals.

Electronic fish tickets: The electronic fish tickets are based on information currently required by the states on paper fish receiving tickets or landing receipts (fish tickets). First receivers will provide the computer hardware and software necessary to support the electronic fish ticket program. The electronic fish ticket software will be free and runs on Microsoft Access, 2003 or newer. Data will be transmitted daily via email.

4. Describe efforts to identify duplication.

For the electronic fish tickets, measures were taken to minimize duplication of the catch accounting requirements by providing fish ticket software that is based on the existing state systems and does not require additional data gathering. When state law allows, the electronic fish ticket can be used to print a paper copy for submission to the state. In Oregon, specified information may be submitted either on a paper fish ticket provided by the state or on a computer generated ticket provided specified data fields are included. However, in the States of California and Washington standard paper forms provided by the states must be used.

For the scale requirements, measures were taken to minimize duplication of the scale requirements and reports by matching these to similar requirements for Alaska fisheries, where possible, and based on public comments concerning current scale printer capabilities during public and industry meetings. For the shorebased scales, the required printout format is programmed into each scale. Complying with NMFS' requirements is either automatic when the scale operator changes memories or requires only the print command on the scale display. For the at-sea scales, to minimize costs and duplication, the required scales on motherships and catcher/processors are the same as those required for the Alaska fisheries that these vessels participate in. Therefore, there are no

additional capital costs for these motion-compensating belt and platform scales, which can be costly. In addition, the annual inspection requirement for the at-sea scales is fulfilled through the Alaska requirements at § 679.28(b) and authorized under OMB Control No. 0648-0330. For the daily test reports the estimate of burden is included in this supporting statement; however, the actual form used will be Alaska's form, which is covered under OMB Control No. 0648-0330.

Similarly, the catch monitor provider certification and decertification requirements are similar to those used for Alaska and West Coast Groundfish Observer Program.

5. <u>If the collection of information involves small businesses or other small entities, describe the methods used to minimize burden</u>.

Some applicants are individuals or small companies and as such are considered small businesses.[1] Given the relatively small numbers of applicants, separate requirements based on size of business have not been developed. Only the minimum data required to meet the objectives of the overall monitoring program are requested from all applicants.

- <u>Catch monitoring plans:</u> To minimize the burden, only essential information needed to assure adequate catch accounting is being requested.

- <u>Electronic fish tickets:</u> Measures were taken to minimize the costs of the catch accounting requirements by providing: 1) fish ticket software at no cost; 2) fish ticket software that used a standard operating system and common software already owned by most businesses; 3) fish ticket software that is compatible with the existing fish ticket requirements in each of the three states; and, 4) a software that can be used to print a paper copy for submission to the state, when state law allows. Because the information is already being gathered by the processors there is no requirement that additional data be gathered.

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[1] From NMFS RIR/IRFA titled, "Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery AND Allocation of Harvest Opportunity BETWEEN Sectors of the Pacific Coast Groundfish Fishery" (May 2010):

> For the trawl sector, there are 177 permit holders. Nine limited entry trawl permits are associated with the catcher-processing vessels which are considered "large" companies. Of the remaining 168 limited entry permits, 25 limited entry trawl permits are either owned or closely associated with a "large" shore-based processing company or with a non-profit organization who considers itself a "large" organization. Nine other permit owners indicated that they were large "companies." Almost all of these companies are associated with the shorebased and mothership whiting fisheries. The remaining 134 limited entry trawl permits are projected to be held "small" companies. Three of the six mothership processors are "large" companies. Within the 14 shorebased whiting first receivers/processors, there are four "large" companies. Including the shorebased whiting first receivers, in 2008, there were 75 first receivers that purchased limited entry trawl groundfish. There were 36 small purchasers (less than $150,000); 26 medium purchasers (purchases greater than $150,000 but less than $1,000,000); and 13 large purchasers (purchases greater than $1.0 million). Because of the costs of obtaining a "processor site license", procuring and scheduling a catch monitor, and installing and using the electronic fish ticket software, these "small" purchasers will likely opt out of buying groundfish, or make arrangements to purchase fish from another company that has obtained a processing site license.

6. Describe the consequences to the Federal program or policy activities if the collection is not conducted or is conducted less frequently.

The intent of this program is to provide permits to harvest and/or receive fish or fish products managed under the trawl rationalization program. This program is expected to reduce the race for fish and provide industry with the ability to schedule their activities to allow more efficient fishing and a better quality of fish products. Without the specific permitting scheme described in this supporting statement, the program would be jeopardized. Furthermore, indirect biological impacts could result if catch data were inaccurate or delayed such that fishing could not be stopped before one of the specifications were exceeded, including: IFQs, halibut individual bycatch quotas, allocations, optimum yields (OYs), and biological opinion thresholds.

If quotas of the most constraining overfished species were greatly exceeded due to delayed catch reporting, the risk of exceeding rebuilding-based OYs is increased. This is a particular concern for canary rockfish which is one of the most constraining species in the groundfish fisheries and whose rebuilding trajectory is very sensitive to changes in harvest levels. Although there are many variables that affect the time it takes a stock to rebuild, exceeding the rebuilding based OY could result in an extended rebuilding period for overfished species. Exceeding Chinook salmon take thresholds could increase the risk to some more vulnerable Evolutionarily Significant Units (ESUs). Exceeding the Pacific halibut Individual Bycatch Quotas (IBQs) or trawl fishery allocations could affect future opportunity for both the trawl fishery and the directed commercial and recreational halibut fisheries (non-trawl).

7. Explain any special circumstances that require the collection to be conducted in a manner inconsistent with OMB guidelines.

Not Applicable.

8. Provide information on the PRA Federal Register Notice that solicited public comments on the information collection prior to this submission. Summarize the public comments received in response to that notice and describe the actions taken by the agency in response to those comments. Describe the efforts to consult with persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, disclosed, or reported.

A proposed rule, RIN 0648-AY68 (scheduled to publish in August 2010), will solicit public comments on this revision to the collection.

9. Explain any decisions to provide payments or gifts to respondents, other than remuneration of contractors or grantees.

No payments or gifts are provided.

10. Describe any assurance or confidentiality provided to respondents and the basis for assurance in statute, regulation, or agency policy.

As stated on the forms, Section 303(d) of the Magnuson-Stevens Act sets forth procedures for confidentiality of fisheries statistics, including statistics collected by observers and NMFS staff. NOAA Administrative Order 216-100, Protection of Confidential Fisheries Statistics, further establishes procedures for confidentiality of collected and submitted data.

Electronic fish ticket data will be submitted to PSMFC. The electronic fish ticket data is considered confidential under NOAA Administrative Order 216-100, Protection of Confidential Fisheries Statistics. The PSMFC currently receives and stores fish ticket data from the states. These data are maintained on the Pacific Fisheries Information Network (PacFIN) data base.

11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private.

There are no questions of a sensitive nature being asked.

12. Provide an estimate in hours of the burden of the collection of information.

Total burden hours and annual capital/recordkeeping/reporting and labor costs for the collection are presented in Table A below. **Total unduplicated respondents (3 catch monitor provider applicants, 50 catch monitors, 80 first receivers, 6 mothership processors, and 10 catcher/processors) are 149. Annual responses are 6,059 and hours are 1,784.**

13. Provide an estimate of the total annual cost burden to the respondents or recordkeepers resulting from the collection (excluding the value of the burden hours in Question 12 above).

Table B below shows miscellaneous costs for the collection. **Capital costs annualized over three years are $11,700. Annualized reporting/recordkeeping costs are $$380,836. Total costs are $392,541.**

The estimates of costs to first receivers of the catch monitor program are included in the Regulatory Impact Review and Initial Regulatory Flexibility Analysis for the Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery, dated May 2010 (attached as a supplementary document in ROCIS). First receivers will have to obtain a first receiver site license that includes requirements to submit electronic fish tickets, provide a catch monitoring plan, and schedule a catch monitor. Assuming that a catch monitor costs $350 per day and that there will be 2,400 landings, the cost to all first receivers would be less than $840,000. The cost would be less than this because a catch monitor may record more than one of those landings in a day or multiple first receivers

may share the cost of a catch monitor on a given day. [Note that, in the first few years, the costs of catch monitors will be subsidized in part by NMFS. Eventually the first receivers will pay the full cost of catch monitors. The details of this subsidy have not yet been developed, but the cost of catch monitors that will be covered by NMFS for the first 3 years of the program is estimated to be 90%, 50%, and 25%].

14. Provide estimates of annualized cost to the Federal government.

The estimates of annualized costs to the Federal government are included in Attachment 1 to the Regulatory Impact Review and Initial Regulatory Flexibility Analysis for the Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery, dated May 2010. Costs of the catch monitor program, including electronic fish tickets, are estimated to be approximately $300,000 - $400,000.

15. Explain the reasons for any program changes or adjustments reported.

This is a new program.

16. For collections whose results will be published, outline the plans for tabulation and publication.

No formal scientific publications based on these collections are planned at this time. The data will be used for management reports and fishery management plan amendments and evaluations by the NMFS and the Council.

17. If seeking approval to not display the expiration date for OMB approval of the information collection, explain the reasons why display would be inappropriate.

Not Applicable.

18. Explain each exception to the certification statement.

Not Applicable.

B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

No statistical methods are employed.

Table A - Total Annual Burden Hours, Labor, and Related Costs						
	Number of respondents 1/	**Frequency of annual responses per entity**	**Total annual responses**	**Estimated hours per response**	**Total annual burden hours**	**Total labor cost ($25/hr)**
Catch monitor providers						
Application preparation & submission	3	1	3	10	30	$750
Appeals – written response & submission	1	1	1	4	4	$100
Catch monitors						
Qualifications	50	1	50	1	50	$1,250
Appeals- written response & submission	5	1	5	4	20	$500
Catch monitoring plans 2/						
Preparation & submission	80	1	80	4	320	$8,000
Inspection	80	1	80	2	160	$4,000
Shorebased scales						
Inseason testing	80	1	80	1	80	$2,000
Reports	80	Variable	2400 3/	10 min.	400	$10,000
Electronic fish tickets						
Submissions	80	Variable	2400 3/	10 min.	400	$10,000
At-sea scales (MS, C/P)						
Daily testing reports	16	30	480	30 min.	240	$6,000
Weight reports	16	30	480	10 min.	80	$2,000
Total for collection			***6,059***		***1,784***	***$44,600***

1/ The collection assumes the following participation levels annually:
120 shorebased catcher vessels, 80 first receivers, 3 catch monitor providers, 50 catch monitors, 6 MS, and 10 C/Ps.
2/ First Receiver Site License is included in a separate PRA request, OMB Control No. 0648-XXXX,
Trawl Rationalization Program Permit and License Information Collection.
3/ Estimate based on 120 vessels making 20 landings each per year.

Table B - Total Annual Miscellaneous Costs			
	Total Annual Responses	**Misc. costs per response**	**Total Misc. costs for all respondents**
Catch monitor providers Mail Appeals- fax or mail written response & submission	 3 1	 $5 $3	 $15 $3
Catch monitors Appeals- mail written response & submission	5	$3	$15
First Receiver Computer hardware Catch monitor costs [a/] Scale report printing	 50 [b/] 2,400 2,400	 $700 annualized over 3 years = $234 $157.50 $0.05	 $11,700 $378,000 $120
Catch monitoring plans [c/] Mail	 80	 $3	 $240
Mothership/Catcher Processor daily test and scale report printing	960	$0.05	$48
Electronic fish tickets Send via email	 2,400	 $1	 $2,400
Total for collection			***$392,541***

a/ Based on average of potential NMFS subsidies of 90%, 50% and 25% of $350 for first, second and third years, respectively (industry estimated to pay $35 + $175 + $262.50 = $472.50/3 = $157.50)

b/ Assumes that the 12 first receivers that were part of the previous shoreside whiting EFP and that 18 first receivers already have a computer.

c/ First Receiver Site License which the plan accompanies is included in a separate PRA request, OMB Control No. 0648-XXXX, Trawl Rationalization Program Permit and License Information Collection.

Table A - Total Annual Burden Hours, Labor, and Related Costs						
	Number of respondents 1/	**Frequency of annual responses per entity**	**Total annual responses**	**Estimated hours per response**	**Total annual burden hours**	**Total labor cost ($25/hr)**
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Appeals- written response & submission	5	1	5	4	20	$500
Catch monitoring plans 2/						
Preparation & submission	80	1	80	4	320	$8,000
Inspection	80	1	80	2	160	$4,000
Shorebased scales						
Inseason testing	80	1	80	1	80	$2,000
Reports	80	Variable	2400 3/	10 min.	400	$10,000
Electronic fish tickets						
Submissions	80	Variable	2400 3/	10 min.	400	$10,000
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a/ Based on average of potential NMFS subsidies of 90%, 50% and 25% of $350 for first, second and third years, respectively (industry estimated to pay $35 + $175 + $262.50 = $472.50/3 = $157.50)

b/ Assumes that the 12 first receivers that were part of the previous shoreside whiting EFP and that 18 first receivers already have a computer.

c/ First Receiver Site License which the plan accompanies is included in a separate PRA request, OMB Control No. 0648-XXXX, Trawl Rationalization Program Permit and License Information Collection.

OMB Control No. 0648-0330
Expiration Date: 08/31/2010

INSPECTION REQUEST At-Sea Scales	NOAA/National Marine Fisheries Service P.O. Box 21668 Juneau, AK 99802-1668 Telephone: 928-774-4362 or 907-586-7228 FAX: 928-774-4362 or 907-586-7465

GENERAL	
Company name:	Vessel name:
Mailing address:	Exact location of vessel:
Contact person on board:	Telephone No. for contact person:
Requested Inspection date:	FAX No. for contact person:
Today's date:	Please give a telephone number on the vessel where the inspector may be contacted during the inspection:

SCALES TO BE INSPECTED		
	Manufacturer	Model
1		
2		
Will the repair company be on site at time of inspection? YES ☐ NO ☐		
Company name:		Contact person and phone:

At the time of scale inspection please make sure that:

1) the scale is installed in a rigid and level manner,
2) the display and printer are connected and operational,
3) belts leading to the scale are connected and operational (not applicable to platform and hanging scales),
4) test weights and test weight certification documents are available for inspection (platform scales only),
5) a crew member will be available to help the inspector transport test materials and conduct the testing.

For more information contact:
Alan Kinsolving,
At-sea scales program coordinator,
Telephone: 928-774-4362
Email: **alan.kinsolving@noaa.gov**

PUBLIC REPORTING BURDEN STATEMENT

Public reporting burden for this collection of information is estimated to average 6 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to Assistant Regional Administrator, Sustainable Fisheries Division, Alaska Region, NOAA National Marine Fisheries Service, P.O. Box 21668, Juneau, AK 99802-1668.

ADDITIONAL INFORMATION

Before completing this form please note the following: 1) Notwithstanding any other provision of law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number; 2) This information is mandatory and is required to manage the At-sea Scales Program for commercial fishing efforts under 50 CFR part 679 and under section 402(a) of the Magnuson-Stevens Act (16 U.S.C. 1801, et seq.) as amended by Public Law 109-479;
3) Submission of this information is necessary for NMFS to approve scales to weigh catch at sea;
5) Responses to this information request are not confidential.

Revised: 05/07/10

RECORD OF DAILY FLOW SCALE TESTS

OMB Control No. 0648-0330
Expiration Date: 08/31/2010

Vessel Name: _____ Date: _____

Time test started: _____

I. WEIGH FISH ON OBSERVER PLATFORM SCALE

BASKET #	WT FISH + BASKET (kg)	BASKET #	WT FISH + BASKET (kg)	BASKET #	WT FISH + BASKET (kg)	BASKET #	WT FISH + BASKET (kg)
1		8		15		21	
2		9		16		22	
3		10		17		23	
4		11		18		24	
5		12		19		25	
6		13		20		26	
7		14		Total weight all fish+baskets		0.00	

II. CALCULATE PERCENT ERROR OF FLOW SCALE

Scale Indicator

Begin Test: _____kg

End Test: _____kg

TOTAL WEIGHT FISH AND BASKETS (kg)	− WEIGHT OF BASKET	= PLATFORM SCALE WEIGHT OF FISH (kg)	WEIGHT OF FISH ON FLOW SCALE (kg)	ERROR (B) - (A)	% ERROR = (C) ÷ (A) X 100
		(A)	(B)	(C)	

III. SEA CONDITIONS (BEAUFORT SCALE) AT TIME OF SCALE TEST (CHECK ONE):

0 ❑ 1 ❑ 2 ❑ 3 ❑ 4 ❑ 5 ❑ 6 ❑ 7 ❑ 8 ❑ 9 ❑ 10 ❑ 11 ❑ 12 ❑

SIGNATURE OF VESSEL OPERATOR

_____

I observed this test and to the best of my knowledge it was conducted in accordance with 50 CFR 679.28 (b)(3)

Signature of observer

INSTRUCTIONS

1. Collect approximately 400 kg of fish in baskets and weigh the baskets of fish on the platform scale. Record the weight of each basket of fish (basket plus fish) in Section I.
2. Record the total weight of all baskets plus fish in the first box in Section II.
3. Record the weight of the baskets in the second box. Subtract the weight of the baskets from the total weight of fish plus baskets to determine the weight of the fish only, record this weight in the third box in Section II. This is the platform scale weight of the fish (A).
4. Record the weight displayed on the flow scale before and after the test fish are weighed.
5. Weigh the fish from the baskets on the flow scale. Record the weight in the fourth box of Section II (B).
6. Calculate error of flow scale by subtracting the platform scale weight (A) from the flow scale weight (B). Record the error (C) in the fifth box of Section II.
7. Calculate percent error by dividing the error (C) by the known weight of the fish (A) and multiplying by 100. Record this information in the last box of Section II. The scale is weighing within 3 percent error if the result is between -3.0% and +3.0%.
8. Record the Beaufort Scale sea conditions at time of test.
9. Have form signed by vessel operator and observer.

DAILY FLOW SCALE TEST
ADDITIONAL INFORMATION

- ✓ A daily scale test must be conducted once every 24 hours when the scale is being used to weigh catch at-sea.
- ✓ If the scale fails the daily test, it may be re-tested at any time. However, it may not be used to weigh fish until it passes the daily test.
- ✓ This form must be maintained on board the vessel until the end of the fishing year in which it was completed. It must be retained by the vessel owner for three years, and must be made available to NMFS personnel, observers or authorized officers when requested.
- ✓ Questions or comments concerning this form or the daily test can be directed to:

Alan Kinsolving
At - Sea Scales Program Coordinator
2245 CO Bar Trail
Flagstaff AZ, 86001
Ph: (928) 774-4362
Fx: (928) 774-4362
Email: alan.kinsolving@noaa.gov

Jennifer Watson
CMP/CMCP Program Coordinator
P.O. Box 21668
Juneau, AK 99802-1668
Ph: (907) 586-7537 or
(907) 586-7228
Fx: (907) 586-7465
Email: jennifer.watson@noaa.gov

PUBLIC REPORTING BURDEN STATEMENT

Public reporting burden for this collection of information is estimated to average 45 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to Sue Salveson, Assistant Regional Administrator, Sustainable Fisheries Division, Alaska Region, NMFS, P.O. Box 21668, Juneau, Ak 99802 (Attn: Records Officer).

ADDITIONAL INFORMATION

1) NMFS cannot conduct or sponsor this information request, and you are not required to respond this information request, unless the form displays a currently valid OMB control number; 2) this information is being used to manage the At-Sea Scales Program; 3) Federal law and regulations require and authorize NMFS to manage commercial fishing effort; 4) Submission of this information is required for scales approved by NMFS to weigh catch at sea; 5) Responses to this information request are not confidential except as required under the Privacy Act.

Public reporting burden for this collection of information is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other suggestions for reducing this burden to the NOAA Fisheries Groundfish Team at 206-526-6140. This information is considered confidential under section 402(b) of the Magnuson-Stevens Act. Notwithstanding any other provisions of the law, no person is required to respond to, nor shall any person be subjected to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

OMB Control No. 0648-xxxx
Expires xx/xx/xxxx

Fish Tickets - PSMFC West Coast E-Ticket Database

Home | Create | External Data | Database Tools | Acrobat

California: J - Northern Trawl General

Fish Ticket Number: J100001

Preview Ticket | Print Ticket | Close

Fed. LE Permit #: GF | Landing Date | Port of First Landing | Location Where Fish Caught

Fisher I.D. Number (Add New)

Fish Business I.D. 9012 California Fish Company | Primary Gear Used

Vessel I.D. (Add New)

Transportation#: | Ticket Category: (Add New)

Enter Overage Ticket | Void Ticket | Enter as Overage Ticket | Cancel Entry

Previous Ticket | Next Ticket | View All

Fish (Species Code/Description)	Gross Lbs	Price Per Lb	Amount	Grade	Condition	Use	Gear	# of Fish	Take Home/ Weighback
			$0.00						T/H - WB

Search for Tickets

Enter Next Ticket# in Batch

Enter New Fish Ticket

Totals:

Notes:

Enter Fish Ticket Costs

Oregon Fish Tickets - PSMFC West Coast E-Ticket Databas

Home | Create | External Data | Database Tools | Acrobat

Oregon - Groundfish and Shrimp

Fish Ticket Number: 3100006

Preview Ticket | Print Ticket | Close

Commercial License No. (Add New) | Date of Landing | Port Code 24 NEWPORT

Boat Number (Add New) | Dealer No. 1234 Oregon fish Company | Primary Catch Area

Fisher's Name - Last, First (Add New) | Gear Used | # of Days Fished | Unloading Station

Fed. LE Permit #: GF

Ticket Category: (Add New)

Enter Overage Ticket | Void Ticket | Enter as Overage Ticket | Cancel Entry

Previous Ticket | Next Ticket | View All

Fish	Species Code/Description	Condition	Grade	# of Fish	Lbs	Price Per Lb	Amount	Take Home/Weighback
		0	0				$0.00	T/H - WB

Search for Tickets

Enter Next Ticket# in Batch

Enter New Fish Ticket

Enter Fish Ticket Costs

Totals:

Notes:

Fish Tickets - PSMFC West Coast E-Ticket Database

Home | Create | External Data | Database Tools | Acrobat

State of Washington - Marine Fish Receiving Ticket

Fish Ticket Number: X1000004

Preview Ticket | Print Ticket | Close

Fed. LE Permit #: GF

Fisher (Last, First) Add New

Date of Landing

Dealer 5678 Washington Fish Company

Port of First Landing

# of Days Fished

Fish Caught:

Enter Overage Ticket | Void Ticket | Enter as Overage Ticket | Cancel Entry

Boat/Gear/License ID Add New

Buyer

Catch Area

Area Subunit

Previous Ticket | Next Ticket

Physical Gear Actually Used

Specify Other Gear:

ON RESERVATION?

Transportation Ticket#:

Ticket Category: Add New

Enter Fish Ticket Costs

View All

Search for Tickets

Primary Data Source

Fish (Species Code/Description)	Pounds	Price	Condition	Grade	Gear	Data Source	Area	Area Subunit	Amount	# of Fish	Take Home/Weighback
									$0.00		T/H - WB

Totals:

Notes:

Enter Next Ticket# in Batch | Enter New Fish Ticket

REGULATORY IMPACT REVIEW AND INITIAL REGULATORY FLEXIBILITY ANALYSIS

Appendix H

TO THE
RATIONALIZATION OF THE PACIFIC COAST
GROUNDFISH LIMITED ENTRY TRAWL FISHERY
FINAL ENVIRONMENTAL IMPACT STATEMENT

PREPARED BY
THE PACIFIC FISHERY MANAGEMENT COUNCIL
7700 NE AMBASSADOR PLACE, SUITE 101
PORTLAND, OR 97220
503-820-2280
WWW.PCOUNCIL.ORG

AND THE

NATIONAL MARINE FISHERIES SERVICE
7600 SAND POINT WAY NE, BIN C15700
SEATTLE, WA 98115-0070
206-526-6150

JUNE 2010

Regulatory Impact Review and
Initial Regulatory Flexibility Analysis

Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery AND Allocation of Harvest Opportunity BETWEEN Sectors of the Pacific Coast Groundfish Fishery

National Marine Fisheries Service, Northwest Region
Initial Analysis May 2010

Executive Summary

The Pacific Fishery Management Council (Council) prepared a draft environmental impact statement for Amendment 20 to the Pacific Coast Groundfish Fishery Management Plan (FMP); a notice of availability was published on December 4, 2009 (74 FR 63751). The Council also prepared a draft environmental impact statement for Amendment 21 to the Pacific Coast Groundfish FMP; a notice of availability was published on January 29, 2010 (75 FR 4812). The trawl rationalization program would consist of (1) an IFQ program for the shore-based, limited entry groundfish trawl fleet and (2) cooperative programs (co-ops) for the at-sea whiting limited entry groundfish trawl fleet. The trawl rationalization program is intended to increase net economic benefits, create economic stability, provide full utilization of the trawl sector allocation, consider environmental impacts, and promote conservation through individual accountability for catch and bycatch.

A summary of the proposed action is as follows. The proposed action is to replace the current, primary management tool used to control the West Coast groundfish trawl catch—a system of two-month cumulative landing limits for most species and season closures for whiting—with a system requiring more individual accountability by the assignment of limited access privileges (LAPs). LAPs are a form of output control whereby an individual fisherman, community, or other entity is granted the privilege to catch a specified portion of the total allowable catch (TAC). The alternatives include (1) a catch-based IFQ system where all groundfish catch (landings plus bycatch) by limited entry trawl vessels would count against a vessel's IFQ holdings, which could be applied to the whole groundfish trawl fishery or selected trawl sectors; and (2) a system of co-ops that would be applied to one or more of the fishery sectors that target Pacific whiting. The status quo alternative (no action) could also be considered for application to one or more trawl fishery sectors, even if one or both action alternatives (IFQs or co-ops) are chosen for the other trawl sectors.

The description of purpose and need in section 1.2 of the Amendment 20 DEIS also outlines the objectives of the proposed action. The introductory paragraph in Chapter 1 and section 1.3 of the DEIS, background to the purpose and need provide information on the legal basis for the proposed action (proposed rule). The Council articulated the following goal for the trawl rationalization program: "Create and implement 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." The objectives supporting this goal are as follows: provide a mechanism for total catch accounting; provide for a viable, profitable, and efficient groundfish fishery; promote

practices that reduce bycatch and discard mortality, and minimize ecological impacts; increase operational flexibility; minimize adverse effects from an IFQ program on fishing communities and other fisheries to the extent practical; promote measurable economic and employment benefits through the seafood catching, processing, distribution elements, and support sectors of the industry; provide quality product for the consumer; and increase safety in the fishery.

As part of the proposed action, NMFS would place observers and/or cameras on board all catcher vessels in the shore-based sector (which combines the current shore-based whiting and non-whiting trawl sectors). Existing requirements for motherships, catcher vessels in the mothership sector, and catcher-processors would continue. Independently contracted processing plant monitors would track landings. There would also be new reporting requirements related to the tracking of QS and quota pounds (QP) in the shore-based fishery.

This proposed rule has been determined to be significant for purposes of Executive Order 12866.

An initial regulatory flexibility analysis (IRFA) was prepared, as required by section 603 of the Regulatory Flexibility Act (RFA). The IRFA describes the economic impact this proposed rule, if adopted, would have on small entities. A description of the action, why it is being considered, and the legal basis for this action are contained at the beginning of this section in the preamble and in the SUMMARY section of the preamble.

The Council has prepared two EIS documents: Amendment 20—Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery, which would create the structure and management details of the trawl fishery rationalization program, and Amendment 21—Allocation of Harvest Opportunity Between Sectors of the Pacific Coast Groundfish Fishery, which would allocate the groundfish stocks between trawl and non-trawl fisheries. The two draft EISs prepared by the Council provide economic analyses of the Council's preferred alternatives and draft RIR and IRFAs. The draft RIR and IRFAs were updated and combined into a single RIR/IRFA, which comprises this document. Among other things, this single RIR/IRFA contains additional information on characterizing the participants in the fishery and on the tracking and monitoring costs associated with this program.

Due to the complexity of the proposed fishery management measures, the rule associated with this analysis proposes only certain key components that would be needed both to issue permits and endorsements in time for use in the 2011 fishery and to have the 2011 specifications reflect the new allocation scheme. Specifically, this rule would establish the allocations set forth under Amendment 21 and would establish procedures for initial issuance of permits, endorsements, and QS under the IFQ and co-op programs. NMFS plans to propose additional program details in a future proposed rule. Such additional details would include program components applicable to IFQ gear switching, observer programs, retention requirements, equipment requirements, catch monitors, catch weighing requirements, co-op permits/agreements, first receiver site licenses, quota share accounts, vessel QP accounts, further tracking and monitoring components, and economic data collection requirements. To encourage more informed public comment, this proposed rule includes a general description of these additional program requirements. NMFS is also planning a future "cost-recovery" rule, based on a recommended methodology yet to be developed by the Council.

The RIR/IRFA analyzes two alternatives—the No Action Alternative and the Preferred Alternative. The analysis of the no action alternative describes what is likely to occur in the absence of the proposed action. It provides a benchmark against which to compare the incremental effects of the proposed action. Under the no action alternative, the current, primary management tool used to control the Pacific coast groundfish trawl catch includes a system of two-month cumulative landing limits for most species and season closures for Pacific whiting. This management program would continue under the no action alternative. Only long-term, fixed allocations for Pacific whiting and sablefish north of 36° N. lat. would exist. All other groundfish species would not be formally allocated between the trawl and non-trawl sectors. Allocating the available harvest of groundfish species and species complexes would take place during the Council process of deciding biennial harvest specifications and management measures and, as such, would be considered short-term allocations.

The analysis of the preferred alternative describes what is likely to occur as a result of the proposed action. Under the preferred alternative, the existing shore-based whiting and shore-based non-whiting sectors of the Pacific Coast groundfish limited entry trawl fishery would be managed as one sector under a system of IFQs, and the at-sea whiting sectors of the fishery (i.e., catcher-processor sector and mothership sector, which includes motherships and catcher vessels) would be managed under a system of sector-specific harvesting co-ops. The catcher-processor sector would continue to operate under the existing, self-developed co-op program entered into voluntarily by that sector. A distinct set of groundfish species and Pacific halibut would be covered by the rationalization program. Amendment 20 would include a tracking and monitoring program to ensure that all catch (including discards) would be documented and matched against QP. The Council specified that observers would be required on all vessels, and shore-based monitoring (catch monitors) would be required during all off-loading (100 percent coverage). Compared to status quo monitoring, this would be a monitoring and observer coverage level increase for a large portion of the trawl fleet, particularly for nonwhiting, shore-based vessels.

The limited entry trawl fishery is divided into two broad sectors: a multi-species trawl fishery, which most often uses bottom trawl gear (hereafter called the non-whiting fishery), and the Pacific whiting fishery, which uses midwater trawl gear. The non-whiting fishery is principally managed through two-month cumulative landing limits along with closed areas to limit overfished species bycatch. Fishery participants target the range of species described above with the exception of Pacific whiting. By weight, the vast majority of trawl vessel groundfish is caught in the Pacific whiting fishery. In contrast, the non-whiting fishery accounts for the majority of limited entry trawl fishery ex-vessel revenues. On average for the period from 2000 to 2005, Pacific whiting accounted for about 75 percent of the quantity of groundfish landed in the limited entry trawl fishery, but only 21 percent of the value due to their relatively low ex-vessel price.

Non-whiting trawl vessels deliver their catch to shoreside processors and buyers located along the coasts of Washington, Oregon, and California. They tend to have their homeports located in towns within the same general area where they make deliveries, though there are several cases of vessels delivering to multiple ports during a year. Some Pacific whiting trawl vessels are

catcher-processors that, as their name implies, process their catch on-board, while other vessels in this sector deliver their catch to shoreside processors or motherships that receive Pacific whiting for processing but do not directly harvest the fish.

Over time, landings in the limited entry trawl fishery have fluctuated, especially on a species-specific basis. Pacific whiting has grown in importance, especially in recent years. Through the 1990s, the volume of Pacific whiting landed in the fishery increased. In 2002 and 2003, landings of Pacific whiting declined due to information showing the stock was depleted, and the subsequent regulations that restricted harvest in order to rebuild the species. From 2003 through 2007, estimated Pacific whiting ex-vessel revenues averaged about $29 million. In 2008, these participants harvested about 248,000 tons of whiting worth about $63 million in ex-vessel revenues, based on shore-based ex-vessel prices of $254 per ton, the highest ex-vessel revenues and prices on record. In comparison, the 2007 fishery harvested about 224,000 tons worth $36 million at an average ex-vessel price of about $160 per ton.

While the Pacific whiting fishery has grown in importance in recent years, harvests in the non-whiting component of the limited entry trawl fishery have declined steadily since the 1980s. Ex-vessel revenues in the fishery peaked in the mid 1990s at over $60 million. Following the passage of the Sustainable Fisheries Act (1996) and the listing of several species as overfished, harvests became increasingly restricted, and landings and revenues declined steadily until 2002. Since 2002, ex-vessel revenues have stabilized at approximately $23 to $27 million per year. In 2007, the Council estimated that 159 trawlers landed 94,000 metric tons (mt) of groundfish, earning $37 million in ex-vessel revenues, for an average of $234,000 per vessel.

Expected Effects of Amendment 21—Intersector Allocation

The allocation of harvest opportunity between sectors under the proposed regulation does not differ significantly from the allocation made biennially under the no action alternative. The primary economic effect of the long-term allocation under the proposed regulations is to provide more certainty in future trawl harvest opportunities, which would enable better business planning for participants in the rationalized fishery. As described elsewhere, the trawl rationalization program could create an incentive structure and facilitate more comprehensive monitoring to allow bycatch reduction and effective management of the groundfish fisheries. In support of the trawl rationalization program, the main socioeconomic impact of Amendment 21 allocations is longer-term stability for the trawl industry. While the preferred Amendment 21 allocations do not differ significantly from status quo ad hoc allocations made biennially, there is more certainty in future trawl harvest opportunities, which enables better business planning for participants in the rationalized fishery. This is the main purpose for the Amendment 21 actions. The economic effects of Amendment 21 arise from the impacts on current and future harvests. The need to constrain groundfish harvests to address overfishing has had substantial socioeconomic impacts. The groundfish limited entry trawl sector has experienced a large contraction, spurred in part by a partially federally subsidized vessel and permit buyback program implemented in 2005. This $46 million buyback program was financed by a congressional appropriation of $10 million and an industry loan of $36 million. Approximately 240 groundfish, crab, and shrimp permits were retired from state and Federal fisheries, and there was a 35 percent reduction in the groundfish trawl permits. To repay the loan, groundfish,

shrimp and crab fisheries are subject to landings fees. Follow-on effects of the buyback have been felt in coastal communities where groundfish trawlers comprise a large portion of the local fleet. As the fleet size shrinks, and ex-vessel revenues decline, income and employment in these communities are affected. Fishery-related businesses in the community may cease operations because of lost business. This can affect non-groundfish fishery sectors that also depend on the services provided by these businesses, such as providing ice and buying fish. An objective to the trawl rationalization program is to mitigate some of these effects by increasing revenues and profits within the trawl sector.

However, because further fleet consolidation is expected, the resulting benefits are likely to be unevenly distributed among coastal communities. Some communities may see their groundfish trawl fleet shrink further as the remaining vessels concentrate in a few major ports. Species subject to Amendment 21 allocations would be lingcod, Pacific cod, sablefish south of 36° N. lat., Pacific ocean perch, widow rockfish, chilipepper rockfish, splitnose rockfish, yellowtail rockfish north of 40° 10' N. lat., shortspine thornyhead (north and south of 34° 27' N. lat.), longspine thornyhead north of 34° 27' N. lat., darkblotched rockfish, minor slope rockfish (north and south of 40° 10' N. lat.), Dover sole, English sole, petrale sole, arrowtooth flounder, starry flounder, and Other Flatfish. While the preferred Amendment 21 allocations of these species do not differ significantly from status quo ad hoc allocations made biennially, there is more certainty in future trawl harvest opportunities, which enables better business planning for participants in the rationalized fishery. This is the main purpose for the Amendment 21 actions.

Based on ex-vessel revenue projections, Table 4-18 (Amendment 21 Intersector Allocation DEIS) shows the potential 2010 yield to trawl and non-trawl (including recreational) sectors under the Amendment 21 alternatives and the potential 2010 value of alternative trawl allocations. Under the status quo option Alternative 1, the projected ex-vessel value of the trawl allocation is $56 million while the projected ex-vessel value of the Council's preferred alternative is $54 million, indicating a potential increase to the non-trawl sectors and a potential decrease to the trawl sector.

In addition to the species above, halibut would also be specifically allocated to the trawl fishery. The proposed regulations include a halibut trawl bycatch reduction program in phases to provide sufficient time to establish a baseline of trawl halibut bycatch and for harvesters to explore methods (e.g., adjustments to time and/or area fished, gear modifications) to reduce halibut bycatch and bycatch mortality. Pacific halibut currently cannot be retained in any U.S. or Canadian trawl fisheries per the policy of the IPHC. The Council's intent on setting a total catch limit of Pacific halibut in Area 2A trawl fisheries is to limit and progressively reduce the bycatch to provide more benefits to directed halibut fisheries. The program establishes a limit for total Pacific halibut bycatch mortality (legal-sized and sublegal fish) by using an individual bycatch quota in the trawl fishery. The initial amount for the first two years of the trawl rationalization program would be calculated by taking 15 percent of the Area 2A total constant exploitation yield (CEY) as set by the International Pacific Halibut Commission (IPHC) for the previous year, not to exceed 130,000 pounds (lbs) per year for total mortality. For example, if the trawl rationalization program went into effect in 2013, the trawl halibut IBQ would be set at 15 percent of the Area 2A CEY adopted for 2012 or 130,000 lbs per year, whichever is less, for 2013 and 2014 (years 1 and 2 of the program). Beginning with the third year of implementation, the

maximum amount set aside for the trawl rationalization program would be reduced to 100,000 lbs per year for total mortality. This amount may be adjusted downward through the biennial specifications process for future years.

Currently there are no total catch limits of Pacific halibut specified for the west coast trawl fishery. Trawl bycatch of Pacific halibut, therefore, does not limit the trawl fishery. A phased-in halibut bycatch reduction program would provide sufficient time to establish a baseline of trawl halibut bycatch under the new rationalization program and would enable harvesters to explore methods (e.g., adjustments to time and/or area fished, gear modifications) to reduce both halibut bycatch and bycatch mortality. By limiting the bycatch of Pacific halibut in the limited entry trawl fisheries, Amendment 21 would control bycatch and could provide increased benefits to Washington, Oregon, and California fishermen targeting Pacific halibut. Reducing the trawl limit would also provide more halibut to those who participate in the directed tribal, commercial, and recreational halibut fisheries.

Effects of Amendment 20-Trawl Rationalization

Due to the lack of quantitative data, an overall comprehensive model was not feasible. Instead, a set of models designed to focus on specific issues was developed. For example, models were used to analyze the effects of the initial allocation of QS in the trawl IFQ program; project geographic shifts in fishery patterns; and illustrate the potential for reducing bycatch, increasing target catch, and increasing revenues. To illustrate the benefits of the IFQ program, a model projecting the expected amount of fleet consolidation in the shore-based non-whiting fishery was developed. This model illustrates the potential for the fleet to reduce bycatch and potentially increase the amount of target species harvested. This model is primarily based on bycatch reduction experiences in the Pacific whiting fishery and on the arrowtooth flounder fishery as carried out under an exempted fishing permit. The model accounts for the fact that trawlers harvest many species (multiple outputs). The model also uses fish ticket data and the data from the recently completed West Coast Limited Entry Cost Earnings Survey sponsored by the NMFS Northwest Fisheries Science Center. [For the other sectors, similar models could not be developed because the appropriate cost data were unavailable.]

Estimates of potential economic benefits are generated based on the predicted harvesting practices from the first step analysis. Because the west coast nonwhiting groundfish fishery is not a derby fishery, it is expected that economic benefits will come through cost reductions and increased access to target species that arise from modifications in fishing behavior (overfished species avoidance). The key output of this analysis is an estimate of post-rationalization equilibrium harvesting cost.

Changes in harvesting costs can arise from three sources. First, the total fixed costs incurred by the groundfish trawl fleet change as the size of the fleet changes. Since many limited entry trawlers incur annual fixed costs of at least $100,000, reductions in fleet size can result in substantial cost savings. In other words, fewer vessels in the fishery will lead to decreased costs through a decrease in annual fixed costs. Second, costs may change as fishery participation changes, no longer incurring diseconomies of scope (such as the costs of frequently switching gear for participating in multiple fisheries). Third, costs may change as vessels are able to buy

and sell quota to take advantage of economies of scale and operate at the minimum point on their long-run average cost curve (i.e. the strategy that minimizes the cost of harvesting).

The major conclusions of this model suggest that (with landings held at 2004 levels), the current groundfish fleet (non-whiting component), which consisted of 117 vessels in 2004, will be reduced by roughly 50 percent to 66 percent, or 40 to 60 vessels under an IFQ program. The reduction in fleet size implies cost savings of $18 to $22 million for the year 2004 (most recent year of the data). Vessels that remain active will, on average, be more cost efficient and will benefit from economies of scale that are currently unexploited under controlled access regulations in the fishery. The cost savings estimates are significant, amounting to 60 percent of the costs incurred currently, suggesting that IFQ management may be an attractive option for the Pacific Coast Groundfish Fishery. Assuming a 10 percent annual return to the vessel capital investment, estimates indicate that the 2004 groundfish fleet incurred a total cost of $39 million. The PacFIN data indicate fleetwide revenue at roughly $36 million in 2004. Therefore, fleetwide losses of about $3 million occurred in 2004. Based on a lower 5 percent return to vessel capital, the results suggest that the groundfish fleet merely broke even in 2004; i.e., dockside revenues were offset by the fleet wide harvesting costs. The results also suggest that a switch from the current controlled access management program to IFQs could yield a significant increase in resource rents in the Pacific Coast Groundfish fishery. For instance, the analysis finds that the 2004 groundfish catch generated zero resource rent. Instead, it could have yielded a substantial positive rent at about $14 million.

As the model was based on the 2004 fishery, it may be useful to show current trends in the fishery. In 2004, the shorebased non-whiting trawl fishery generated about $30 million in ex-vessel revenues. According to cost estimates discussed above, however, this fishery was at best breaking even or perhaps suffering a loss of up to $2 million. Since 2004, shorebased non-whiting trawl fisheries have increased their revenues to about $40 million. The increases in shorebased revenues have come from increased landings of flatfish and sablefish and significant increase in sablefish ex-vessel prices. Sablefish now accounts for almost half of the trawl fleet's revenues. While revenues were increasing, so were fuel prices. Fuel costs are about 30 to 40 percent of the vessels' revenues. The average 2005 to 2009 revenues were about $28 million, or 22 percent greater than 2004. The average 2005 to 2009 fuel price was about $2.81, 70 percent greater than that of 2004. Therefore, it appears that 2009 fishery may not be that much improved over that of 2004.

Based on the various models, ex-vessel revenues for the non-whiting sector of the limited entry trawl fishery are estimated to be approximately $30 to 50 million per year under the preferred alternative, compared to $22 to 25 million under the no action alternative. This revenue increase is expected to occur in a rationalized fishery, because target species quotas can be more fully utilized. Currently, in the non-whiting sector, cumulative landing limits for target species have to be set lower because the bycatch of overfished species cannot be directly controlled. Introducing accountability at the individual vessel level by means of IFQs provides a strong incentive for bycatch avoidance (because of the actual or implicit cost of quota needed to cover bycatch species) and prevents the bycatch of any one vessel from affecting the harvest opportunity of others. In addition, under the preferred alternative, the non-whiting sector would have control over harvest timing over the whole calendar year. Under the no action alternative,

the non-whiting sector would continue to operate under two-month cumulative landing limits, which reduces flexibility within the period, because any difference between actual limits and the period limit cannot be carried over to the next period. Finally, the ability for vessels managed under IFQs to use other types of legal groundfish gear could allow some increases in revenue by targeting higher-value line- or pot-gear-caught fish. This opportunity would mainly relate to sablefish, which are caught in deeper water, rather than nearshore species where state level regulatory constraints apply.

The preferred alternative may also increase ex-vessel revenues of non-whiting trawl harvesters by changing their bargaining power with processors over ex-vessel prices. Under the preferred alternative, the current two-month cumulative limits structure of the non-whiting trawl fishery would be replaced with QP that is available for a year, thereby extending the time horizon harvesters have to negotiate prices with processors without losing available fishing opportunity. The extended period would give harvesters greater latitude to hold out for better prices compared to the no action alternative. However, these negotiations will also be affected by the availability of target species, as well as the availability of bycatch.

Costs for the non-whiting sector of the limited entry trawl fishery are expected to decrease under the preferred alternative because of productivity gains related to fleet consolidation. Productivity gains would be achieved through lower capital requirements and a move to more efficient vessels. Operating costs for the non-whiting sector are predicted to decrease by as much as 60 percent annually. Based on estimates of current costs, this percentage decrease represents a $13.8 million cost reduction relative to the no action alternative.

The accumulation limits considered under the preferred alternative are not expected to introduce cost inefficiencies in the non-whiting sector, provided that current prices and harvest volumes do not decrease. However, the preferred alternative would impose new costs on the non-whiting sector that would not be incurred under the no action alternative. First, a landings fee of up to 3 percent of the ex-vessel value of fish harvested would be assessed under the preferred alternative to recover management costs, such as maintenance of the system of QS accounts. Second, new at-sea observer requirements would be introduced, and vessels would have to pay the costs of complying with these requirements, estimated at $500 a day if independent contractors are hired. The daily observer cost could place a disproportionate adverse economic burden on small businesses because such costs would comprise a larger portion of small vessels costs than that of larger vessels.

The increase in profits that commercial harvesters are expected to experience under the preferred alternative may render them better able to sustain the costs of complying with the new reporting and monitoring requirements. The improved harvesting cost efficiency under the preferred alternative may allow the non-whiting sector to realize profits of $14 to 23 million compared to $0 or less under the no action alternative. In addition, a provision that allows vessels managed under the IFQ program to use other legal gear (gear switching) would allow sablefish allocated to the trawl sector to be sold at a higher price per pound, possibly contributing to increased profits. The imposition of accumulation limits could reduce the expected increase in the profitability of the non-whiting sector by restricting the amount of expected cost savings, and the costs of at-sea observers may reduce profits by about $2.2 million, depending on the fee

structure. However, the profits earned by the non-whiting sector would still be substantially higher under the preferred alternative than under the no action alternative.

New entrants are likely to face a barrier to entry in the Pacific Coast groundfish limited entry trawl fishery in the form of the cost of acquiring QS (or a co-op share in the case of the at-sea whiting sector). This disadvantages them in comparison to those entities that receive an initial allocation of harvest privileges. Small entities may be particularly disadvantaged to the degree that they may find it more difficult to finance such quota purchases. Among the goals the Council identified for the adaptive management program was to use the reserved non-whiting QS to facilitate new entry into the fishery. In addition, the Council identified, as a trailing action, a framework to allow the establishment and implementation of community fishing associations as part of the adaptive management program. These entities could facilitate entry into the fishery by leasing QS at below market rates, thereby leveling the playing field in terms of costs between initial recipients of QS and new entrants.

The incremental effects of the preferred alternative on buyers and processors of trawl caught groundfish are detailed Sections 4.9 to 4.10 of the Rationalization of the Amendment 20 Pacific Coast Groundfish Limited Entry Trawl Fishery DEIS. Even though processors may have to pay fishermen higher ex-vessel prices, processors may see cost savings under the preferred alternative to the degree that rationalization allows greater control over the timing and location of landings. Processors could use current plant capacity more efficiently, because available information suggests that processing facilities are currently underutilized. Fleet consolidation in the non-whiting sector could also provide cost savings for processors if landings occur in fewer locations, thereby reducing the need for facilities and/or transport. The preferred alternative would also impose new costs on processors that would not be incurred under the no action alternative. Processors would be required to pay some or all of the costs of plant monitors, who would verify landings. Similar to at-sea observers, these monitors would be independent contractors rather than direct employees of the processing firm.

In the non-whiting processing industry, harvest volumes may increase because of a decrease in constraining species bycatch and a subsequent increase in underutilized target species catch. This boost in target species catch may increase utilization of processing capital and processing activity. [It should be noted that if, under the current system, bycatch has been underreported, with 100 percent observer coverage under the new system, the gains in increased target catches may be less than expected.] Consequently, the possibility of capital consolidation in the non-whiting shore-based sector may be lower than in the shore-based whiting sector. However, shifts in the distribution of landings across ports as a result of fleet consolidation, industry agglomeration, and the comparative advantage of ports (a function of bycatch rates in the waters constituting the operational area for the port, differences in infrastructure, and other factors) could lead to consolidation in processing activity at a localized or regional scale, as well as an expansion in processing activity elsewhere. To mitigate harm to adversely impacted non-whiting shoreside processors, the adaptive management program provides a mechanism to distribute non-whiting QS to processors, thereby ensuring that some processors receive greater landings of groundfish than would otherwise be the case.

As noted above, the preferred alternative may reduce the power of non-whiting shoreside processors to negotiate ex-vessel prices with harvesters. The larger harvest volume due to bycatch avoidance may lower processor average costs, which could offset the negative effects on non-whiting shoreside processors of a shift in bargaining power. In addition, processors could purchase QS over the long term, thereby increasing their negotiation power. However, the accumulation limits included in the preferred alternative would limit the ability of processors to purchase substantial quantities of QS. Alternatively, the adaptive management provision could be used to allocate QS to non-whiting shoreside processors, thereby providing them additional leverage when negotiating terms with harvesters.

The allocation of 20 percent of the initial shore-based whiting QS to the shoreside processor portion of the groundfish fishery would give these processors more influence in negotiations over ex-vessel prices and would tend to offset the gains in bargaining power for harvesters. For example, a processor could use QS to induce a harvester that is short of QP for a Pacific whiting trip to make deliveries under specified conditions and prices. Because of a reduction in peak harvest volume, however, fewer processing companies and/or facilities may be necessary to handle harvest volumes of Pacific whiting, meaning some companies may find themselves without enough product to continue justifying processing operations of Pacific whiting.

Revenues from harvesting and processing trawl-caught groundfish are expected to increase. Total revenue from nonwhiting trawl fisheries was $25 million in 2007. Revenue is expected to increase 1.1 to 1.6 times in a rationalized fishery, depending on bycatch rate reductions and stock status. Revenue increases are mainly expected because, under rationalized fisheries, target species quotas can be more fully utilized. Currently, in the nonwhiting sector, cumulative landing limits for target species have to be set lower because the bycatch of overfished species cannot be directly controlled. Introducing accountability at the individual vessel level provides a strong incentive for bycatch avoidance (because of the actual or implicit cost of quota needed to cover bycatch species) and prevents the bycatch of any one vessel from affecting the harvest opportunity of others. Whiting fisheries are more directly managed through quotas and, in recent years, by limits on bycatch. Beginning in 2009, bycatch limits have been established for each of the three whiting sectors. For the shore-based and mothership whiting sectors, the fishery can potentially close before the whiting allocation is fully harvested because a bycatch cap is reached. [The catcher-processor sector currently operates as a voluntary co-op and is, therefore, better able to coordinate harvest strategy to avoid reaching bycatch limits.] However, in general, the whiting sectors have been able to harvest their sector allocations. Whiting vessels could increase revenues due to improved product recovery as a result of the ability to better control harvest timing. As mentioned above, the ability for vessels managed under IFQs to use other types of legal groundfish gear could allow some increases in revenue by targeting higher-value line or pot gear caught fish.

Harvester and possibly processor costs are expected to decrease because of productivity gains related to fleet consolidation. Cost savings would be due to lower capital requirements and a move to more efficient vessels in the nonwhiting sector. Costs are predicted to decrease by as much as 60 percent annually, which, based on estimates of current operating costs, would represent a $13.8 million decrease. Similar levels of consolidation are expected for shorebased and mothership catcher vessels. Proposed mitigation measures could reduce these costs savings.

For example, a 1 percent quota share accumulation limit could reduce cost savings by as much as 20 percent. However, the accumulation limits considered in the alternatives are not expected to introduce higher costs at current prices and harvest volume. The proposed action would introduce some new costs. First, up to 3 percent of the value of landings may be assessed to cover administrative and management costs. Second, new at-sea observer requirements would be introduced and vessels would have to pay the cost, estimated at $350 to $500 a day.

Processors may see cost-savings to the degree that rationalization allows greater control over the timing and location of landings. Processors could use current plant capacity more efficiently, because available information suggests that processing facilities are currently underutilized. Fleet consolidation could also drive some cost savings on the part of processors if landings occur in fewer locations. This would reduce the need for facilities and/or transport. Under the proposed action, processors would be required to pay the costs of plant monitors, who would verify landings. These monitors would not be directly employed by the processing firm but, similar to at-sea observers, would be independent contractors.

Rationalization of the groundfish trawl sector is expected to free up capital and labor because of increases in productivity. [Since the basic input, trawl-caught fish, is subject to an underlying constraint due to biological productivity, increases in labor and capital productivity are expected to reduce the amount of those inputs needed.] However, from a national net benefit perspective, these effects are neutral since capital and labor can be put to some productive use elsewhere in the broader economy. Also, current groundfish fishery participants who receive QS (trawl limited entry trawl permit holders and eligible shoreside processors) are compensated to the degree that the asset value of the QS covers capital losses.

The tracking and monitoring costs of this program will be provided in more detail during the "program components" rulemaking process. However, the RIR/IRFA to this rule contains some preliminary estimates. After a transition period, initial estimates of the annual Federal and state agency costs to run the shore-based fishery (including whiting) are about $5 million. Based on the observer cost of $500 per day, the annual costs of observers is about $4 million. At $350 per day, the compliance monitoring program is just over $1 million annually. These figures add up to just over $10 million. From a cost-benefit viewpoint, if consolidation leads to $14 million savings from reduced harvesting costs, and the new program increases the tracking and monitoring costs of $10 million, there is a projected net gain of about $4 million. This does not take into account expectations that costs will likely be reduced due to consolidation or the increases in expected revenues discussed above.

While the effect of the preferred alternative on revenues and costs in the whiting sector of the limited entry trawl fishery is more difficult to estimate, the lower motivation to "race for fish" due to co-op harvest privileges is expected to result in improved product quality, slower-paced harvest activity, increased yield (which should increase ex-vessel prices), and enhanced flexibility and ability for business planning. The overall effect of these changes would be higher revenues and profits for harvesters in the shoreside and mothership portions of the whiting fishery in comparison to the no action alternative. Under the preferred alternative, some consolidation may occur in the shoreside and mothership sectors of the Pacific whiting fishery, though the magnitude of consolidation is expected to be less than in the non-whiting sector. The

existing catcher-processor co-op would continue under the preferred alternative, with effects on the catcher-processor sector that look similar, or identical, to those of the no action alternative. However, the change from a vessel-restriction under Amendment 15 to the permit-based limit of Amendment 21 will provide additional flexibility that currently does not exist in the whiting fishery.

This proposed rule would regulate businesses that harvest groundfish and processors that want to process limited entry trawl groundfish. Under the RFA, the term "small entities" includes small businesses, small organizations, and small governmental jurisdictions. For small businesses, the Small Business Administration has established size criteria for all major industry sectors in the U.S, including fish harvesting and fish processing businesses. A business involved in fish harvesting is a small business if it is independently owned and operated, is not dominant in its field of operation (including its affiliates), and has combined annual receipts that do not exceed $4.0 million for all its affiliated operations worldwide. A seafood processor is a small business if it is independently owned and operated, is not dominant in its field of operation, and employs 500 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide. A business involved in both the harvesting and processing of seafood products is a small business if it meets the $4.0 million criterion for fish harvesting operations. A wholesale business servicing the fishing industry is a small business if it employs 100 or fewer persons on a full time, part time, temporary, or other basis, at all its affiliated operations worldwide. For marinas and charter/party boats, a small business is one with annual receipts not in excess of $7.0 million. The RFA defines a small organization as any nonprofit enterprise that is independently owned and operated and is not dominant in its field. The RFA defines small governmental jurisdictions as governments of cities, counties, towns, townships, villages, school districts, or special districts with populations of less than 50,000.

NMFS makes the following conclusions based primarily on analyses associated with fish ticket and limited entry permit data, available employment data provided by processors, information on the charterboat and tribal fleets, and available industry responses industry to ongoing survey on ownership. Entities were analyzed as to whether they were only affected by the Amendment 21 allocation processes (non-trawl), or whether they were affected by both Amendments 20 and 21 (trawl).

The non-trawl businesses are associated with the following fleets: limited entry fixed gear (approximately 150 companies), open access groundfish (1,100), charterboats (465), and the tribal fleet (four tribes with 66 vessels). Available information on average revenue per vessel suggests that all the entities in this group can be considered small.

For the trawl sector, there are 177 permit holders. Nine limited entry trawl permits are associated with the catcher-processing vessels that are considered large companies. Of the remaining 168 limited entry permits, 25 limited entry trawl permits are either owned or closely associated with a large shore-based processing company or with a non-profit organization who considers itself a large organization. Nine other permit owners indicated that they were large companies. Almost all of these companies are associated with the shorebased and mothership whiting fisheries. The remaining 134 limited entry trawl permits are projected to be held by small companies. Three of the six mothership processors are large companies. Within the

14 shorebased whiting first receivers/processors, there are four large companies. Including the shorebased whiting first receivers, in 2008, there were 75 first receivers that purchased limited entry trawl groundfish. There were 36 small purchasers (less than $150,000); 26 medium purchasers (purchases greater than $150,000 but less than $1,000,000); and 13 large purchasers (purchases greater than $1.0 million). Because of the costs of obtaining a processor site license, procuring and scheduling a catch monitor, and installing and using the electronic fish ticket software, these small purchasers will likely opt out of buying groundfish, or arrange to purchase fish from another company that has obtained a processing site license.

The major impacts of this rule appear to be on two groups: Shoreside processors, which are a mix of large and small processors; and shore-based trawlers, which are also a mix of large and small companies. The non-whiting shore-based trawlers are currently operating at a loss or, at best, are breaking even. The new rationalization program would lead to profitability, but only with a reduction of about 60 percent of the fleet. This program would lead to major changes in the fishery. To help mitigate against these changes, as discussed above, the agency has announced its intent, subject to available Federal funding, that participants would initially be responsible for 10 percent of the cost of hiring observers and catch monitors. The industry proportion of the costs of hiring observers and catch monitors would be increased every year so that, once the fishery has transitioned to the rationalization program, the industry would be responsible for 100 percent of the cost of hiring the observers and catch monitors by 2014. NMFS believes that an incrementally reduced subsidy to industry funding would enhance the observer and catch monitor program's stability, ensure 100 percent observer and catch monitor coverage, and facilitate the industries' successful transition to the new quota system. In addition, to help mitigate against the negative impacts of this program, the Council has adopted an adaptive management program (CFA) in which, starting in year three of the program, 10 percent of non-whiting QS would be set aside every year to address community impacts and industry transition needs. After reviewing the initial effects of ITQ programs in other parts of the world, the council had placed a short-term QS trading prohibition so that fishermen can learn from their experiences and not make premature sales of their QS. The Council also envisions future regulatory processes that would allow CFAs to be established to help aid communities and fishermen.

Regulatory Impact Review and
Initial Regulatory Flexibility Analysis

Proposed Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery AND Allocation of Harvest Opportunity BETWEEN Sectors of the Pacific Coast Groundfish Fishery
National Marine Fisheries Service, Northwest Region
Initial Analysis May 2010

1. INTRODUCTION

This document is a Regulatory Impact Review (RIR) and Initial Regulatory Flexibility Analysis (IRFA) that describes the expected economic impacts of selected alternatives contained in the following two proposed amendments to the Pacific Coast Groundfish Fishery Management Plan:

- *Amendment 20—Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery*. Amendment 20 would create the structure and management details of the trawl fishery rationalization program.

- Amendment 21—*Allocation of Harvest Opportunity Between Sectors of the Pacific Coast Groundfish Fishery*. Amendment 21 would allocate the groundfish stocks between trawl and non-trawl fisheries.

The Northwest Region of the National Marine Fisheries Service (NMFS-NWR) is developing regulations that will, if approved by the U.S. Secretary of Commerce, implement the plan amendments. The rulemaking process must comply with Executive Order (EO) 12866 and the Regulatory Flexibility Act (RFA). The RFA requires the agency to prepare and make available for public comment an IRFA that describes the impact on small businesses, non-profit enterprises, local governments, and other small entities. The IRFA aids the agency in considering all reasonable regulatory alternatives that would minimize the economic impact on affected small entities. The EO covers a variety of regulatory policy considerations and establishes procedural requirements for RIRs that will contain analyses of the benefits and costs of regulatory actions.

Trawl Rationalization Program Structure

The trawl rationalization program would consist of (1) an individual fishing quota (IFQ) program for the shore-based trawl fleet and (2) cooperative (co-op) programs for the at-sea trawl fleet. The shore-based trawl fleet would include IFQ participants who land groundfish to shore-based processors or first receivers. The at-sea trawl fleet would include fishery participants harvesting whiting with midwater trawl gear (i.e., whiting catcher/processor vessels, whiting motherships, and whiting catcher vessels associated with motherships). The co-op programs for the at-sea trawl fleet are further divided as follows: (1) a single whiting catcher/processor co-op that forms; and (2) one or more whiting mothership co-ops that may form. Vessels may also choose to fish in an open access or non-co-op fishery that would be unaffiliated with a co-op. For the co-op and non-co-op fishery, vessel owners pool their harvest together.

The IFQ program for the shore-based fleet would require NMFS to make an initial allocation of harvest quota share (QS) (expressed as a percentage of the total sector amount) through a new QS permit to current owners of limited entry trawl permits and shore-based whiting first receivers who meet the qualifying criteria. Depending on a person's limited entry trawl permit history in qualifying years, the permit owner will receive an initial allocation for various target species/species groups (approximately 20 species), some with area designations. In addition, NMFS would allocate QS for overfished species based on a proxy of the amount of target species allocated to the quota shareholder. Shore-based whiting first receivers will receive an initial allocation of whiting only, based on their history of being the first receiver reported on state fish tickets (with an opportunity to reassign their history). Each year, based on the optimum yield (OY) amounts for each species and the amount of QS a holder has for a particular species/area, NMFS would allocate quota pounds (QP) to the QS account. The QS owner, in turn, must allocate QP to vessel accounts. Vessels are required to have IFQ or QP in an account to cover all IFQ landings and discards incurred while fishing under this program. In order to comply with the Magnuson-Stevens Fishery Conservation and Management Act (MSA), NMFS would track ownership interest in QS to determine if individuals are within set accumulation limits, both at the initial allocation stage and during the operation of the program. In Amendment 20, the Pacific Fishery Management Council (Council) has adopted limits (by species group and area) on the amount of QS an individual can control (i.e., control limits) and limits on the amount of QP that may be registered to a vessel for use in a given year.

For the at-sea whiting component of the trawl rationalization program, the Council has adopted a program that provides for a catcher-processor co-op and mothership co-ops that differ from how the co-ops have operated in the past. The catcher-processor co-op will not require an initial allocation of catch shares to individual vessels, provided that a co-op is established. However, whiting catch shares for the mothership fleet (called catch history assignments) would initially be allocated to qualifying limited entry trawl permits that were registered to catcher vessels in qualifying years and which were used in the mothership whiting fishery. The catch history assignments would be non-severable from the permit. Holders of qualifying permits that are allocated a whiting catch history assignment may choose to participate in the mothership co-op or non-co-op fishery. Similar to the shore-based IFQ program, NMFS would be required to track permit ownership interests in the mothership sector to determine if individuals comply with accumulation limits. For species subject to trawl rationalization, Amendment 21 would modify the way annual harvest guidelines are distributed. Under the current allocation strategy established in Amendment 6, a commercial harvest guideline (HG) is established. This commercial HG is then divided between limited entry and open access. Under Amendment 21, the limited entry fixed gear fishery would no longer receive a formal allocation. In addition, the commercial HG would be changed to a general HG, which would also apply to recreational fisheries.

Instead of deriving a commercial HG from OY, NMFS would establish a fishery HG applicable to both commercial and recreational fisheries. The HG would be derived by reducing OY in the manner currently described for the commercial HG, except that the recreational catch would not be subtracted; it would be included in the fishery HG. NMFS would then divide the fishery HG into allocations for the trawl and non-trawl fisheries. This differs from the current regime that divides between limited entry and open access. For some species under the proposed program,

the recreational fishery and the limited entry fixed gear fishery would share in the non-trawl allocation with the open access fleet. This proposed rule sets forth the specific percentages of the fishery HG for covered species that would be allocated to the trawl and non-trawl fisheries.

In order to implement the recommended IFQ and Co-op programs, it would be necessary for each of these trawl sectors to have a specific allocation of catch that could be divided among participants. While this could be accomplished through the specification process under the status quo, the council determined that a fixed allocation within the fishery management plan (FMP) would be preferable because it would promote predictability and the type of stability that facilitates successful relationships that make individual-based programs work. Thus, the Council recommended formal allocations in Amendment 21. In addition, Amendment 21 would establish total catch limits for Pacific halibut, as well as set-asides to accommodate the rationalized trawl fleet. The total catch limits would protect the directed fishery for halibut, as well as reducing overall halibut catch limits.

Species not covered by Amendment 21 would continue to be informally allocated through the biennial specifications process.

Introductory Note on the Analysis

Due to the complexity of the proposed fishery management measures, the rule associated with this analysis proposes only certain key components that would be necessary to have permits and endorsements issued in time for use in the 2011 fishery and to have the 2011 specifications reflect the new allocation scheme. Specifically, this rule would establish the formal allocations set forth under Amendment 21 and establish procedures for initial issuance of permits, endorsements, and quota shares under the IFQ and co-op programs. NMFS plans to propose additional program details in a future proposed rule. Such additional details would include program components applicable to IFQ gear switching, observer programs, retention requirements, equipment requirements, catch monitors, catch weighing requirements, co-op permits/agreements, first receiver site licenses, quota share accounts, vessel QP accounts, further tracking and monitoring components, and economic data collection requirements. In order to encourage more informed public comment, this proposed rule includes a general description of these additional program requirements. NMFS is also planning a future cost-recovery rule based on a recommended methodology yet to be developed by the Council.

To support the rulemaking described above, this analysis will be accordingly updated and revised. However, this initial analysis will assess the entire program by drawing heavily upon the Council's November 2010 document "Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery Draft Environmental Impact Statement," including its "Appendix H Preliminary Draft Regulatory Impact Review and Preliminary Initial Regulatory Flexibility Analysis." This analysis also updates the tracking and monitoring cost analysis found in Appendix A, Section A-2.3.3, Analysis of Components, Elements, and Options for the Individual Fishing Quota Alternative Trawl Individual Quota Components Analysis. This updated analysis also includes a discussion of the tracking and monitoring costs of the mothership and catch-processor sectors. This update is Attachment 1 to this document: "Update on Tracking and Monitoring Costs."

The analysis that follows constitutes both the RIR and IRFA as many of their required elements are the same. In terms of meeting the analytical requirements of an RIR and IRFA, the analysis adopts the following approach set forth in the 2007 *Guidelines for Economic Reviews of National Marine Fisheries Service Regulatory Actions*:

> At a minimum, the RIR and the [IRFA] should include a good qualitative discussion of the economic effects of the selected alternatives. Quantification of these effects is desirable, but the analyst needs to weigh such quantification against the significance of the issue and available studies and resources. Generally, a good qualitative discussion of the expected effects would be better than poor quantitative analyses.

The next two sections further describe the considerations and requirements of a RIR and IRFA.

2. REGULATORY IMPACT REVIEW CONSIDERATIONS AND REQUIREMENTS

NMFS requires the preparation of an RIR for all regulatory actions of public interest. The RIR provides a comprehensive 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 major alternatives that could be used to solve the problems. The purpose of the analysis is to ensure that the regulatory agency systematically and comprehensively considers all available alternatives, so that public welfare can be enhanced in the most efficient and cost-effective way. The RIR addresses many of the items in the regulatory philosophy and principles of EO 12866.

The RIR is designed to determine whether the proposed action could be considered a significant regulatory action according to EO 12866. EO 12866 requires that an RIR assess whether an action would be a significant regulatory action and mandates that the RIR identify the expected outcomes of the proposed management alternatives. An action may be considered significant if it is expected to 1) have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; 2) create a serious inconsistency or otherwise interfere with action taken or planned by another agency; 3) materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or 4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the EO.

The RIR analysis includes a description of management objectives, a description of the fishery, statement of the problem, a description of each alternative considered in the analysis, and an economic analysis of the expected effects of each selected alternative relative to the no action alternative.

3. INITIAL REGULATORY FLEXIBILITY ANALYSIS CONSIDERATIONS AND

REQUIREMENTS

The RFA, 5 U.S.C. 603 et seq., requires government agencies to assess the effects that regulatory alternatives would have on small entities, including small businesses, and to determine ways to minimize those effects. When an agency proposes regulations, the RFA requires the agency to prepare an IRFA that describes the impact on small businesses, non-profit enterprises, local governments, and other small entities and make the IRFA available for public comment. The IRFA is designed to aid the agency in considering all reasonable regulatory alternatives that would minimize the economic impact on affected small entities. Under the RFA, an agency does not have to conduct an IRFA and/or final RFA (FRFA) if an agency can certify that the proposed rule will not have a significant economic impact on a substantial number of small entities. To perform this certification, the agency has to state the basis and purpose of the rule, describe and estimate the number of small entities to which the rule applies, estimate economic impacts on small entities (by entity size and industry), and explain the criteria used to evaluate whether the rule would impose "significant economic impacts."

Under the RFA, the term "small entities" includes small businesses, small organizations, and small governmental jurisdictions.

Small businesses. The Small Business Administration has established size criteria for all major industry sectors in the United States, including fish harvesting and fish processing businesses. A business involved in fish harvesting is a small business if it is independently owned and operated and not dominant in its field of operation (including its affiliates) and if it has combined annual receipts that do not exceed $4.0 million for all its affiliated operations worldwide. A seafood processor is a small business if it is independently owned and operated, not dominant in its field of operation, and employs 500 or fewer persons on a full-time, part-time, temporary, or other basis, at all of its affiliated operations worldwide. A business involved in both the harvesting and processing of seafood products is a small business if it meets the $4.0 million criterion for fish harvesting operations. A wholesale business servicing the fishing industry is a small business if it employs 100 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide. For marinas and charter/party boats, a small business is one with annual receipts that do not exceed $7.0 million.

Small organizations. The RFA defines a small organization as any nonprofit enterprise that is independently owned and operated and is not dominant in its field.

Small governmental jurisdictions. The RFA defines small governmental jurisdictions as governments of cities, counties, towns, townships, villages, school districts, or special districts with populations of less than 50,000.

4. REGULATORY IMPACT REVIEW AND INITIAL REGULATORY FLEXIBILITY ANALYSIS

4.1 Statement of the Problem, Including Reasons for Considering the Proposed Actions

This section summarizes the purpose and need for the proposed actions as discussed in Section 1.2 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery DEIS* and Section 1.3 of the *Allocation of Harvest Opportunity Between Sectors of the Pacific Coast Groundfish Fishery DEIS*.

Despite a program completed in 2003 to buy back groundfish limited entry permits and associated vessels, management of the Pacific coast limited entry groundfish trawl fishery is still marked by serious biological, social, and economic concerns similar to those cited in the U.S. Commission on Ocean Policy's 2004 report, *An Ocean Blueprint for the 21st Century*. The trawl fishery is currently viewed as economically unsustainable due to the number of participating vessels (excess capacity), a regulatory approach that constrains efficiency, and the status of certain groundfish stocks, along with the measures in place to protect those stocks.

One major source of concern stems from the management of bycatch, particularly of overfished species. Over the past several years, the groundfish management efforts of the Council have been involved in drafting rebuilding plans for overfished species, minimizing bycatch, and specific management of overfished species.

As highlighted in the following problem statement that the Council sent out for public review in a June 2004 scoping document, these problems with capacity, economic inefficiency, and bycatch management are interconnected with problems related to the ability to achieve OY; the need for a precautionary management approach; and the need for a flexible system that allows for variations and contingencies, long-term and short-term concerns for communities, and safety. The problem statement is presented below:

> As a result of the legal requirement to minimize bycatch of overfished species, considerable harvest opportunity is being forgone in an economically stressed fishery. The west coast groundfish trawl fishery is a multi-species fishery in which fishermen exert varying and limited control of the mix of species in their catch. The optimum yields (OYs) for many overfished species have been set at low levels, placing a major constraint on the industry's ability to fully harvest the available OYs of the more abundant target species that co-occur with the overfished species, wasting economic opportunity. Average discard rates for the fleet are applied to project bycatch of overfished species. These discard rates determine the degree to which managers must constrain the harvest of target species that co-occur with overfished species. These discard rates are developed over a long period of time and do not rapidly respond to changes in fishing behavior by individual vessels or for the fleet as a whole. Under this system, there is little direct incentive for individual vessels to do everything possible to avoid take of species for which there are conservation concerns, such as overfished species. In an economically stressed environment, uncertainties about average

bycatch rates become highly controversial. As a consequence, members of fishing fleets tend to place pressure on managers to be less conservative in their estimates of bycatch. Given all of these factors, in the current system there are uncertainties about the accuracy of bycatch estimation, few incentives for the individual to reduce personal bycatch rates, and an associated loss of economic opportunity related to the harvest of target species.

The current management regime is not responsive to the wide variety of fishing business strategies and operational concerns. For example, historically the Pacific Council has tried to maintain a year-round groundfish fishery. Such a pattern works well for some business strategies in the industry, but there has been substantial comment from fishermen who would prefer to be able to pursue a more seasonal groundfish fishing strategy. The current management system does not have the flexibility to accommodate these disparate interests. Nor does it have the sophistication, information, and ability to make timely responses necessary to react to changes in market, weather, and harvest conditions that occur during the fishing year. The ability to react to changing conditions is a key factor in conducting an efficient fishery in a manner that is safe for the participants.

Fishery stock depletion and economic deterioration of the fishery are concerns for fishing communities. Communities have a vital interest in the short-term and long-term economic viability of the industry, the income and employment opportunities it provides, and the safety of participants in the fishery.

In summary, management of the fishery is challenged with the competing goals of: minimizing bycatch, taking advantage of the available allowable harvests of more abundant stocks, increasing management efficiency, and responding to community interest. "Taking advantage of the available allowable harvests" includes conducting safe and efficient harvest activities in a manner that optimizes net benefits over both the short and long term.

In addition to problems specified in the problem statement, the two DEISs also deal with issues of foregone opportunities, stress within the management system, discard rates, and overfished species.

With respect to allocation of harvest opportunity between sectors of the Pacific Coast groundfish fishery, only long-term fixed allocations for Pacific whiting and sablefish north of 36° N latitude exist. Currently there are established procedures for any species to be formally allocated between commercial open access and limited entry sectors based on catch history for the license limitation allocation period. However, these are rarely implemented due to constraints imposed by management measures designed to rebuild overfished species. Allocating the available harvest of groundfish species and species complexes occurs in the Council process of deciding biennial harvest specifications and management measures; as such, these are considered short-term allocations. Amendment 21 makes a formal allocation between sectors for the majority of groundfish species, and it would, essentially, supersede these preexisting procedures in a single action.

4.2 Description of the Management Objectives and Legal Basis for the Proposed Actions

This section summarizes the management objectives for the proposed actions as discussed in Section 1.2 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery DEIS* and Section 1.3 of the *Allocation of Harvest Opportunity Between Sectors of the Pacific Coast Groundfish Fishery DEIS*.

The purpose of the proposed rationalization of the Pacific coast groundfish limited entry trawl fishery is outlined in the following goal and objectives:

Goal: Create and implement a capacity rationalization plan that increases net economic benefits, create individual economic stability, provide for full utilization of the trawl sector allocation, considers environmental impacts, and achieve individual accountability of catch and bycatch.

Objectives: The above goal is supported by the following objectives:

1. Provide a mechanism for total catch accounting.
2. Provide for a viable, profitable, and efficient groundfish fishery.
3. Promote practices that reduce bycatch and discard mortality and minimize ecological impacts.
4. Increase operational flexibility.
5. Minimize adverse effects from an individual fishing quota (IFQ) program on fishing communities and other fisheries to the extent practical.
6. Promote measurable economic and employment benefits through the seafood catching, processing, distribution elements, and support sectors of the industry.
7. Provide quality product for the consumer.
8. Increase safety in the fishery.

In summary, the trawl rationalization program is intended to increase net economic benefits, create individual economic stability, provide full utilization of the trawl sector allocation, consider environmental impacts, and achieve individual accountability for catch and bycatch.

The purposes of the proposed allocation of harvest opportunity between sectors of the Pacific coast groundfish fishery are as follows:

1. To simplify or streamline future decisions by making formal allocations of specified groundfish stocks and stock complexes. If approved, formal allocations would be fixed and do not have to be decided through every biennial process or developed indirectly through the structure of management measures.
2. To support rationalization of the Pacific coast groundfish limited entry trawl fishery. Long-term, formal allocations of Amendment 21 groundfish species to the limited entry trawl sectors would provide more certainty to these sectors by reducing the risk that these sectors would be closed because of other non-trawl sectors exceeding their allocation. Such certainty will be especially important under the proposed IFQ and harvest co-operative systems proposed under the trawl rationalization program, because it would

make it easier for fishermen to make long-range planning decisions based on the allocation of harvest privileges. In addition, supporting rationalization of the limited entry trawl fishery, which would require individual accountability of catch and bycatch, would improve overall total catch accounting of groundfish species by the group with the largest amounts of groundfish catch, the trawl sector. While allocations could be made biennially to support trawl rationalization, this would be a more difficult and controversial process than making those decisions in advance.

3. To limit the bycatch of Pacific halibut in future limited entry trawl fisheries. The proposed action would place a total catch limit on Pacific halibut with the intent of further minimization of Pacific halibut bycatch in Area 2A trawl fisheries. The action would be consistent with the MSA mandate to minimize bycatch and would provide increased benefits to Area 2A fishermen targeting Pacific halibut.

The introductory paragraphs in Section 1.1 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery DEIS* and Section 1.1 of the *Allocation of Harvest Opportunity Between Sectors of the Pacific Coast Groundfish Fishery DEIS* provide information on the legal basis for the proposed actions. The trawl rationalization program would be a limited access privilege program (LAPP) under the MSA, 16 U.S.C. §§ 1851–1891d, as reauthorized in 2007.

4.3 Description of Each Selected Alternative, Including the No-action Alternative

The term "selected alternatives" refers to the alternatives NMFS determined will be analyzed in the RIR and IRFA. The selected alternatives for this RIR and IRFA are the no action alternative and the Council's preferred alternative. The effects of the other action alternatives that were not selected are analyzed in the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery DEIS* and *Allocation of Harvest Opportunity Between Sectors of the Pacific Coast Groundfish Fishery DEIS.*

4.3.1 No Action Alternative

The analysis of the no action alternative describes what is likely to occur in the absence of the proposed action. It provides a benchmark against which the incremental effects of the proposed action can be compared. This section summarizes the description of the no action alternative presented in Section 2.1 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery DEIS* and Section 2.1.1 of the *Allocation of Harvest Opportunity Between Sectors of the Pacific Coast Groundfish Fishery DEIS.*

Under the no action alternative, the current, primary management tool used to control the Pacific coast groundfish trawl catch—a system of two-month cumulative landing limits for most species and season closures for Pacific whiting—would continue. Only long-term fixed allocations for Pacific whiting and sablefish north of 36° N latitude would exist—all other groundfish species would not be formally allocated between the trawl and non-trawl sectors. Allocating the available harvest of groundfish species and species complexes would occur in the Council process of deciding biennial harvest specifications and management measures and, as such, would be considered short-term allocations.

4.3.2 Preferred Alternative

This section summarizes the description of the preferred alternative presented in Section 2.4 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery DEIS* and Section 2.1.6 of the *Allocation of Harvest Opportunity Between Sectors of the Pacific Coast Groundfish Fishery DEIS*.

Table 1 provides an overview of the elements of the trawl rationalization program under the preferred alternative. The existing shoreside whiting and shoreside non-whiting sectors of the Pacific Coast groundfish limited entry trawl fishery would be managed as one sector under a system of IFQs, and the at-sea whiting sectors of the fishery (i.e., catcher-processor sector and mothership sector, which includes motherships and catcher vessels) would be managed under a system of sector-specific harvesting co-ops. The catcher-processor sector would continue to operate under the existing, self-developed co-op program entered into voluntarily by that sector. A distinct set of groundfish species and Pacific halibut would be covered by the rationalization program.

Table 1. Summary of elements under the no action alternative and preferred alternative for trawl rationalization program.

Element	No-action Alternative	Preferred Alternative
Catch Control Tool	two-month cumulative trip limits for non-whiting trawl sector	IFQ program for shoreside whiting and non-whiting trawl sectors (trip limits for non-IFQ species)
	Seasonal management for whiting trawl sector	Harvesting co-operatives for at-sea whiting sector
Initial Allocation and Qualification	None	For shoreside fisheries for use 1994 to 2003 catch history Equal sharing of 1994 to 2003 buyback history in non-catcher-processor sectors (except the incidentally caught overfished species other than canary)
		Rebuilding stocks and halibut allocated on a bycatch rate/pro-rata
		Mothership catcher vessel endorsement and allocation based on 1994 to 2003 catch history; Mothership permit: at least 1,000 mt in two years from 1997 to 2003
Accumulation Limits	None	Shoreside non-whiting sector: 2.7% control limit and 3.2% vessel use limit
		Shoreside whiting sector : 10% control limit and 15% per vessel limit
		Mothership sector: Cannot process more than 45%
		Mothership catcher vessel sector: 20% control limit and 30% usage limit
		Catcher-processor sector: none

Table 2 cont. Summary of elements under the no action alternative and preferred alternative for trawl rationalization program.

Element	No-action Alternative	Preferred Alternative
Grandfather clause	None	None, but entities must divest overage QS at the end of year four
Processor Initial Allocation / Co-op Affiliations	None	Annual mothership declaration requirement
		20% shoreside processor allocation of shoreside whiting
		No processor allocation of non-whiting groundfish
Species Covered	All groundfish	Select groundfish species and Pacific halibut in shoreside sector
		Select groundfish species in at-sea sector; At-sea sector bycatch is allocated at co-op level
Number of Trawl Sectors	Four	Three
Adaptive Management	None	10% QS set aside for shoreside non-whiting groundfish species
Area Management	Trip limits vary by area; main split at $40^0$10' N latitude	None
Carry-over	None	Carryover exists; allowance decreases if OY declines
Permits	Limited Entry, Pacific Whiting Vessel License	Limited entry, mothership permit, catcher-processor endorsement, mothership catcher vessel endorsements

At the start of the IFQ program, quota shares (QS) would initially be allocated to fishery participants based on catch/processing history during a catch history qualification period, 1994 to 2003. After the first two years of the program, shareholders will be free to buy and sell the QS thus distributed. QS represent a proportion, or percent, of the total allowable catch (which is called the optimum yield [OY]in groundfish management) of different groundfish stocks. Each year, these shares are converted from a percent to a quantity by issuing QP based on the OYs/annual catch limits established for the year. The amount of groundfish caught by a limited entry trawl vessel, even if it is subsequently discarded, must be matched by an equivalent quantity of QP. The QP is expended in this way, with the matched amount deducted from the vessel's account.

Harvesters in the shoreside sector would receive all the initial allocation of non-whiting QS (minus any amount held back for the adaptive management program in future years) and 80 percent of whiting QS. Processors in the shoreside sector would receive the remaining 20 percent of whiting QS.

Both QS and QP would be perfectly divisible and tradable. However, to prevent a particular individual, corporation, or other entity from acquiring an excessive QS, accumulation limits

would restrict the amount of QS any single entity may hold or control (the control limit) and the amount of QP that can be placed on a vessel during a given year to cover catch (the vessel limit). These limits would vary between whiting and non-whiting groundfish. For mothership catcher vessels, a usage limit would act similar to a vessel limit. The preferred alternative includes a two-year moratorium on QS sales, followed by a two-year period over which entities receiving an initial allocation of QS in excess of the limits can and must divest their excess QS to any willing receiver.

An adaptive management program that would reserve 10 percent of non-whiting QS for the shoreside sector could be used to address a variety of objectives, such as creating incentives for bycatch reduction and use of habitat-friendly gear, mitigating adverse impacts to processors and fishing communities, and helping second generation fishermen/new entrants. During the first two years of implementation of the preferred alternative, the adaptive management QP would be passed through to QS holders in proportion to their holdings. Allocations of other species' QP under the program would begin in the third year, based on further specification of adaptive management program objectives and mechanisms.

These regulations would modify the existing limited entry permit system and would replace the Pacific whiting vessel license system with a series of endorsements. In 2009, NMFS implemented Amendment 15, which required a Pacific whiting vessel license for any vessel participating in either the shorebased or at-sea whiting fisheries. These licenses were issued to limit the number of vessels in the whiting fishery based on participation history in these fisheries. Under the trawl rationalization program, the Pacific whiting vessel licenses will permanently expire and will be replaced by a new mothership permit and new catcher/processor and mothership catcher vessel endorsements for existing Pacific Coast limited entry permits. [Although the Pacific whiting vessel license restricts what vessels can participate in the whiting fishery, these new endorsements convert the at-sea fisheries into a series of limited entry fisheries with tradable permits and endorsements.]

For the mothership catcher vessels, the years 1994 to 2003 would be used for endorsement qualification, and the best 8 out of 10 years from 1994 to 2003 would be used for catch history assignment. Mothership catcher vessels would be required to declare which co-op they will join before the beginning of the fishing year. They would then be obligated to assign their catch to the associated mothership processor for that fishing season. In any subsequent year, they could change their affiliation without first participating in the non co-op fishery through the pre-season declaration. Provision for a non co-op fishery would still be included in the program structure. Any vessel not wishing to affiliate with a co-op could participate in the non co-op fishery and deliver to any willing mothership processor. Since the catcher-processor sector would continue to operate as a single voluntary co-op, catch history assignment is unnecessary; the co-op would have access to the full sector allocation. Should the catcher-processor co-op fail because, for example, the co-op does not manage harvest such that allocations are repeatedly exceeded, the catcher-processor sector would be managed under a system of IFQs, and an equal amount of QS would be issued to each permit with a catcher-processor endorsement.

Amendment 20 would include a tracking and monitoring program to ensure that all catch (including discards) would be documented and matched against QP. The Council specified that

observers would be required on all vessels, and shoreside monitoring (catch monitors) would be required during all off-loading (100 percent coverage). Compared to status quo monitoring, this would be a monitoring and observer coverage level increase for a large portion of the trawl fleet, particularly nonwhiting shoreside vessels. As a result, more accurate estimates of total mortality would be expected to benefit stock conservation goals, as well as other goals discussed herein.

Amendment 20 would require NMFS-certified, at-sea observers on each vessel. These include shoreside catcher vessels, mothership catcher vessels, mothership processors, and catcher-processors. Because this is a new program, ensuring adequate observer coverage would be particularly important for monitoring the complex suite of allocations. Observers aboard vessels would be required to account adequately for catch and bycatch in the fishery. Among his or her duties, the observer would record fishing effort and estimate total, retained, and discarded catch weight by species; determine species composition of retained and discarded catch (non-whiting vessels) and document the reasons for discard; record interactions and sightings of protected species; take biological samples from tagged fish and discards, and estimate viability of Pacific halibut. Observers would be essential to monitor IBQ in the fishery, including IBQ weighing and discarding.

An increase in observer and catch-monitoring coverage requirements would result in increased costs over the status quo observer program costs. There would be a combined status quo, pay-as-you-go industry funding, and an agency-funded observer and catch monitor system, as required for each sector. The agency has announced its intent, subject to available Federal funding, that participants will initially be responsible for 10 percent of the cost of hiring observers and catch monitors. The industry proportion of the costs of hiring observers and catch monitors will be increased every year so that, by 2014, once the fishery has transitioned to the rationalization program, the industry will be responsible for 100 percent of the cost of hiring the observers and catch monitors. NMFS believes that an incrementally reduced subsidy to industry funding will enhance the observer and catch monitor program's stability, ensure 100 percent observer and catch monitor coverage, and facilitate the industries' successful transition to the new quota system.

Amendment 20 would require that first receivers—shoreside processors and other entities that receive groundfish from IFQ harvesters—sort, weigh, and report all landings of IFQ species under a catch monitoring plan. First receivers will be required to hire NMFS-certified catch monitors to verify all shoreside deliveries of IFQ species; ensure that species are sorted according to Federal species of species group; ensure that the fish are weighed on periodically tested, state-certified scales; and record and submit catch data daily.

To ensure that the QP program goals are met and landings are tracked, first receivers will be required to submit electronic fish tickets using software provided by the Pacific States Marine Fisheries Commission. Further, vessels will be required to continue to use vessel monitoring systems for purposes of indicating location of the vessels and to make declarations. In addition, there are plans to develop and require an electronic vessel logbook, but this component will not be immediately implemented.

To ensure that program goals to track transferrable QS and QP are met, NMFS is also developing

an online accounting system for the tracking and trading of QS by owner and for the tracking, trading, and use of the QP that result from these quota shares by vessels.

The preferred alternative for the proposed allocation of harvest opportunity between sectors of the Pacific coast groundfish fishery is as follows:

- Make long-term, formal allocations of the following species between the non-treaty limited entry trawl sectors and non-treaty, non-trawl sectors: lingcod, Pacific cod, sablefish south of 36^0 N latitude, Pacific ocean perch, widow rockfish, chilipepper rockfish, splitnose rockfish, yellowtail rockfish north of $40^0$10' N latitude, shortspine thornyhead (north and south of $34^0$27' N latitude), longspine thornyhead north of $34^0$27' N latitude, darkblotched rockfish, minor slope rockfish (north and south of $40^0$10' N latitude), Dover sole, English sole, petrale sole, arrowtooth flounder, starry flounder, and Other Flatfish.
- Determine a scheme for an initial shoreside trawl sector allocation to the shoreside whiting and shoreside non-whiting sectors of above species other than darkblotched rockfish, Pacific ocean perch, and widow rockfish, as well as sablefish north of 36^0 N latitude.
- Apportion the limited entry trawl allocation of darkblotched rockfish, Pacific ocean perch, and widow rockfish to the four current trawl sectors (shoreside non-whiting, shoreside whiting, at-sea whiting mothership, and at-sea whiting catcher-processor).
- Consider yield set-asides to accommodate the projected bycatch of above species other than darkblotched rockfish, Pacific ocean perch, and widow rockfish by the two at-sea whiting trawl sectors (motherships and catcher-processors).
- Determine a total catch limit of Pacific halibut in Area 2A trawl fisheries to limit the future bycatch of this prohibited trawl species.

4.4 Description of the Fishery and All Affected Entities, Including the Small Entities to Which the Proposed Actions Apply

This section summarizes stakeholder profiles presented in Chapter 3 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery DEIS* and Section 3.4 of the *Allocation of Harvest Opportunity Between Sectors of the Pacific Coast Groundfish Fishery DEIS*.

4.4.1 Description of the Fishery

The Pacific Coast groundfish fishery as a whole comprises several different major sectors, defined by fishing gear, species targeted, and regulatory context. In addition to the limited entry trawl fleet, there are open access and the fixed gear fleets. Recreational fishermen also harvest groundfish. For the limited entry trawl fleet, the list of current target species includes flatfish, roundfish, thornyheads, and a few species of rockfish. Primary flatfish target species include petrale sole and Dover sole. Roundfish target species include Pacific whiting, Pacific cod, and sablefish. Some rockfish species, especially Pacific ocean perch and widow rockfish, were important trawl targets until the mid 1990s. However, seven rockfish species are currently declared overfished under the MSA. The need to rebuild these stocks to a healthy size has led to various harvest constraints on groundfish fisheries, and rockfish are generally no longer a target

of these fisheries.

The groundfish trawl fishery is subject to a license limitation program (referred to as limited entry) implemented in 1992. Groundfish fixed-gear fisheries—using longline and pot gear—are managed under a complementary limited entry program. Most of the Pacific coast commercial groundfish harvest occurs in the limited entry fisheries. Some retention of groundfish is allowed without a limited entry permit; these vessels comprise the open access sector. The gears used by the open access sector include longline, vertical hook and line, troll, pot, setnet, trammel net, shrimp and prawn trawl, California halibut trawl, and sea cucumber trawl gears.

The limited entry trawl fishery is divided into two broad sectors: a multispecies trawl fishery, which most often uses bottom trawl gear (hereafter called the non-whiting fishery), and the Pacific whiting fishery, which uses midwater trawl gear. The non-whiting fishery is principally managed through two-month cumulative landing limits along with closed areas to limit overfished species bycatch.[1] Fishery participants target the range of species described above with the exception of Pacific whiting. By weight, the vast majority of trawl vessel groundfish is caught in the Pacific whiting fishery. In contrast, the non-whiting fishery accounts for the majority of limited entry trawl fishery ex-vessel revenues. On average from 2000 to 2005, Pacific whiting accounted for about 75 percent of the quantity of groundfish landed in the limited entry trawl fishery but only 21 percent of the value due to their relatively low ex-vessel price.

Non-whiting trawl vessels deliver their catch to shoreside processors and buyers located along the coasts of Washington, Oregon, and California. They tend to have their homeports located in towns within the same general area where they make deliveries, though there are several cases of vessels delivering to multiple ports during a year. Some Pacific whiting trawl vessels are catcher-processors, which, as their name implies, process their catch on board, while other vessels in this sector deliver their catch to shoreside processors or motherships that receive Pacific whiting for processing, but do not directly harvest the fish.

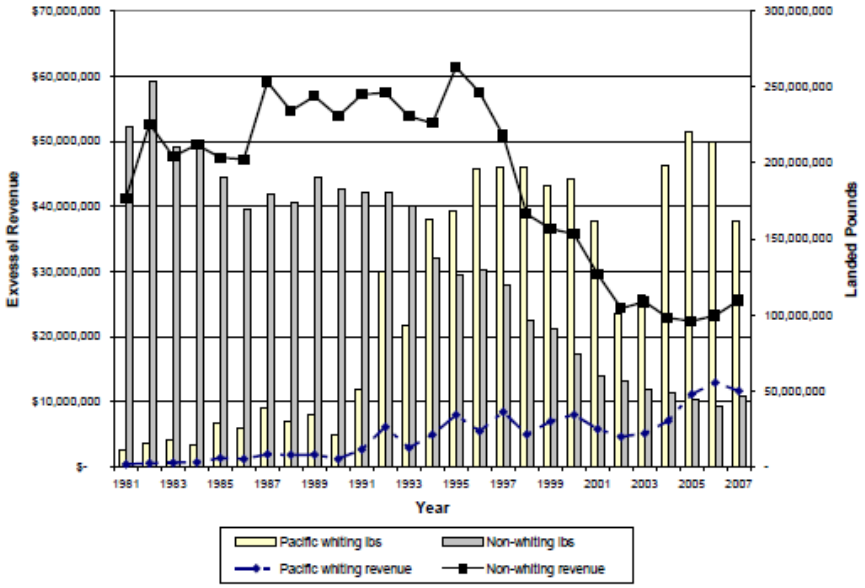
Over time, landings in the limited entry trawl fishery have fluctuated, especially on a species-specific basis. Pacific whiting has grown in importance, especially in recent years. Through the 1990s, the volume of Pacific whiting landed in the fishery increased. In 2002 and 2003, landings of Pacific whiting declined due to information showing the stock was depleted and the subsequent regulations that restricted harvest in order to rebuild the species. From 2003 to 2007, estimated Pacific whiting ex-vessel revenues averaged about $29 million. In 2008, these participants harvested about 248,000 tons of whiting worth about $63 million in ex-vessel revenues based on shoreside ex-vessel prices of $254 per ton—the highest ex-vessel revenues and prices on record. In comparison, the 2007 fishery harvested about 224,000 tons worth $36 million at an average ex-vessel price of about $160 per ton.

While the Pacific whiting fishery has grown in importance in recent years, harvests in the non-whiting component of the limited entry trawl fishery have declined steadily since the 1980s. Ex-

1 The non-whiting fishery currently uses bottom trawl gear exclusively. However, in the past there have been fisheries targeting widow rockfish and other rockfish species with midwater gear. Due to the need to limit catches of overfished species, these fisheries have been closed. However, once overfished species stocks are rebuilt, the fisheries could reopen.

vessel revenues in the fishery peaked in the mid 1990s at over $60 million. Following the passage of the Sustainable Fisheries Act (1996) and the listing of several species as overfished, harvests became increasingly restricted, and landings and revenues declined steadily until 2002. Since 2002, ex-vessel revenues have stabilized at around $23 to $27 million per year (Figure 1). In 2007, the Council estimates that 159 trawlers landed 94,000 mt of groundfish, earning $37 million in ex-vessel revenues, for an average of $234,000 per vessel.

Figure 1. Shoreside landed pounds and ex-vessel revenue from whiting and non-whiting groundfish caught using trawl gear.



Limited entry trawl vessels make most of their landings in Oregon. During the 2004 to 2006 period, the Oregon ports that received the largest amounts of landed weight and revenue were Newport, Astoria, and Charleston/Coos Bay, Oregon. Eureka, Fort Bragg and Crescent City, California; Brookings, Oregon; and Bellingham Bay, Blaine and Neah Bay, Washington comprise the remaining top 10 largest ports for trawl vessel landings. Non-whiting landings and revenues by non-tribal trawlers in Oregon are significantly larger than the other two states. A detailed description of west coast fishing communities and their economic dependence on the groundfish fishery is found in the *Final Environmental Impact Statement for Biennial Harvest Specifications and Management Measures* (PFMC and NMFS 2009).

Non-whiting trawl vessels deliver their catch from targeted trips to 63 shoreside processing companies located in all three Pacific coast states. Thirty-six to forty-six of these companies received non-whiting groundfish in any one year from 2004 to 2006. There are few major non-whiting groundfish processing centers on the Pacific coast. Only seven cities processed more than 1 percent of coast wide landings, and the largest processing center, Astoria, Oregon, accounted for more than two-thirds of processing activity by weight of landed fish. In 2008, Pacific whiting trawl vessels landed their catch at 16 first receivers located in ports in all three states. Between 8 and 16 of these companies received whiting in any one year from 1997 to 2008. Since processing Pacific whiting requires specialized equipment, most whiting processing plants process whiting only.

Limited entry fixed gear vessels use longline and fish pots (traps) to target groundfish. Limited entry fixed gear vessels principally target sablefish. Limited entry fixed gear vessels may also participate in open access fisheries or in the limited entry trawl fishery. Directed open access vessels use various non-trawl gears to target particular groundfish species or species groups. Longline and hook and line gear are the most common open access gear types used by vessels directly targeting groundfish and are generally used to target sablefish, rockfish, and lingcod. Pot gear is used for targeting sablefish, thornyheads and rockfish. Like the limited entry trawl fleet, limited entry fixed gear vessels and directed open access vessels deliver their catch to ports along the Washington, Oregon, and California coast.

In addition to commercial and tribal participants, state-managed recreational fisheries harvest groundfish. These recreational fisheries are managed by a series of seasons, area closures, and bag limits. Recreational groundfish fisheries occurring off the Pacific coast accounted for about 22 percent of all recreational anglers and 12 percent of trips.

Recreational fishing is an important economic contributor to the Pacific coast in general, and to some communities specifically. The recreational fishing fleet is composed of charter and private vessels. The private fleet typically consists of vessels owned by residents living in or near areas where they fish. The charter boat fleet is a for-hire fleet that plays a large role in the tourism sector of many Pacific coast communities. Opportunities to fish on a charter vessel can be a substantial draw for tourists considering a visit to the coast. The distribution of resident and non-resident ocean anglers among the Pacific coast states in 2000, 2001, and 2002 demonstrates the geographic importance of recreational fishing. Southern California has more than twice the number of resident recreational marine anglers than the next most populous region, Washington State. While most of the recreational anglers are residents of those states where they fish, a significant number of anglers are also non-residents. Oregon had the largest percentage of non-resident ocean anglers in all three years.

About 525 charter boats made up the charter boat fleet in 2005. This is a decrease of almost 30 percent from the 753 charter vessels estimated in the Council's 2005/2006 Groundfish Specifications EIS. Estimates of numbers of private boats are unavailable. Recreational fishing in the open ocean generally declined slightly between 1996 and 2003; however, charter effort decreased while private effort increased during that period. Part of this increase likely resulted from longer salmon seasons associated with increased abundance during the period.

The Makah, Quileute, Hoh, and Quinault Tribes off the Washington coast participate in tribal commercial, ceremonial, and subsistence fisheries for groundfish according to their treaty rights. Participants in the tribal commercial fishery use gear similar to non-tribal commercial fisheries operating off Washington. Groundfish caught in the tribal commercial fishery is typically sold through the same markets as non-tribal commercial groundfish catch. The harvest of the four tribes is taken into account when OYs are established. For a few species (sablefish and whiting, for example) a share of the OYs for groundfish species taken in their fisheries is explicitly allocated. For most species, expected tribal harvest levels are taken into account in setting regulations for other sectors, but there is no allocation to the tribes. For those species allocated to the tribes, and for other species for which expected harvest levels are identified, the tribes

oversee the prosecution of their fisheries separate from the management of other groundfish fishery sectors.

4.4.2 Estimate of the Number of Small Entities to Which the Proposed Action will Apply

The following discussion provides information on the number of small and large businesses that participate in the Amendment 20 Trawl Rationalization Programs. Information from the following sources was reviewed, in addition to information found in the Amendment 20 DEIS, other Council documents, and industry publications (these publications are used to assess size as well as affiliations):

- NMFS NWFSC Survey of Limited Entry Trawlers (ex-vessel revenue estimates)
- NMFS Annual Process Product Survey (employment estimates)
- Pacific States Marine Fisheries Commission Pacific Fishery Information Network—Processor/First Receiver purchases of groundfish from limited entry trawlers (ex-vessel revenues)
- NMFS NWR Ownership Survey (respondents classify themselves as large or small)

The NMFS Northwest Fisheries Science Center surveyed limited entry trawlers that delivered to shoreside plants or to motherships in 2004. [The survey did not include catcher processors or motherships.] These sources paint slightly different but consistent pictures of the size of the participants. The discussion provides two perspectives—one that addresses the entities affected by the intersector allocation decisions of Amendment 21 (all major fishing groups that harvest groundfish) and another that address the groups affected by implementation of the trawl rationalization program (shorebased processors, shorebased trawlers, mothership processors and catcher vessels, and catcher-processors).

Amendment 21 Analysis:

Amendment 20 directly regulates the groundfish trawl, mothership, and catcher-processor fleets and shorebased trawl groundfish processors whereas Amendment 21 affects not only those groups, but the other groundfish fleets—fixed gear and open access because of the allocation rules. These businesses are associated with vessels that either target groundfish or harvest groundfish as bycatch (including vessels that participate in the limited entry (trawl and fixed gear), open access, or charter boat portion of the groundfish fishery), or are associated with processors and buyers of groundfish (including shoreside and at-sea processors). These rules also affect companies that own and fish the limited entry trawl permits and the companies that lease these permits.

NMFS NWR issued 399 limited entry permits at the beginning of 2010. These permits include 177 endorsed for trawl (172 trawl only, 4 trawl and longline, and 1 trawl and trap-pot); 199 endorsed for longline (191 longline only, 4 longline and trap-pot, and 4 trawl and longline); 32 endorsed for trap-pot (27 trap-pot only, 4 longline and trap-pot, and 1 trawl and trap-pot). Of the longline and trap-pot permits, 164 are sablefish endorsed. Of these endorsements, 117 are stacked on 45 vessels. Because not all affected groups operate under the Federal limited entry permit, a review of participation in groundfish fisheries based on actual harvests provides a broader perspective.

Chapter 3 of the DEIS provides the following estimates. In 2007, there were six motherships supplied by 20 mothership catcher vessels with many vessels also delivering shoreside. Nine catcher-processors also fished and processed. About 159 trawlers fished in either the limited entry or open access fisheries. The limited entry fixed gear fleet was composed of 130 hook and line vessels and 20 pot vessels. The open access fleet is composed of several gear types—644 hook and line vessels, 57 net vessels, 180 pot vessels, 151 salmon troll vessels, and 32 trawlers. From 2004 to 2006, there were 63 different first receivers of trawl-caught groundfish. During 2007, 14 first receivers purchased whiting from 37 shorebased trawlers.

Although not directly regulated by these rules, tribal fleets participate in this fishery. According to Chapter 7 of the 0910 Groundfish Specifications EIS, the tribal fleet consists of approximately 66 vessels: longline (52), whiting trawl (4), and non-whiting trawl (10). The 2009 Review of Ocean Salmon Fisheries indicates that there were 465 salmon charterboats. These are presumed to be vessels that also will fish for groundfish. In 2007, 142 vessels were issued halibut licenses. Therefore, this rule affects an estimated 2000 business entities—permit holders, vessels, and first receivers that would be directly regulated by the proposed rule. No small organizations or small governmental jurisdictions would be directly regulated by the proposed actions. Although not directly regulated by this proposed rule, approximately 20 fishing communities that range from small towns to major cities are indirectly affected by this rule because of the potential reduction in the number of first receivers/processors and limited entry trawlers, as well as resulting changes in where fish is landed to be processed. In general, these 2,000 entities are presumed to be small with the exceptions noted below based on various analyses.

Non-Trawl Sectors—The following discussion provides small business estimates for groundfish fishery participants that are affected by Amendment 21's allocation policies, but do not qualify

to participate in Amendment 20's trawl rationalization programs. NMFS has very limited information on the companies associated with the following fleets However, it is expected that these companies (unless these vessels are owned or affiliated with large entities), are most likely to be classified as small companies based on average annual ex-vessel revenues that are far below the $4.0 million level. In 2007, the average limited entry fixed gear hook and line vessel earned $88,000 in groundfish revenues; limited entry fixed gear pot vessels earned about $200,000 in groundfish revenues, and the average open access vessel earned about $7,000 in groundfish revenues. Most of the 1,100 open access vessels target other fisheries. In 2007, salmon trollers averaged $11,000 in salmon revenue per vessel, shrimp trawlers $157 million in shrimp revenues, crab pot vessels $157,000 in crab revenues, and purse seiners $269,900 in coastal pelagic species revenues.

Current revenues for charterboats are unavailable. However, the Pacific States Marine Fisheries Commission surveyed approximately 12 percent of the charter and head boats licensed to operate in California, Oregon, and Washington on their 2000 operations. Vessels were categorized according to the region in which they were home ported: southern California (for homeports from the Mexican border to Point Conception), northern California (for homeports north of Point Conception to the Oregon border), Oregon, and Washington. Vessel size class was defined in terms of vessel length: "small" for lengths of 15 to 30 feet, "medium" for lengths of 31 to 49 feet, and "large" for lengths greater than 49 feet. The estimates of average revenues from all types of recreational activities, including fishing and whale watching charterboat estimates, ranged from $7,000 for small Oregon vessels, $131,000 for medium Washington vessels, $184,000 for large Northern California vessels, and $770,000 for large Southern California vessels, the largest in the coastal fleet. These estimates confirm that that those charterboats most likely to fish for groundfish qualify as small entities.

Amendment 20 Analysis:

NWFSC Survey: During 2004, 116 limited entry trawlers fished on the West Coast, but did not participate in the whiting fishery during 2004. Of these 116 limited entry trawlers, 71 responded to the NWFSC's cost-earnings survey. Among the 71 respondents, the average total revenue from all sources (west coast landings, Alaska landings, at sea deliveries, etc) was $368,271. None of the 71 respondents had revenue exceeding $2,000,000 in 2004. Twenty-six limited entry trawlers fished in the shoreside whiting fishery during 2004 (this figure does not include five limited entry trawlers that had positive whiting landings worth less than $2,500). Of these 26 vessels, the NWFSC received 19 responses to the cost earnings survey. Adding all sources of revenue collected by the cost earnings survey (revenue from landings in locations other than the west coast, at-sea deliveries, and other sources of revenue) to west coast landings revenue reported in PacFIN shows that these 19 vessels had average revenue of $971,871from all sources. Of the 19 survey respondents, the three vessels with the greatest total revenue all earned between $1.7 million and $1.8 million during 2004.

Of the seven limited entry trawl vessels that fished as catcher vessels for motherships in the at-sea whiting fishery and did not have any west coast landings, none had revenue exceeding $4,000,000. These seven vessels had average revenue of $1,624,488 million, and one vessel had revenue of $3.6 million. Of the five limited entry vessels that fished as catcher vessels for

motherships in the at sea whiting fishery and made shoreside whiting landings in 2004, none had revenue over $4 million in 2004. The five vessels had average revenue of $1,554,283 and included three vessels with revenue of $1.7 million to $1.8 million (the same three vessels as noted in the response to the previous question).

Annual Processed Products Survey-Employment Estimates for 2009: This voluntary survey was sent to primary processors and secondary processors in Oregon and Washington, 11 companies of which were primary processors of groundfish. Respondents to this survey, among other things, are to provide monthly estimates of employment. Only one of the shorebased processors reported employing more than 500 employees in any one month. Three of these processors are associated with the same parent company, and, collectively, these companies employ more than 500 employees. Therefore, out of nine companies in Oregon and Washington, seven companies are small and two are large. Catcher-processor and mothership companies were also surveyed. These vessels employ from 100 to 140 employees per vessel.

Chapter 3 of the Amendment 20 DEIS: Processing companies are not necessarily first receivers—they may process fish initially delivered to a buyer who then sells the fish to the processor. The Pacific Fishery Management Council staff indicates that from 2004 to 2006 (Table 3-53 DEIS), 63 shoreside companies received non-whiting. In 2008, 6 companies were first receivers of whiting for a total of 69 companies that received groundfish from 2004 to 2008. Three of these companies have multiple state operations (Table 3-42 DEIS). The companies that receive nonwhiting vary widely in terms of the volume received. Nearly 70 percent, or 44 companies, received fewer than 50 mt during the three-year period (Table 3-45 DEIS). A large proportion of these companies receives but does not process nonwhiting; they include restaurants, wholesalers and retailers, or distributors. Of the remaining 19 companies that received more than 50 mt, only 7 received more than 1,000 mt. One received more than 5,000 mt, and one received more than 20,000 mt. The companies that receive whiting also vary widely in terms of the volume received. Five firms received more than 10,000 mt each during the period, including three with more than 30,000 mt. At the other end of the scale, 4 of the 13 firms received less than 1,000 mt during the period (Table 3-38 DEIS).

PSMFC PacFIN—Small Purchaser Analysis: NMFS reviewed the 2008 and 2009 purchases of limited entry trawl groundfish by first receiver. The results for both years are similar, so only the 2008 results are discussed. In 2008, 75 first receivers purchased limited entry trawl groundfish. There were 36 small purchasers (less than $150,000), 26 medium purchasers (purchases greater than $150,000 but less than $1,000,000), and 13 large purchasers (purchases greater than $1.0 million). When the trawl rationalization program is implemented, to continue buying limited entry trawl groundfish, these purchasers will have to obtain a processor site license that includes requirements to submit electronic fish tickets, provide a catch monitoring plan, and schedule a catch monitor. Assuming that a catch monitor costs $350 per day and assuming that the start-up costs of applying for a license, developing a plan, and obtaining the electronic fish ticket software are an additional $350, the total initial start-up cost is about $700. [Note that, in the first few years, the costs of catch monitors will be subsidized in part by NMFS.] Further assuming that undertaking these steps only makes financial sense if the start-up cost is less than 0.5 percent of the groundfish purchased, than a processing site /first receiver would have to

purchase about $140,000 to break even financially based on these assumptions. Therefore, many of the 36 small purchasers are likely to stop purchasing groundfish from limited entry trawlers as a result of this program. Five of these small purchasers bought less than $10,000 worth of limited entry trawl groundfish. The majority of these small purchasers were not major purchasers of other fish (21 of these small purchasers bought less than $150,000 of fish [groundfish and non-groundfish] in total with 14 of these first receivers, purchasing less than $10,000 in limited entry trawl groundfish). This is not to say that all of these purchasers will go out of business as result of these rules. NMFS does not know how dependent these businesses are on groundfish because the agency does not have data on all sources of income (fishery and non-fishery) of these first receivers. In addition, these companies could make arrangements to purchase fish from another company that has obtained a processing site license or groundfish harvested by fixed gear.

NMFS Ownership Survey: The NMFS Northwest Regional Office is in the final stages of completing a voluntary ownership survey. Respondents to this survey were asked if they consider themselves small businesses or non-profit organizations based on the definitions above. In February 2009, this form was sent to the 177 limited entry permit holders and associated vessels (approximately 150 vessels—not all permits have vessels attached to them.) This form was also sent to the six mothership processors who have Pacific whiting vessel licenses and to the 14 first receiver/shorebased processors who hold 2009 first receiver whiting exempted fishery permits. Thirty-three limited-entry permit holders, thirty-six trawlers, 1 mothership processor, and six shorebased whiting first receivers/processors have yet to respond to this survey. Based on this survey, review of available information on those companies who have yet to respond or on those few companies who responded to the survey but did not respond to the small business question, the following characterization of the industry is provided. The nine limited entry trawl permits that are associated with the catcher-processor vessels are considered large companies. [According to the Pacific Whiting Conservation and Whiting Co-operative website, www.pacificwhiting.org, the catcher-processor fleet is made up of three companies that operate ten vessels. Of these companies, two have wholesale sales from whiting, Pollock, and other products that are at least $500 million—see the *Seafood Business Magazine* discussion below. The remaining company is assumed to be a large business because in addition to the two whiting catcher-processors operate off Alaska along with other company vessels.] Of the remaining 168 limited entry permits, 25 limited entry trawl permits are either owned or closely associated with a large, shorebased processing company or with a non-profit organization that considers itself a large organization. Nine other permit owners indicated that they were large companies. Almost all of these companies are associated with the shorebased and mothership whiting fisheries. The remaining 134 limited entry trawl permits are projected to be held by small companies. Three of the six mothership processors are large companies. There are four large companies within the 14 shorebased whiting first receivers/processors.

Seafood Business Magazine (www.seafoodbusiness.com—archives): In the whiting fishery (at-sea and shoreside), many of the processing companies involved are closely affiliated with the 10 ten seafood suppliers with wholesale sales of ranging from about $500 to $1 billion. These companies tend to be involved with Alaska fisheries, and some have major foreign affiliations. [See "In the can: North America's seafood suppliers grow sales despite fears of an economic

downturn," May 5, 2008; and "Bottom Dollar: The Top 25 North American seafood suppliers had a strong 2008, but the future is in question," June 19, 2009]

Amendment 20 and Amendment 21 Summary Conclusion: NMFS makes the following conclusions based primarily on analyses associated with fish ticket and limited entry permit data, available employment data provided by processors, information on charterboat and tribal fleets, and available industry responses to ongoing surveysd on ownership. Entities were analyzed as to whether they were only affected by the Amendment 21 allocation processes—non-trawl—or if they were affected by both Amendments 20 and 21—(trawl). The non-trawl businesses are associated with the following fleets: limited entry fixed gear (approximately 150 companies), open-access groundfish (1,100), charterboats (465), and the tribal fleet (four tribes with 66 vessels).

Available information on average revenue per vessel suggests that all the entities in this group can be considered small. For the trawl sector, there are 177 trawl vessel permit holders. Nine limited entry trawl permits are associated with the catcher-processing vessels, which are considered large companies. Of the remaining 168 limited entry permits, 25 limited entry trawl permits are either owned or closely associated with a large shorebased processing company or with a non-profit organization that considers itself a large organization. Nine other permit owners indicated that they were large "companies." Almost all of these companies are associated with the shorebased and mothership whiting fisheries. The remaining 134 limited entry trawl permits are projected to be held by small companies. Available information suggests that the at-sea and shorebased processing sectors consists of few large firms, a few moderate-size firms, and a considerable number of small firms. Four of the six mothership processors are large companies. Within the 14 shorebased whiting first receivers/processors, there are four large companies, including, the shorebased whiting receivers, in 2008, 75 first receivers purchased limited entry trawl groundfish. There were 36 small purchasers (less than $150,000), 26 medium purchasers (purchases greater than $150,000 but less than $1,000,000), and 13 large purchasers (purchases greater than $1.0 million). Because of the costs of obtaining a processed processor site license, procuring and scheduling a catch monitor, and installing and using the electronic fish ticket software, these small purchasers will likely opt out of buying groundfish or make arrangements to purchase fish from another company that has obtained a processing site license.

4.5 Economic Analysis of the Expected Effects of Each Selected Alternative Relative to the No-action Alternative, Including the Costs of Compliance for Small Entities

The economic impacts of the selected alternatives are detailed in Chapter 4 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery—Amendment 20 DEIS* (TRAT DEIS) and Chapter 4 of the *Allocation of Harvest Opportunity Between Sectors of the Pacific Coast Groundfish Fishery—Amendment 21 DEIS* (ISADEIS). The allocation of harvest opportunity between sectors under the preferred alternative does not differ significantly from the allocation made biennially under the no action alternative. The primary economic effect of the long-term, formal allocation under the preferred alternative is to provide more certainty in future trawl harvest opportunities, which would enable better business planning for participants in the rationalized fishery.

Expected Effects of Amendment 21—Intersector Allocation

The allocation of harvest opportunity between sectors under the proposed regulation does not differ significantly from the biennial allocation under the no action alternative. The primary economic effect of the long-term, formal allocation under the proposed regulations is to provide more certainty in future trawl harvest opportunities, which would enable better business planning for participants in the rationalized fishery. As described elsewhere, the trawl rationalization program could create an incentive structure and facilitate more comprehensive monitoring to allow bycatch reduction and effective management of the groundfish fisheries. In support of the trawl rationalization program, the main socioeconomic impact of Amendment 21 allocations is longer-term stability for the trawl industry. While the preferred Amendment 21 allocations do not differ significantly from status quo ad hoc allocations made biennially, there is more certainty in future trawl harvest opportunities, which enables better business planning for participants in the rationalized fishery. This is the main purpose for the Amendment 21 actions.

The economic effects of Amendment 21 arise from the impacts on current and future harvests. The need to constrain groundfish harvests to address overfishing has had substantial socioeconomic impacts. The groundfish limited entry trawl sector has experienced a large contraction, spurred in part by a partially federally subsidized vessel and permit buyback program implemented in 2005. This $46 million buyback program was financed by a congressional appropriation of $10 million and an industry loan of $36 million. About 240, groundfish, crab, shrimp permits were retired from state and Federal fisheries—there was a 35 percent reduction in the groundfish trawl permits. To repay the loan, groundfish, shrimp and crab fisheries are subject to landings fees. Follow-on effects of the buyback have been felt in coastal communities where groundfish trawlers comprise a large portion of the local fleet. As the fleet shrinks and ex-vessel revenues decline, income and employment in these communities is affected. Fishery-related businesses in the community may cease operations because of lost business. This can affect non-groundfish fishery sectors that also depend on the services provided by these businesses, such as providing ice and buying fish. An objective to the trawl rationalization program is to mitigate some of these effects by increasing revenues and profits within the trawl sector. However, because further fleet consolidation is expected, the resulting benefits are likely to be unevenly distributed among coastal communities. Some communities may see their groundfish trawler fleet shrink further as the remaining vessels concentrate in a few major ports.

Species subject to Amendment 21's allocations would be lingcod, Pacific cod, sablefish south of 36° N. lat., Pacific ocean perch, widow rockfish, chilipepper rockfish, splitnose rockfish, yellowtail rockfish north of 40° 10' N. lat., shortspine thornyhead (north and south of 34° 27' N. lat.), longspine thornyhead north of 34° 27' N. lat., darkblotched rockfish, minor slope rockfish (north and south of 40° 10' N. lat.), Dover sole, English sole, petrale sole, arrowtooth flounder, starry flounder, and Other Flatfish. While the preferred Amendment 21 allocations of these species do not differ significantly from status quo ad hoc allocations made biennially, there is more certainty in future trawl harvest opportunities, which enables better business planning for participants in the rationalized fishery. This is the main purpose for the Amendment 21 actions.

Amendment 21 would formally allocate a subset of the harvest guideline to the four trawl sectors: SS (whiting and non-whiting), mothership, catcher vessel, and catcher-processor. With to the species subject to Amendment 21's allocations, this would leave the limited entry fixed gear, open access, and recreational fisheries in a pool that would divide the remaining HG (via the biennial specification process). [The open access component of the groundfish fishery consists of fishermen who target groundfish without limited entry permits and fishermen who target non-groundfish fisheries that incidentally catch groundfish.] In general, the allocations are based on catch history from 2003 to 2005 and the recommendations of the Groundfish Allocation Committee. The Council believed that a relatively recent catch period should form the basis for deciding sector allocations since discards during this period were better informed, and current management strategies, such as specification of rockfish conservation areas, are more likely in the near future. However, the Council made modifications for several species. For chilipepper rockfish south of 40º10' N. lat., Amendment 21 contains a higher non-trawl allocation. This is intended to provide greater non-trawl access to this healthy stock off California. Amendment 21 would not allocate longspine thornyhead south of 34° 27' N. lat. to the trawl fishery. Longspine thornyhead are an incidentally caught species south of 34° 27' N. lat., and the available yields are not projected to constrain any of the groundfish fisheries there that incidentally catch these fish. Amendment 21 would allocate a much higher percentage of the available yield of starry flounder to non-trawl sectors (50 percent) than recommended by the Groundfish Allocation Committee. The catch history of starry flounder is highly uncertain, but they are significantly caught in nearshore trawl fisheries and recreational fisheries on the West Coast. The Council thought a 50:50 trawl and non-trawl sharing of the available harvest of starry flounder was the fairest allocation. Amendment 21 includes a higher non-trawl allocation of species in the Other Flatfish complex than recommended by the Groundfish Allocation Committee (10 percent vs. 5 percent). While most of these species are dominant to the trawl fishery, there are some species, such as Pacific sanddabs, that are significantly caught in non-trawl fisheries. The Council believed a higher non-trawl share of the available harvest of Other Flatfish species would better preserve non-trawl fishing opportunities.

Based on ex-vessel revenue projections, Table 4-18 (ISADEIS) shows the potential 2010 yield to trawl and non-trawl (including recreational) sectors under the Amendment 21 alternatives and the potential 2010 value of alternative trawl allocations. Under the no action alternative, the projected ex-vessel value of the trawl allocation is $56 million, while the projected ex-vessel value of the Council's preferred alternative is $54 million—indicating a potential increase to the non-trawl sectors and a potential decrease to the trawl sector.

In addition to the species above, halibut would also be specifically allocated to the trawl fishery. The proposed regulations include a halibut trawl bycatch reduction program in phases to provide sufficient time to establish a baseline of trawl halibut bycatch and to allow harvesters to explore methods (e.g., adjustments to time and/or area fished, gear modifications) to reduce halibut bycatch and bycatch mortality. Pacific halibut cannot currently be retained in any U.S. or Canadian trawl fisheries per the policy of the IPHC. The Council's intent on setting a total catch limit of Pacific halibut in Area 2A trawl fisheries is to limit the bycatch and progressively reduce the bycatch from these limits to provide more benefits to directed halibut fisheries. The program establishes a limit for total Pacific halibut bycatch mortality (legal-size and sublegal fish) by using an IBQ in the trawl fishery. The initial amount for the first two years of the trawl

rationalization program would be calculated by taking 15 percent of the Area 2A total constant exploitation yield (CEY) as set by the International Pacific Halibut Commission (IPHC) for the previous year not to exceed 130,000 lbs per year for total mortality. For example, if the trawl rationalization program went into effect in 2013, the trawl halibut IBQ would be set at 15 percent of the Area 2A CEY adopted for 2012 or 130,000 lbs per year, whichever is less, for 2013 and 2014 (years one and two of the program). Beginning with the third year of implementation, the maximum amount set aside for the trawl rationalization program would be reduced to 100,000 lbs per year for total mortality. This amount may be adjusted downward through the biennial specifications process for future years.

Currently there are no total catch limits of Pacific halibut specified for the west coast trawl fishery. Trawl bycatch of Pacific halibut, therefore, does not limit the trawl fishery. It would apply a halibut bycatch reduction program in phases to provide sufficient time to establish a baseline of trawl halibut bycatch under the new rationalization program and for harvesters to explore methods (e.g., adjustments to time and/or area fished, gear modifications) to reduce both halibut bycatch and bycatch mortality. By limiting the bycatch of Pacific halibut in the limited entry trawl fisheries, Amendment 21 would control bycatch and could provide increased benefits to Washington, Oregon, and California fishermen targeting Pacific halibut. Reducing the trawl limit would also provide more halibut to those who participate in the directed tribal, commercial, and recreational halibut fisheries.

The Council's preferred alternative uses a halibut-abundance-based method for setting the initial trawl allocation by keeping it tied to a percentage of the CEY, but adds a maximum limit on the allocation amount. The initial limit is set at 130,000 lbs, which represents an approximate reduction of 50 percent from the total bycatch estimate provided by the Northwest Fisheries Science Center for the most recent year (2007) If the proposed regulations were applied to the total CEY in 2007 and compared to the actual mortality recorded for 2007, the trawl fishery would find itself about 20,000 lbs short. Similarly, if these regulations were applied in 2008 and 2009, the amount of halibut allocated to the trawl sector would fall short of actual harvests by 204,000 and 161,000 pounds, respectively.

The Council decided to apply the 130,000-pound limit over a four-year period to give the trawl industry more time to learn strategies (and areas) for minimizing their Pacific halibut bycatch. Since this may become the most constraining bycatch species for the rationalized trawl fishery on the northern shelf, this extra adjustment period before the further downward modification of the total catch limit to 100,000 pounds is considered for the fifth year. Additionally, allowing more flexibility for considering a new total catch limit of Pacific halibut in future processes to decide biennial management measures was considered necessary because the limit is lower than the bycatch observed under the WCGOP, and it was unclear how such a stringent limit might affect the fishery. It may turn out that the socioeconomic impacts are too great under these stringent limits, and the Council may ultimately decide to increase the total catch limit. Conversely, the trawl industry may adjust well to these lower limits, and the realized bycatch of Pacific halibut will be lower than the prescribed total limits of 130,000 or 100,000 pounds. In that case, the Council may want to adjust the future total catch limit downward from 100,000 pounds to provide more benefits to Area 2A directed halibut fisheries. In either case, the Council preferred the flexibility of deciding future total catch limits of Pacific halibut in the biennial

specifications and management measures process to avoid a more lengthy and burdensome FMP amendment process for making these decisions. Reducing the maximum limit to 100,000 lbs beginning the third year of the program provides an additional incentive for harvesters to modify their fishing behavior to reduce bycatch and/or bycatch mortality. Information from the Canadian IFQ program indicates that trawl fishermen can voluntarily implement measures to reduce bycatch by avoiding areas known to produce high volumes of halibut, and reduce bycatch mortality by reducing their tow time. Reducing the trawl limit would also provide more halibut to those who participate in the directed tribal, commercial, and recreational halibut fisheries.

If the total CEY from the stock assessment prior to trawl rationalization implementation reflected relatively low abundance (e.g., 640,000 lbs), this would produce an initial trawl allocation of 96,000 lbs. While this is considerably less than what the trawl fishery has caught in previous years, it would also be applied to an exploitation yield lower than what Area 2A has experienced in the past 10 years. This helps ensure that the primary use of halibut is to provide fish for the directed tribal, commercial, and recreational fisheries. If abundance were higher and along the lines of the amounts produced by the 2004 and 2005 assessments (e.g., more than 1 million lbs), the trawl allocation would be capped at 130,000 lbs.

When the Canadian government rationalized its British Columbia groundfish fishery in 1996, an arbitrary cap of 1 million pounds was set for halibut bycatch mortality in that trawl fishery. Halibut bycatch mortality before prior to rationalization was about 1.5 million pounds. The first year of the quota program, halibut bycatch mortality was reduced to about 300,000 pounds. Several factors were the decline of the cod fishery (and a decline in associated halibut bycatch), harvester avoidance behavior, and 100 percent observer coverage, combined with slower fishing practices that allowed the observer to measure every halibut caught and released. Information from the Canadian IFQ program indicates that trawl fishermen can voluntarily implement measures to reduce bycatch by avoiding areas known to produce high volumes of halibut and can reduce bycatch mortality by reducing their tow time (which prevents halibut from being crushed in the trawl cod end).

General Effects of Amendment 21 Trawl Rationalization

The focus of the remaining economic analysis is on the effects of rationalization of the Pacific Coast groundfish limited entry trawl fishery. Below is a summary of the incremental differences (in economic terms) between the proposed action and no action alternative discussed in these draft environmental impact statements. The economic analysis in Chapter 4 of the Amendment 20 FEIS relies predominantly on available fish ticket information (landings and revenues). Section 4.2.1.3 notes the following data limitations:

- Cost and earnings data for individual harvesters are available only for a single year.
- Cost and earnings data for individual processors are unavailable.
- Comprehensive primary data on processed products and product prices are unavailable.
- Final market demand for groundfish products is not well known.
- Data showing the total catch (landings plus discard) of groundfish by individual vessels is unavailable.

Because of the lack of quantitative data, an overall comprehensive model was not feasible. Instead, a set of models designed to focus on specific issues was developed, or are already available. These include the following:

- A model showing the effects of the initial allocation of QS in a trawl IFQ program
- A model assessing the expected amount of fleet consolidation
- A model illustrating the potential for geographic shifts in fishery patterns
- A model illustrating the potential to reduce the catch rate of overfished species and the associated potential for increased target species catch and revenue
- A qualitative comparative advantage model illustrating the potential for regions to be negatively or positively impacted by rationalization
- Available stock assessments showing stock abundance over time under various harvested quantities
- An ecosystem-based model describing the impact on the biological and ecosystem components of the environment resulting from changes in fishing behavior and catch

To illustrate the benefits of the TIQ program, a model projecting the expected amount of fleet consolidation in the shoreside non-whiting fishery was developed. It incorporates the model that illustrates the potential for the fleet to reduce bycatch and potentially increase the amount of target species harvested. This later model is based primarily on bycatch reduction experiences in the Pacific whiting fishery and as carried out in the arrowtooth flounder fishery under an exempted fishing permit. The major conclusions associated with both these models are provided below.

Consolidation under the alternatives will be a key impact mechanism. This model provides projections of consolidation in the fishery and the effects of that consolidation. The model is based on work published by Weninger and Waters (2003).

Ex ante benefit estimates (estimates prior to the action) are obtained by using a two-step methodology. The first step predicts the harvesting practices expected to prevail under an IFQ system. This first step will predict post-QS allocation equilibrium harvesting practices including the folloiwng:

- Groundfish harvest per vessel
- Number of vessels needed to harvest limited entry trawl groundfish catch
- Which vessels remain in the groundfish fishery and which vessels exit
- Nongroundfish harvest per vessel

The model is designed to address the fact that trawlers harvest many species (multiple outputs). It uses fish ticket data and the data from the recently completed West Coast Limited Entry Cost Earnings Survey sponsored by the NMFS Northwest Fisheries Science Center.

Estimates of potential economic benefits are generated based on the predicted harvesting practices from the first step analysis. Because the west coast nonwhiting groundfish fishery is not a derby fishery, it is expected that economic benefits will come through cost reductions and increased access to target species that arise from modifications in fishing behavior (overfished species avoidance). The key output of this analysis is an estimate of post-rationalization equilibrium harvesting cost.

Changes in harvesting costs can arise from three sources. First, the total fixed costs incurred by the groundfish trawl fleet change as the size of the fleet changes. Since many limited entry trawlers incur annual fixed costs of at least $100,000, reductions in fleet size can result in substantial cost savings. In other words, fewer vessels in the fishery will lead to decreased costs through a decrease in annual fixed costs. Second, costs may change as fishery participation changes and participants no longer incur diseconomies of scope (such as the costs of frequently switching gear for participating in multiple fisheries). Third, costs may change as vessels are able to buy and sell quota to take advantage of economies of scale and operate at the minimum point on their long-run average cost curve (i.e., the strategy that minimizes the cost of harvesting).

Using the model developed through this project, it is possible to compare the following:

- Harvesting costs under the current regulatory system
- Harvesting costs under an "unconstrained" IFQ system
- Harvesting costs under an IFQ system where fleet rationalization is constrained through program design features such as quota accumulation caps

The major finding associated with this model and the cost-earnings survey is the following:

> Net revenues for nonwhiting trawl vessels were estimated by Lian, Singh, and Weninger in 2008 (Lian et al. 2008). Estimates of net revenues were generated using a cost earnings survey conducted by the Northwest Fisheries Science Center that collected cost data from trawlers operating in 2004. These cost earnings data were matched with PacFIN fish ticket data to derive estimates of net revenue generated by vessels active in the fishery during 2004.

The major conclusions of Lian, Singh, and Weininger are the following:

> Our results suggest that (with landings held at 2004 levels), the current groundfish fleet (non-whiting component) which consisted of 117 vessels in 2004, will be reduced by roughly 50% to 66% to 40-60 vessels under an IFQ program. The reduction in fleet size implies cost savings of $18- $22 million for the year 2004 (most recent year of the data). Vessels that remain active will, on average, be more cost efficient and will benefit from economies of scale that are currently unexploited under controlled access regulations in the fishery. The cost savings estimates are significant, amounting to 60% of the costs incurred currently, suggesting that IFQ management may be an attractive option for the Pacific Coast

> Groundfish Fishery. We find that mid-sized boats, 60—70 feet in length , are relatively cost efficient and therefore most likely to remain active under the IFQ management of the program; smaller (40-50 feet) and larger vessels (80 feet and above) are likely to leave the fishery. ….(Liann, et al, 2008 page 330)
>
> Our analysis reveals, however, that projected cost savings are sensitive to the design elements of the IFQ program. In particular, we show that restrictions on the total quota that can be harvested by individual vessels, or restrictions on quota trading across vessel length classes, can significantly reduce estimated benefits (cost savings) of switching to IFQs. Our estimates suggest that benefits decline by roughly $3.8 million (18.4%) per year if a 1% cap on quota ownership at the vessel level is imposed, and by as much as $2.14 million (10.4%) per year under restrictions on harvest permit trading across vessel classes. (page 330).
>
> Further calculations provide additional insights on the economic conditions under controlled access regulations. Assuming a 10% annual return to the vessel capital investment, estimates indicate that the 2004 groundfish fleet incurred a total cost of $38.789 million. The PacFIN data indicate fleetwide revenue at roughly $36.275 million in 2004, and, therefore, fleet wide losses of $2.514 million. Based on a lower 5% return to vessel capital, the results suffets that the groundfish fleet merely broke even in 2004; i.e., dockside revenues were offset by the fleet wide harvesting costs….(page 337).
>
> The results suggest a switch from the current controlled access management program to IFQs could yield a significant increase in resource rents in the Pacific Coast Groundfish fishery. For instance, our analysis finds that the 2004 groundfish catch generated zero resource rent. Instead, it could have yielded a substantial positive rent at $13.574 million (page 340).

The Council's analysis draws upon the conclusions of Lian et al., presented below:

> These estimates indicate that the average nonwhiting trawl vessel makes zero economic profit. Simply put, zero economic profit means that there are no profits being generated in the fishery above what would be considered a normal wage plus the costs of operating and maintaining a vessel. While the average vessel makes close to zero economic profit, some vessels do make profits while others may actually lose money and would be better off (financially speaking) leaving the fishery (*Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS,page 128 FEIS*).
>
> Indeed, research by Lian, et al. (2008), indicates the nonwhiting trawl fleet may be overcapitalized by more than 50 percent (*Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS*), page 273 FEIS.
>
> Based on results from Lian et al. (2008), harvesters in the nonwhiting sector generate no economic profit from harvest activity. While it is unclear whether

> processors generate any economic profit from processing of nonwhiting groundfish, it is clear that if profits exist in the industry, harvesters are not realizing those profits. This suggests that, if profits exist in the harvesting and processing of nonwhiting groundfish, harvesters lack much bargaining power in negotiations over ex-vessel prices with processors (*Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS, page 276*).
>
> In addition to increased revenue being generated in the fishery, the consolidation likely to occur in the nonwhiting sector is expected to lead to substantial cost savings. Cost savings occur because of less capital, but also because the fleet is expected to consolidate toward the most efficient vessels. The fleet reduction and cost efficiency model shows the consolidation that may occur could diminish the number of vessels by 50 to 66 percent, or to a nonwhiting fleet size that is somewhere on the order of 40 to 60 vessels. This predicted cost savings is fairly sensitive to the design elements of the program and is also dependent on the quantity of species harvested. This consolidation is predicted to decrease costs of harvesting nonwhiting groundfish by as much as 60 percent annually (before incorporating the cost of at-sea monitoring). Using information from recent years, this may mean a cost savings of approximately $13.8 million. Imposing accumulation limits can restrict the amount of expected cost savings substantially. Retaining the vessel length endorsement may restrict cost savings by 10 percent, though this may be lower since harvesters can bundle permits and change the length endorsement. If a 1 percent accumulation limit is placed on vessels, cost reductions may be restricted by approximately 20 percent.[2] At-sea monitoring costs add an additional cost burden to vessels that is not currently incurred. If at-sea monitors cost vessels $350 per day, this may tend to reduce the size of the fleet from the 40 to 60 vessels expected and increase the average size of vessels remaining. This is because additional costs of fishing will mean the optimal fleet size is smaller. The average size of vessels in the fleet is increased with a daily observer cost because such costs comprise a larger portion of small vessels costs than that of larger vessels. At-sea observers will also reduce fleet-wide profits. The fleet reduction and cost efficiency model illustrates that at-sea observers may cost the nonwhiting fleet $2.2 million if all vessels in the fishery operate near capacity (*Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS, page 290*).

Section 4.6.2.1, *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS,* describes the major benefits of the trawl rationalization for shorebased non-whiting fishery, excerpted below:

> Trawl harvesters in the nonwhiting sector may be substantially affected by the rationalization of the west coast trawl fishery. The individual accountability measures and harvesting privileges associated with the rationalization alternatives are likely to induce substantial changes in the

2 The lowest accumulation limit in the alternatives of 3 percent is not expected to impose cost inefficiencies on the nonwhiting trawl sector so long as prices and available harvest volumes do not decrease.

way vessels prosecute fishing activities. In the nonwhiting trawl fishery, substantial impacts are likely to occur because of the constraining nature of overfished species and the perceived reward that is associated with avoiding those stocks that may come in the form of increased catch of target species, which are currently underutilized because of weak stock management. The bycatch rate change model is used to show the amount of additional target species that can be leveraged as the nonwhiting trawl fleet reduces encounters with overfished species. The output of this model indicates that the fleet may generate severalmillion dollars in additional ex-vessel revenue under a rationalization program compared to Alternative 1 activity if ex-vessel prices remain constant.

Increased profits and fleet consolidation

Some of the expected increase in ex-vessel revenue is likely to occur almost immediately after the fishery is rationalized. However, the fleetwide estimates are best perceived as a longer-term outcome of rationalization that will occur as the fleet modifies gears and fishing location, the flow of quota through the market occurs in a way so that it reaches the more successful vessels, and processing companies find buyers for the potential increase in product quantity. This is likely to be a gradual effect where ex-vessel revenue increases over time before reaching full potential. The length of time it takes for the increased harvest volume to be absorbed by the processing sector may also depend on the number of processing entities harvesters have the opportunity to sell their catch to. The requirement that the entire catch be off-loaded at a single processor restricts—to some degree—the number of processing companies that harvesters deliver to. By relaxing this requirement, harvesters may be able to sell their catch to more than one buyer at a time, and if these buyers have relatively different access to markets, being able to sell catch to more than one buyer will make it more likely that an increase in catch can be absorbed by the market more quickly.

Figure 4-7 illustrates the potential range of ex-vessel revenues in the nonwhiting trawl fishery generated under a rationalization program compared to Alternative 1 if ex-vessel prices remain unchanged. The range of values presented is meant to bracket the range of uncertainty within the model while still providing realistic estimates. The uncertainty presented in this figure does not capture the risk posed by thin market conditions that may be present in an IFQ program because of species with low trawl allocations.

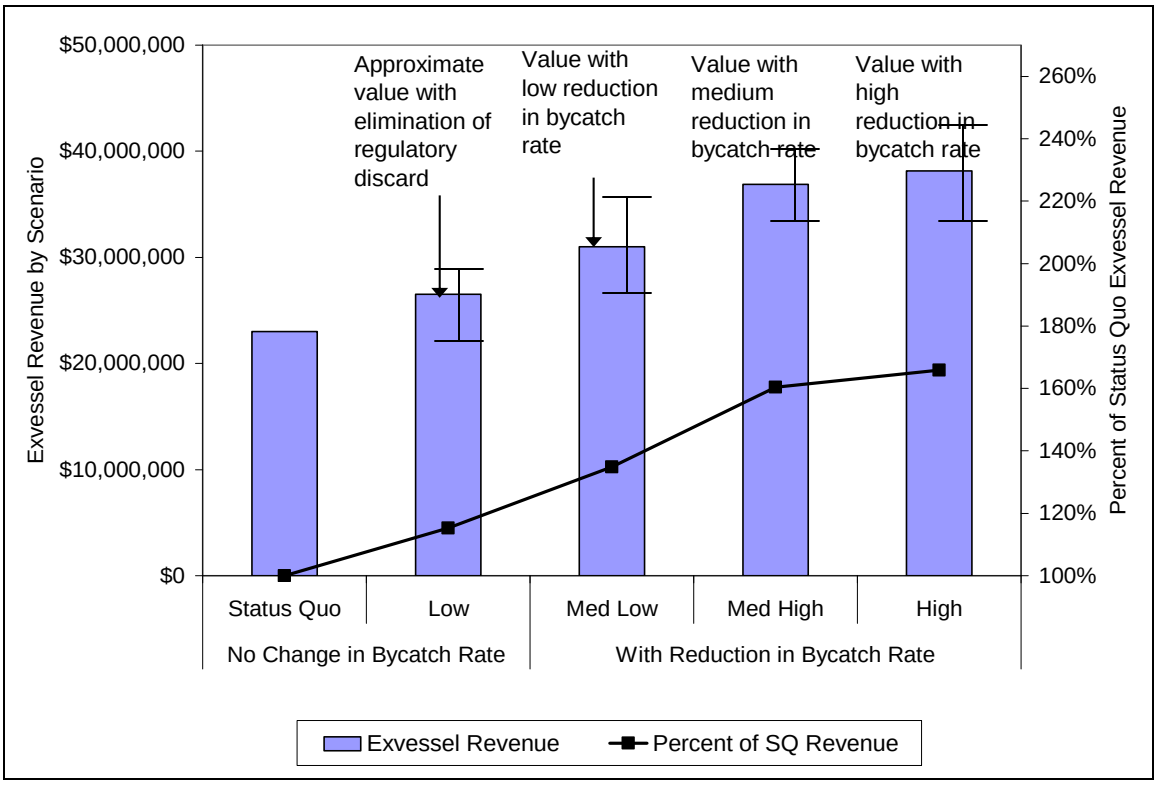


Figure 4.7. Potential ex-vessel revenue in the nonwhiting trawl fishery under rationalization.
Note: Bars are intended to represent uncertainty due to potential variations in ABCs and OYs.

In addition to increased revenue being generated in the fishery, the consolidation likely to occur in the nonwhiting sector is expected to lead to substantial cost savings. Cost savings occur because of less capital, but also because the fleet is expected to consolidate toward the most efficient vessels. The fleet reduction and cost efficiency model shows the consolidation that may occur could diminish the number of vessels by 50 to 66 percent, or to a nonwhiting fleet size that is somewhere on the order of 40 to 60 vessels. This predicted cost savings is fairly sensitive to the design elements of the program and is also dependent on the quantity of species harvested. This consolidation is predicted to decrease costs of harvesting nonwhiting groundfish by as much as 60 percent annually (before incorporating the cost of at-sea monitoring). Using information from recent years, this may mean a cost savings of approximately $13.8 million. Imposing accumulation limits can restrict the amount of expected cost savings substantially. Retaining the vessel length endorsement may restrict cost savings by 10 percent, though this may be lower since harvesters can bundle permits and change the length endorsement. If a 1 percent accumulation limit is placed on vessels, cost reductions may be restricted by approximately 20 percent.3 At-sea monitoring costs add an additional cost burden to vessels that is not currently incurred. If at-sea monitors cost vessels $350 per day, this may tend to reduce the size of the fleet from the 40 to 60 vessels expected and increase the average size of vessels

3 The lowest accumulation limit in the alternatives of three percent is not expected to impose cost inefficiencies on the nonwhiting trawl sector so long as prices and available harvest volumes do not decrease.

remaining. This is because additional costs of fishing will mean the optimal fleet size is smaller. The average size of vessels in the fleet is increased with a daily observer cost because such costs comprise a larger portion of small vessels costs than that of larger vessels. At-sea observers will also reduce fleet-wide profits. The fleet reduction and cost efficiency model illustrates that at-sea observers may cost the nonwhiting fleet $2.2 million if all vessels in the fishery operate near capacity. If some relatively marginal producers remain in the fishery, the cost will be higher. Table 2 illustrates the effect of various factors on profitability.

Table 2. Factors affecting profitability.

Effect of Consolidation	Improves harvesting cost efficiency. May allow the fleet to realize profits of ~$14 to $23 million compared to $0 or less under Alternative 1.
Effect of Accumulation Limits	No effect unless vessel limit is smaller than ~2.5 percent. A 1 percent vessel limit restricts potential cost efficiency by ~20 percent
Effect of Permit Length Endorsement	Restricts cost efficiency by ~10 percent, or imposes costs of ~$1.5 to $3 million[a]
Effect of At-Sea Observers	Increases average vessel size slightly. Decreases fleet size slightly. May reduce profits by ~$2.2 million depending on fee structure.

a) This estimate was modeled based on the idea that QS would be restricted from trading across vessel size classes. That restriction is not part of the options contained in the existing alternatives. Therefore, this estimate does not apply to the existing alternatives for rationalization of the trawl fishery.

Figure 4-8 shows potential fleet-wide profit if all vessels are operating at their most cost effective point. The results in this figure use the fleet-wide revenue estimates shown above in conjunction with the cost-savings and consolidation model. The results show profit under unconstrained cost conditions, profit with a vessel length restriction (i.e., retaining the permit length endorsement), and profit with a vessel length restriction and at-sea observers. Although not shown in the figure, for reference purposes Alternative 1 profits in the fleet are estimated to be between zero and a loss of approximately $2 million annually.

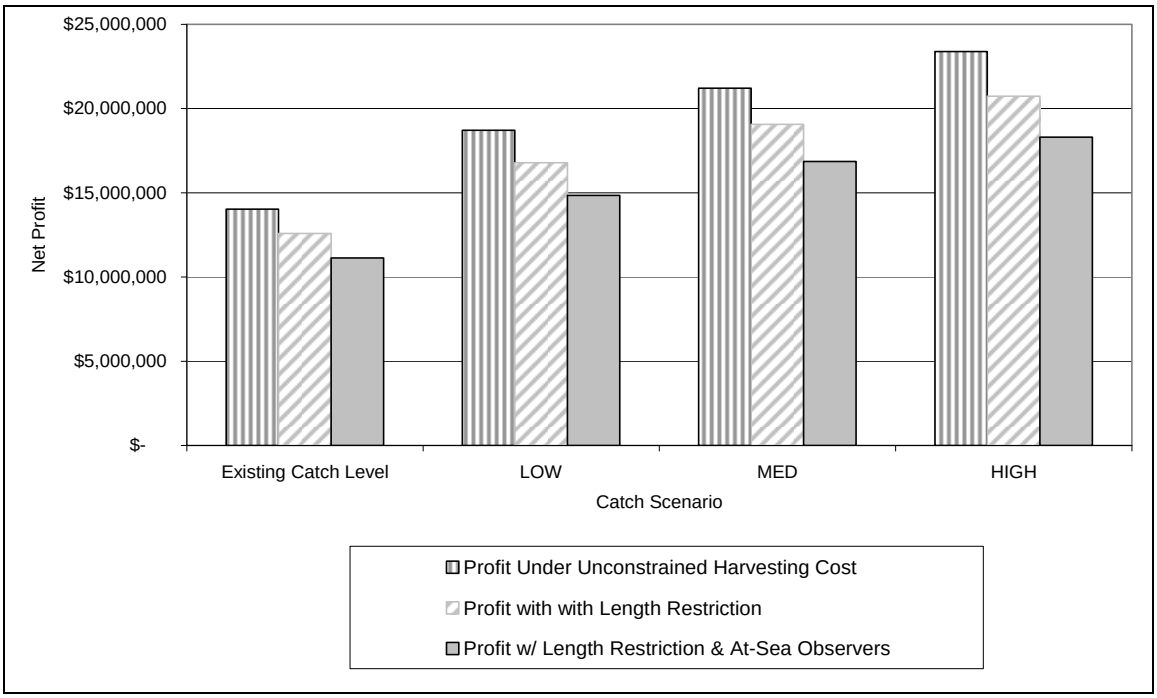


Figure 4-8. Estimated fleetwide profit in a rationalized nonwhiting trawl fishery.

The above information shows that when potential cost savings are combined with the projected increase in gross revenue displayed in Figure 4-7, actual revenues to catcher-vessels and permit holders may increase by several million. Empirical evidence from other programs suggests that consolidation and the associated cost savings could occur quite rapidly after the fishery is rationalized.

The consolidation and cost efficiency model shows that the most efficient vessels for harvesting nonwhiting trawl groundfish are approximately 60 to 70 feet in length. Smaller vessels tend to be limited by the effectiveness of harvest capacity per vessel size while larger vessels tend to operate in an area where costs are increasing more rapidly per scale compared to harvest effectiveness. Vessels that are larger or smaller may find it more profitable to sell QS and leave the fishery rather than remain in the fishery.

Current Status of the Fishery—Changes Since 2004

This discussion is in addition to the information provided in the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS*. As the "Consolidation" model is based on the fishery, it may be useful to provide current trends in the fishery. [The indicators below are landings, ex-vessel prices, and revenues from PacFIN, fuel prices collected by PSMFC, and U.S. export prices for whiting and sablefish shipped from the Seattle Customs District. PacFIN data include tribal harvests and revenues.]

In 2004, the shorebased non-whiting trawl fishery generated about $30 million in ex-vessel revenues. But according to NWFSC cost estimates, this fishery was at best breaking even or perhaps suffering a loss of up to $2 million.

Since 2004, shorebased non-whiting trawl fisheries have increased their revenues to about $40 million

The increases in shorebased revenues have come from increased landings of flatfish and sablefish and significant increase in sablefish ex-vessel prices. Sablefish now accounts for almost half of the trawl fleet's revenues.

While revenues were increasing so were fuel prices. Fuel costs are about 30 to 40% of the vessels revenues (Table 4-43 DEIS). The average 2005-2009 revenues were about $28 million—22 percent greater than of 2004. The average 2005-2009 fuel price was about $2.81—70% greater than that of 2004. Therefore, it appears that 2009 fishery may not be that much improved over that of 2004.

The indicators below also show the growth in whiting revenues due to increased landings and ex-vessel prices stimulated by high export prices. Note that after reaching a peak in 2008 of $0.11 per lb in 2008, the 2009 price for whiting has fallen to $0.05 per lb in 2009.

Recent Indicators of Fishery Trends

Revenues ($1000)

	All Groundfish	All Whiting	At-Sea Whiting
2004	44,526	21,680	14,199
2005	52,640	28,786	16,671
2006	58,673	34,425	18,523
2007	59,401	32,602	18,595
2008	91,517	58,495	43,333
2009	46,146	14,104	7,790

	Shoreside Total	Shoreside Whiting	Shoreside Non-Whiting
2004	30,327	7,481	22,846
2005	35,969	12,115	23,854
2006	40,150	15,902	24,248
2007	40,806	14,007	26,799
2008	48,184	15,162	33,022
2009	38,356	6,314	32,042

Landings (Tons)

	All Groundfish	All Whiting	At-Sea Whiting
2004	237,779	216,557	120,074
2005	281,352	259,499	150,448
2006	284,133	264,728	137,564
2007	238,852	216,583	125,142
2008	274,104	248,221	180,461
2009	149,241	121,465	72,242

	Shoreside Total	Shoreside Whiting	Shoreside Non-Whiting
2004	117705	96,483	21,222
2005	130904	109,051	21,853
2006	146569	127,164	19,405
2007	113710	91,441	22,269
2008	93643	67,760	25,883
2009	76999	49,223	27,776

Shoreside Trawl Revenues ($1000)

Flatfish	Rockfish	Sablefish
12,259	3,358	5,355
13,384	3,045	5,916
12,771	3,006	7,387
14,362	3,322	8,126
15,673	4,625	11,457
14,042	4,430	12,449

Shoreside Trawl Landings (Tons)

	Flatfish	Rockfish	Sablefish
2004	13,329	2,949	2,435
2005	14,012	2,675	2,407
2006	12,606	2,352	2,537
2007	15,417	2,768	2,489
2008	17,250	3,733	2,891
2009	18,655	4,077	3,061

Ex-Vessel Trawl Prices, Fuel Prices and Export Prices
($/gallon, $/lb)

	Dover Sole	Petrale Sole	Whiting	Sablefish
2004	$0.36	$1.03	$0.05	$1.00
2005	$0.37	$0.91	$0.05	$1.12
2006	$0.37	$1.01	$0.06	$1.32
2007	$0.37	$1.00	$0.07	$1.48
2008	$0.37	$1.01	$0.11	$1.80
2009	$0.33	$0.91	$0.05	$1.85

	June Fuel Prices Newport Oregon	Export Prices Seattle Customs District H&G Whiting	Sablefish
2004	$1.65	$0.54	$2.82
2005	$2.00	$0.54	$2.55
2006	$2.70	$0.74	$3.61
2007	$2.50	$0.74	$4.12
2008	$2.98	$0.90	$4.38
2009	$2.21	$0.88	$4.59

Non-whiting Trawl Sector: In summary, ex-vessel revenues for the non-whiting sector of the limited entry trawl fishery are estimated to be approximately $30 to 50 million per year under the preferred alternative compared to $22 to 25 million under the no action alternative. This revenue increase is expected to occur in a rationalized fishery because target species quotas can be more fully utilized. Currently, in the non-whiting sector, cumulative landing limits for target species have to be set lower because the bycatch of overfished species cannot be directly controlled. Introducing accountability at the individual vessel level by means of IFQs provides a strong incentive for bycatch avoidance (because of the actual or implicit cost of quota needed to cover bycatch species) and prevents the bycatch of any one vessel from affecting the harvest opportunity of others. In addition, under the preferred alternative, the non-whiting sector would have control over harvest timing for the whole calendar year. Under the no action alternative, the non-whiting sector would continue to operate under two-month cumulative landing limits, which reduce flexibility within a two-month period (because any difference between actual limits and the period limit cannot be carried over to the next period). Finally, the ability for vessels managed under IFQs to use other types of legal groundfish gear could allow some increases in revenue by targeting higher-value line- or pot-gear-caught fish. This opportunity would mainly relate to sablefish, which are caught in deeper water, rather than nearshore species where state level regulatory constraints apply.

The preferred alternative may also increase ex-vessel revenues of non-whiting trawl harvesters by changing their bargaining power with processors over ex-vessel prices. Under the preferred alternative, the current two-month cumulative limits structure of the non-whiting trawl fishery would be replaced with QS that is available for a year, thereby extending the time horizon harvesters have to negotiate prices with processors without losing available fishing opportunity. The extended period would give harvesters greater latitude to hold out for better prices compared to the no action alternative. However, it should also be noted that these negotiations will also be affected by the availability of target species, as well the availability of bycatch.

Costs for the non-whiting sector of the limited entry trawl fishery are expected to decrease under the preferred alternative because of productivity gains related to fleet consolidation. Productivity gains would be achieved through lower capital requirements and a move to more efficient vessels. Operating costs for the non-whiting sector are predicted to decrease by as much as 60 percent annually. Based on estimates of current costs, this percentage decrease represents a $13.8 million cost reduction relative to the no action alternative.

The accumulation limits considered under the preferred alternative are not expected to introduce cost inefficiencies in the non-whiting sector, provided that current prices and harvest volumes do not decrease. However, the preferred alternative would impose new costs on the non-whiting sector that would not be incurred under the no action alternative. First, a landings fee of up to 3 percent of the ex-vessel value of fish harvested would be assessed under the preferred alternative to recover management costs, such as maintenance of the system of QS accounts. Second, new at-sea observer requirements would be introduced, and vessels would have to pay the costs of complying with these requirements, estimated at $500 a day if independent contractors are hired. The daily observer cost could place a disproportionate adverse economic burden on small businesses because such costs would comprise a larger portion of small vessels costs than that of larger vessels.

The increase in profits that commercial harvesters are expected to experience under the preferred alternative may render them better able to sustain the costs of complying with the new reporting and monitoring requirements. The improved harvesting cost efficiency under the preferred alternative may allow the non-whiting sector to realize profits of $14 million to $23 million compared to zero or less under the no action alternative. In addition, a provision that allows vessels managed under the IFQ program to use other legal gear (gear switching) would allow sablefish allocated to the trawl sector to be sold at a higher price per pound, possibly contributing to increased profits. The imposition of accumulation limits could reduce the expected increase in the profitability of the non-whiting sector by restricting the amount of expected cost savings, and the costs of at-sea observers may reduce profits by about $2.2 million depending on the fee structure. However, the profits earned by the non-whiting sector would still be substantially higher under the preferred alternative than under the no action alternative.

New entrants are likely to face a barrier to entry in the Pacific Coast groundfish limited entry trawl fishery in the form of the cost of acquiring QS (or a co-op share in the case of the at-sea whiting sector). This disadvantages them compared to those entities that receive an initial allocation of harvest privileges. Small entities may be particularly disadvantaged to the degree that they may find it more difficult to finance such quota purchases than larger-scale harvesters. Among the goals the Council identified for the adaptive management program was using the reserved non-whiting QS to facilitate new entry into the fishery. In addition, as a trailing action, the Council identified a framework to allow the establishment and implementation of community fishing associations as part of the adaptive management program. These entities could facilitate entry into the fishery by leasing QS at below market rates, thereby leveling the playing field in terms of costs between initial recipients of QS and new entrants.

Whiting Sector. While the effect of the preferred alternative on revenues and costs in the whiting sector of the limited entry trawl fishery is more difficult to estimate, the lower motivation to "race for fish" due to co-op harvest privileges is expected to result in improved product quality, slower-paced harvest activity, increased yield (which should increase ex-vessel prices), and enhanced flexibility and ability for business planning. The overall effect of these changes would be higher revenues and profits for harvesters in the shoreside and mothership portions of the whiting fishery compared to the no action alternative. Under the preferred alternative, some consolidation may occur in the shoreside and mothership sectors of the Pacific whiting fishery, though the magnitude of consolidation is expected to be less than in the non-whiting sector. The existing catcher-processor co-op would continue under the preferred alternative, with effects on the catcher-processor sector that look similar, or identical, to those of the no action alternative. However, the change from a vessel-restriction under Amendment 15 to the permit-based limit of Amendment 21 will provide additional flexibility that currently does not exist in the whiting fishery.

Trawl Groundfish Processors. The incremental effects of the preferred alternative on buyers and processors of trawl-caught groundfish are detailed Sections 4.9 and 4.10 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS*. Even though processors may have to pay fishermen higher ex-vessel prices, processors may see cost savings under the preferred alternative to the degree that rationalization allows greater control over the

timing and location of landings. Processors could use current plant capacity more efficiently, because available information suggests that processing facilities are currently underutilized. Fleet consolidation in the non-whiting sector could also provide cost savings for processors if landings occur in fewer locations, thereby reducing the need for facilities and/or transport. The preferred alternative would also impose new costs on processors that would not be incurred under the no action alternative. Processors would be required to pay some or all of the costs of plant monitors, who would verify landings. Similar to at-sea observers, these monitors would be independent contractors rather than direct employees of the processing firm.

In the non-whiting processing industry, harvest volumes may increase because of a decrease in constraining species bycatch and a subsequent increase in underutilized target species catch. This boost in target species catch may increase utilization of processing capital and processing activity. [It should be noted that if bycatch has been underreported under the current system, with 100 percent observer coverage under the new system, the gains in increased target catches may be less than expected.] Consequently, the possibility of capital consolidation in the non-whiting shoreside sector may be lower than in the shoreside whiting sector. However, shifts in the distribution of landings across ports as a result of fleet consolidation, industry agglomeration, and the comparative advantage of ports (a function of bycatch rates in the waters constituting the operational area for the port, differences in infrastructure, and other factors) could lead to consolidation in processing activity at a localized or regional scale and an expansion in processing activity elsewhere. To mitigate harm to adversely impacted shoreside non-whiting processors, the adaptive management provision provides a mechanism to distribute non-whiting QS to processors, thereby ensuring that some processors receive greater landings of groundfish than would otherwise be the case.

As noted above, the preferred alternative may reduce the power of shoreside non-whiting processors to negotiate ex-vessel prices with harvesters. The larger harvest volume due to bycatch avoidance may lower processor average costs, which could offset the negative effects on shoreside non-whiting processors of a shift in bargaining power. In addition, QS could be purchased by processors over the long term, thereby increasing processor's negotiation power. However, the accumulation limits included in the preferred alternative would limit the ability of processors to purchase substantial quantities of QS. Alternatively, the adaptive management provision could be used to allocate QS to shoreside non-whiting processors, thereby providing them additional leverage when negotiating terms with harvesters.

The allocation of 20 percent of the initial shoreside whiting QS to the shoreside processing portion of the whiting fishery would give these processors more influence in negotiations over ex-vessel prices and would tend to offset the gains in bargaining power for harvesters. For example, a processor could use QS to induce a harvester that is short of QP for a Pacific whiting to make deliveries under specified conditions and prices. However, because of a reduction in peak harvest volume, fewer processing companies and/or facilities may be necessary to handle harvest volumes of Pacific whiting, meaning some companies may find themselves without enough product to continue justifying processing operations of Pacific whiting.

The annual co-op declarations under the preferred alternative are expected to give motherships some certainty over delivery volumes from catcher vessels in the upcoming year, but little

leverage in negotiations over prices or profit sharing.

Captains and Crew. The incremental effects of the preferred alternative on the employment and safety of the captains and crew of limited entry trawl vessels are detailed in Section 4.7 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS*. The fleet consolidation expected to occur under the preferred alternative would result in a decrease in the number of captain and crew jobs; however, those who retain jobs in the fishery are expected to receive higher wages due to higher vessel profit margins. The increased financial ability of vessel owners to invest in safety equipment and conduct vessel maintenance, together with increased vessel operational flexibility, are anticipated to improve safety conditions on board trawl vessels.

Nontrawl Commercial Harvesters and Processors. The incremental effects of the preferred alternative on nontrawl commercial harvesters and processors are detailed in Section 4.8 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS*. Nontrawl harvesters include those targeting groundfish with other gear types and those that do not target groundfish. Since groundfish are an important part of Pacific coast landings, relatively few processors specialize exclusively in nongroundfish species. The preferred alternative may have a number of spillover effects on these harvesters and processors, including the following:

- Fleet consolidation and increased harvest timing flexibility may allow vessels in the non-whiting sector of the limited entry trawl fishery to be made available for use in nontrawl fisheries, increasing participation in those fisheries and adversely affecting the economic performance of nontrawl harvesters.
- Reduction in trawl catch of Pacific halibut (a prohibited species) allows more catch opportunity in target fisheries, thereby increasing ex-vessel revenues in the directed halibut fisheries.
- Gear switching to target sablefish with fixed gear under trawl quotas could increase competition on fishing grounds, a potential cost increase for nontrawl harvesters.
- If the fleet consolidation expected in the non-whiting sector under rationalization concentrates trawl landings in fewer ports, the loss of fishing-related port infrastructure could increase costs for nontrawl harvesters and processors in those ports.

Recreational Harvesters. The incremental effects of the preferred alternative on recreational harvesters are detailed in Section 4.5.3 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS*. Fleet consolidation in the non-whiting sector that is expected to occur under the preferred alternative could reduce the availability of fishing-related infrastructure in specific ports. It is, however, unlikely that this reduction would substantially affect the types of services and amenities upon which recreational harvesters depend (e.g., charter operations, boat ramps, bait suppliers, tackle shops) or the quality of the recreational fishing experience.

Fishing Communities. The FEIS describes the status quo of fishing communities as the following :

A summary of major themes presented in public testimony during the 2007-08 groundfish

specification process (PFMC 2006) includes comments on the following:

- The negative cumulative effects of both Federal regulations (such as closed areas, fathom restrictions, season restrictions, and VMS) and nonfederal actions (cable crossings, proposed state restrictions) on fisheries, businesses, and communities
- Crumbling infrastructure (processors, buyers, ice plants, and businesses that support processors closing or consolidating, docks and harbors not being maintained; market infrastructure collapsing);
- Recreational and commercial fishing vessels going out of business or being forced to diversify;
- Fishing-related businesses, such as gear stores, boat repair shops, tackle shops, and fishing equipment manufacturers, and nonfishing-related businesses, such as hotels, restaurants, and car dealerships, feeling the impacts of reduced fishing income, including laying off employees or closing
- Decreasing tax bases due to business closures
- Increasing social tensions in communities, such as psychological impacts, marital tension, divorce and suicide
- Difficulty in making business decisions and planning for the future
- Further dependence on groundfish due to salmon cutbacks

The fleet consolidation that is expected to occur under the preferred alternative, particularly in the non-whiting sector, could have a negative economic effect on some coastal communities where groundfish trawlers are an important component of the local fishing fleet (in terms of local purchases, not necessarily number of vessels). As the fleet size shrinks, the remaining vessels would concentrate in a few major ports. Income and employment in those communities that experience a decline in local fleet size could be adversely affected. Fishery-related businesses in the community may cease operations because of lost business. Smaller, specialized retailers (e.g., ice suppliers, ship chandlers, cold storage facilities, fuel docks) would be especially vulnerable to a decreased demand for fishing-related goods and services inputs. Businesses unrelated to fishing may also feel the impacts of reduced fishing income in the community. Some of these effects would be mitigated by the higher profits expected to be earned by trawl harvesters under the preferred alternative. However, because fleet consolidation is expected, the benefits of increased vessel profitability are likely to be unevenly distributed among coastal communities. Tracking and monitoring costs may affect ports with low landings or intermittent landings, as there may be logistical issues with deploying catch monitors and observers.

The table below summarizes the comparative advantage of non-whiting communities under the preferred alternative. Ports at a disadvantage from consolidation and geographic shift have a relatively inefficient fleet (vessels with a relatively long travel time to fishing grounds, those with relatively unsuccessful operators, costly vessels, and inefficiently sized vessels contribute to the "fleet efficiency" score in the table below), insufficient infrastructure, and are adjacent to fishing grounds with high constraining overfished species abundance ("bycatch dependence" in the table below). The table also includes a positive or negative score for "initial allocation of groundfish," as determined by the initial allocation estimates.

Table 3. Comparative advantage of non-whiting trawl communities under the preferred alternative.

Port	Fleet Efficiency Score	Bycatch Dependent Area Score	Shore-based Infrastructure	Initial Allocation of Groundfish	Score
Bellingham†	?	- -	+ +	+	
Neah Bay*†	-	- -	- -	-	-
Westport*†	-	+	+	-	
Astoria*†	+	+	+ +	+ +	+
Newport*†	+	-	+ +	+	
Charleston (Coos Bay) *†	+	+	+ +	+	+
Brookings*	+	+	-	+	
Crescent City*†	-	+	+	-	
Eureka*†	+	+	+	+	+
Fort Bragg*†	-	+	+	+	
San Francisco	-	-	+ +	+	
Moss Landing* †	-	- -	+	+	
Princeton/Half Moon Bay*	-	- -	+	+	
Morro Bay*†	?	+	-	-	

*Small governmental jurisdiction based on Small Business Administration standard. No small governmental jurisdictions would be directly regulated by the proposed actions.
†Community that is "vulnerable" due to a high dependence on fishing activity and/or a relatively low resilience to change.

The adaptive management provision could be used to mitigate adverse impacts to communities, particularly ports with non-whiting processors. Directing the adaptive management quota to specific communities that have demonstrated harm, or a likely harm, could maintain fishing activity in a community that may otherwise stand to lose that activity. In addition, the preferred alternative includes other mechanisms that could mitigate adverse impacts to communities, such as a two-year moratorium on QS transfers, a five-year review that includes a community advisory committee, accumulation limits and a two-year review of some of the limits, the opportunity for communities to receive an initial QS allocation by acquiring a trawl permit, and a trailing action to establish community fishing associations.

The allocation of 20 percent of the initial shoreside whiting QS to the shoreside processing portion of the whiting fishery would give these processors more influence over the location of landings by enticing or directing harvests to existing plants even if the harvesters prefer to fish in other areas. However, consolidation in the processing sector is still expected to occur, and this consolidation of shoreside whiting processors will have an effect on communities.

Communities have been evaluated according to whether they are "dependent," "engaged," "resilient," or "vulnerable." Most studies use the term "dependence" to mean a community's use of a particular resource (for example, whiting or flatfish). "Engagement" is used to describe a community's use of a more general resource (for example, fisheries). The term "resilience" is

used to describe a community's ability to adapt to change. "Vulnerable" areas are communities that are either highly engaged or highly dependent and that have relatively low resilience.

This information is useful for considering impacts to communities in cases where changes in fishing activity have different degrees of impact on a community. In such cases, a moderate change in fishing activity occurring in a vulnerable community may be considered a substantial impact, while a moderate change in fishing activity in a less vulnerable community may be considered relatively inconsequential. The projected effects of the trawl rationalization program on the communities is described in Table 4 (Table 4-71 of the FEIS):

Table 4. Summary of the impacts of rationalization on communities.

Community	General Impacts	Vulnerability	Cumulative Impact Notes
Bellingham	Benefits from initial allocation, allocation of IFQ to processors; but close to high bycatch area.	Vulnerable. Medium dependence and medium resilience.	Long-term decline in natural resources employment, but diversified economy. Population has grown 14% since 2000. Increasing gentrification. Young population.
Anacortes	Not strongly affected by rationalization due to nature of fishery (at-sea catcher-processors)	Not vulnerable.	Long-term decline in natural resources employment. Increasing tourism and retiree destination. Population has grown 14% since 2000. Should benefit from whiting amendments (10 & 15).
Seattle	Not strongly affected by rationalization due to nature of fishery (at-sea whiting), diversity and size of community	Not vulnerable.	Diversified economy with strong fishing infrastructure. Population has grown 5% since 2000. Should benefit from whiting amendments (10 & 15). Increasing gentrification.
Neah Bay	At risk of losing trawl fleet. Receives less than average in initial allocation. May experience reduction in landings if processors are allocated quota.	Extremely vulnerable.	Relatively heavy reliance on natural resource jobs. Impacted by 2008 salmon closures. Near marine sanctuary and wave energy site. Older-than-average population.
Westport	Would receive less than average initial allocation. Processor could benefit from processor QS. Consolidation could remove nonwhiting activity from port.	Vulnerable. Fairly dependent on groundfish fishery, but fairly resilient.	Tourism and natural resources both historically important to economy. Impacted by salmon closure. Luxury boatbuilding, important to economy, could be affected be economic downturn.
Ilwaco	Primarily a whiting port. Receives less than average initial allocation of nonwhiting. Processor could benefit from QS.	Vulnerable. Low dependence on groundfish, but low resilience.	Increasing population (5%). Older-than-average population. Impacted by 2008 salmon closure. Should benefit from whiting amendments (10 & 15).

Table 4 cont. Summary of the impacts of rationalization on communities.

Community	General Impacts	Vulnerability	Cumulative Impact Notes
Astoria/Warrenton	Expected to benefit from rationalization, with large initial allocation and possibly increased harvesting and processing activity.	Astoria is vulnerable; Warrenton is not. Medium to high resilience.	General long-term decline in natural resources employment. Astoria population stable; Warrenton population increasing. Slightly older-than-average population. Impacted by 2008 salmon closures. Should benefit from whiting amendments (10 & 15). Increasing tourism (with accompanying low-paying jobs) and increasing gentrification, especially in Astoria. Some population leaving to find higher-paying jobs.
Newport	Expected to benefit from rationalization, with large initial allocation and possibly increased harvesting and processing activity.	Vulnerable. Very dependent on groundfish fisheries, but also fairly resilient.	General long-term decline in natural resources employment. Active tourist industry and increasing gentrification. Older-than-average population. Slightly increasing population. Impacted by salmon closure. Should benefit from whiting amendments (10 & 15). Wave energy projects have been proposed for nearby waters.
Coos Bay/ Charleston	Expected to benefit from rationalization, with large initial allocation and possibly increased harvesting and processing activity.	Somewhat vulnerable. Dependent on groundfish with medium resilience.	Heavily dependent on natural resource economy. Impacted by salmon closure. Should benefit from whiting amendments (10 & 15). Slight population increase since 2000. Older-than-average population. Large wave energy project proposed for nearby waters.
Brookings	Would benefit slightly from initial allocation. Currently no processors of trawl groundfish; processing could be less likely to move to Brookings under rationalization.	Not vulnerable. Dependent on groundfish, but high resilience.	General long-term decline in natural resources employment. Greatly increasing population (23.8% between 1990-2000, 15.9% between 2000-2007), many retirees. Much older-than-average population. Heavily reliant on recreational fishing. Impacted by 2008 salmon closures.
Crescent City	Would receive lower-than-average initial allocation. Relatively inefficient fleet; however, scores well on bycatch dependency, which could mitigate other factors.	Vulnerable; relatively dependent on groundfish, with medium resilience.	General long-term decline in natural resources employment. Many large rent-paying vessels removed by 2003 trawl buyback. Reliant on tourism. Slightly increasing population. Impacted by salmon closure.

Table 4 cont. Summary of the impacts of rationalization on communities.

Community	General Impacts	Vulnerability	Cumulative Impact Notes
Eureka	Would receive higher-than-average initial allocation. Located in low-bycatch area.	Vulnerable; relatively dependent on groundfish, with medium resilience.	General long-term decline in natural resources employment; reliant on tourism, timber, and fishing. Sixteen groundfish vessels retired through trawl buyback. Decreasing population (3%). Impacted by salmon closure. Four wave energy projects are proposed for nearby state and Federal waters.
Fort Bragg	Would receive higher-than-average initial allocation. Located in low-bycatch area. However, a relatively inefficient fleet.	Vulnerable; relatively dependent on groundfish, with medium resilience.	General long-term decline in natural resources employment (large mill closed in 2002). Decreasing population (3%). Older-than-average population. Impacted by 2008 salmon closure. Increasing gentrification. Three wave energy projects are proposed for nearby state and Federal waters. Several marine protected areas located in nearby waters.
San Francisco	Would receive higher-than-average initial allocation. Strong infrastructure. However, located in a high-bycatch area. May lose some of its relatively inefficient fleet.	Not vulnerable.	Decreasing population (2%). Ongoing gentrification of fishing facilities. Wave energy projects proposed for nearby waters (mainly bay). Impacted by 2008 salmon closure.
Princeton/ Half Moon Bay	Initial allocation may be higher or lower than average, depending on allocation formula. Located near high bycatch area. Relatively inefficient fleet (some vessels may be lost), but strong infrastructure may mitigate these factors.	Not vulnerable.	Historically dependent on tourism; active tourist industry. Slightly increasing population; older-than-average population. Increasing gentrification. Near Monterey Bay Sanctuary and newly designated California MPAs.
Moss Landing	Would receive higher-than-average initial allocation. May experience reduction in landings if processors are allocated quota. Inefficient fleet near high bycatch area.	Vulnerable; somewhat dependent on groundfish, with low resilience.	Historically reliant on sardine and other fisheries. Near Monterey Bay Sanctuary and newly designated MPAs. Affected by 2008 salmon closure.

Table 4 cont. Summary of the impacts of rationalization on communities.

Community	General Impacts	Vulnerability	Cumulative Impact Notes
Morro Bay	Currently no trawlers are trawling out of Morro Bay. Permits bought out by Nature Conservancy. Impossible to predict how efficient fleet may be in future. Would receive less than average initial allocation of QS.	Vulnerable. Medium dependence on groundfish, but highly resilient.	Active tourist industry. Slightly decreasing population. Increasing gentrification. Impacted by salmon closure. Five groundfish vessels participated in buyout. New MPAs located in nearby waters. One wave energy project currently proposed for nearby waters.

One of the key indicators of community health is the unemployment rate. Unfortunately, because many of these communities are small, current unemployment rates cannot be found. However, there are current estimates for the counties in which these communities reside. [The data below are taken from the Local Area Unemployment Statistics, U.S. Department of Labor, Bureau of Labor Statistics Databases –see www.bls.gov .]

These trends show that, relative to 2004, unemployment rates were declining but then increased significantly in 2009, mirroring the general trend in the overall U.S. economy. The implication is that vulnerable communities are becoming more vulnerable.

Trends in Unemployment Rates By County of Home Port
(% Unemployed)

Washington					
	Clallam Neah Bay	**Grays Harbor West Port**	**Pacific Ilwaco**	**Whatcom Bellingham**	**State**
2004	7.1	8.3	7.7	5.8	6.2
2005	6.5	7.5	7.1	5.0	5.5
2006	5.8	6.9	6.4	4.5	4.9
2007	5.7	6.9	6.9	4.1	4.6
2008	6.8	7.4	6.6	4.9	5.4
2009	9.6	12.6	12.2	8.0	8.9
Oregon					
	Clatsop Astoria	**Lincoln Newport**	**Coos Coos Bay**	**Curry Brookings**	**State**
2004	6.8	8.1	9.0	7.5	7.3
2005	5.8	8.1	7.6	7.0	6.2
2006	5.0	6.0	6.7	6.8	5.3
2007	4.7	5.5	6.6	6.5	5.1
2008	5.1	6.5	8.1	7.8	6.5
2009	8.9	10.4	12.0	13.1	10.7
California					
	Del Norte Cresent City	**Humboldt Eureka**	**Mendocino Fort Bragg**	**Monterey Moss Landing**	**State**
2004	8.1	6.5	6.4	8.3	6.2
2005	7.5	6.1	5.8	7.3	5.4
2006	6.9	6.5	5.2	6.9	4.9
2007	7.5	5.9	5.5	7.1	5.2
2008	8.7	7.2	6.8	8.4	7.2
2009	12.2	11	10.5	11.9	11.4

Tribal Fisheries. The incremental effects of the preferred alternative on treaty tribe harvesters are detailed in Section 4.15 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS*. Under the preferred alternative, tribal groundfish fisheries are expected to generate at least the same level of ex-vessel revenues and personal income as generated under the no action alternative. Loss of port infrastructure due to harvester and processor consolidation could affect tribal fisheries disproportionately. As shown in Table 4-69 of the FEIS, the port of Neah Bay appears to be at a particular disadvantage under the preferred alternative because of its lack of fleet efficiency, lack of shore-based infrastructure, and the high degree of dependence that vessels in this port have on areas defined as "high bycatch."

Seafood Consumers. The incremental effects on seafood consumers are considered in Section 4.5.4 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS*. Under the preferred alternative, consumers of groundfish products could benefit from greater availability of target species and new product forms. Given that the current management strategy is focused on a year-round fishery via bimonthly trip limits, there may be little change in the seasonal availability of groundfish products. However, due either to the high bycatches of rockfish species or to high catches of petrale sole preseason, the traditional winter petrale sole fishery has been greatly restricted or closed down as occurred in 2007. These closures affect the availability of petrale sole to the consumer. Under the preferred alternative, closures of major fisheries are unlikely to happen. The major product form for whiting in recent years has been H&G whiting. This product is mainly for the Eastern European markets. The other groundfish products generally have close substitutes available from elsewhere in the global supply chain. For example, seafood processors have testified to the competition from imported tilapia. Therefore, for most consumers of fresh and frozen seafood products, there is probably little difference between the preferred alternative and no action alternative.

Nonconsumptive and Nonuse Values. The incremental effects on nonconsumptive and nonuse values are considered in Section 4.5.5 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery DEIS*. The preferred alternative may reduce bycatch of overfished stocks, which could enhance the value of wildlife viewing experience for nonconsumptive users. Nonuse values are affected by the impact of harvest on the status of fish stocks. To the degree that the preferred alternative is more effective than the no action alternative in constraining trawl sector harvests to levels expected to improve stock status, nonuse values would be enhanced. It was not practicable to monetize theses changes in nonconsumptive and non-market values; however, they are treated qualitatively in order to provide a complete accounting of costs and benefits attributable to the preferred alternative.

Management Agencies. The incremental effects on management agencies were detailed in Section 4.16 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS*. Public expenditures for monitoring and enforcement are expected to increase under the preferred alternative compared to the no action alternative. Some of these costs would be covered by industry directly (at-sea observer and plant monitor costs) or indirectly through a landings fee. At the state and Federal level, the total expenditure is estimated to range from approximately $2.8 million to $5.6 for startup of the program based on fiscal years 2010 and

2011 first quarter expenditures. After a period of transition, annual program costs are expected to be in the neighborhood of about $5.0 million annually.

4.5.2 Summary of Net Benefits to the Nation

Table 5 summarizes the net benefits to the nation under the preferred alternative based on a qualitative and quantitative assessment. Improvements in the economic performance of harvesters in the Pacific Coast groundfish limited entry trawl fishery may be substantial as a result of expected cost efficiencies created by fleet consolidation, increased flexibility in harvest timing, and increase in the harvest of underutilized target species due to incentives to reduce bycatch. Those harvesters who choose to exit the fishery would receive financial compensation from selling their permit or share of the resource. The improvement in the economic performance of processors in the fishery may also be substantial due to increased processing of target species, increased season length and processor consolidation. An initial allocation of QS to shoreside whiting processors is expected to replace the lost capital value potentially occurring among these processors due to a decline in processing demand.

The preferred alternative may also result in a shift in the balance of bargaining strength between harvesters and processors. This shift, in turn, can affect the distribution of efficiency gains. By providing harvesters with a guaranteed harvest opportunity over a longer period compared to the no action alternative, the preferred alternative may change the relative bargaining power between processors and harvesters by giving harvesters greater latitude to hold out for better ex-vessel prices. On the other hand, an initial allocation of whiting QS to whiting processors will tend to enhance their negotiation power with harvesters over prices. In addition, the adaptive management provision provides a mechanism to distribute non-whiting QS to processors, thereby mitigating harm to adversely impacted shoreside non-whiting processors.

Fleet consolidation would result in a decrease in the number of captain and crew jobs; however, those who retain jobs are expected to receive higher wages due to higher vessel profit margins. Increased vessel profits and operational flexibility are anticipated to improve safety conditions onboard trawl vessels. Fleet consolidation may lead to the spillover of excess vessels into nontrawl commercial fisheries that are operationally similar, thereby increasing competition in those fisheries. Fishing communities will be affected differentially, depending on whether fleet and processor consolidation results in a concentration or loss of vessels and commercial infrastructure.

The main socioeconomic impact of the long-term, formal allocations of specified groundfish stocks and stock complexes among sectors of the Pacific Coast groundfish fishery is increased stability for the limited entry trawl fishery. While the allocations under the preferred alternative do not differ significantly from status quo allocations made biennially, there is more certainty in future trawl harvest opportunities, which enables better business planning for participants in the rationalized fishery.

Table 5. Summary of net social benefits of the preferred alternative relative to the no action alternative.

	Qualitative Assessment	Quantitative Assessment
Trawl Harvesters and Processors		
Change in Costs	+/-	~$13.8 million decrease for non-whiting sector due to productivity gains related to fleet consolidation, but at-sea observe requirements will increase costs by ~$2.2 million
Change in Revenues	+	$5-22 million increase in ex-vessel revenues for non-whiting sector
Change in Profitability	+	$14-23 million increase in profits for non-whiting sector, not including at-sea observer costs
Captains and Crew		
Change in Employment and Wages	+/-	
Change in Fishing Vessel Safety	+	
Nontrawl Commercial Harvesters and Processors		
Change in Costs	+	
Change in Revenues	+/-	
Recreational Harvesters		
Change in Value of Recreational Fishing Experience	0	
Tribal Fisheries		
Change in Revenues and Costs	0	
Fishing Communities		
Change in Concentration of Vessels and Commercial Infrastructure	+/-	
Seafood Consumers		
Change in Prices	0	
Change in Quantity/Quality of Seafood Products	+	
Nonconsumptive and Nonuse Values		
Change in Values Associated with Healthy Fish Stocks	+	
Management Agencies		
Monitoring and Enforcement Costs	+	$5.0 million for startup of the program, $6.5 million for the first few years of the program, and perhaps falling to $4.0 to $4.5 million

4.6 Description of the Projected Reporting, Recordkeeping, and Other Compliance Requirements of the Proposed Rules

The preferred alternative has reporting, recordkeeping, and other compliance requirements. A tracking and monitoring program would be necessary to ensure that the total catch (including discards) is accurately documented and matched against QP. All vessels in the shoreside non-whiting and whiting sectors would be required to carry at-sea observers to monitor sorting and discarding of the catch and shoreside landings. There would also have to be an electronic system to report bycatch and landings, which may be integrated with the current state fish ticket

(landings reporting) system. Plant monitors would be required to ensure that the electronic fish tickets are accurate.

A new reporting requirement related to the tracking of quota shares and QP in the shoreside sector. Current requirements for motherships, mothership catcher vessels, and catcher-processors would continue to be in effect. However, a new program for the mandatory submission of economic data by both the shoreside and at-sea whiting sectors would be implemented to facilitate monitoring IFQ and co-op program performance.

In addition to the catch reporting and monitoring requirement, the preferred alternative would impose other compliance requirements. A landings fee of up to 3 percent of the ex-vessel value of fish harvested would be assessed to recover costs of management, data collection and analysis, and enforcement activities. Second, new at-sea observer requirements would be introduced, and vessels would have to pay the costs of complying with these requirements, estimated at $350 to $500 a day.

4.7 Identification of Relevant Federal Rules that may Duplicate, Overlap, or Conflict with the Proposed Rules

There are no relevant Federal rules that may duplicate, overlap, or conflict with this action.

4.8 Description of Significant Alternatives to the Proposed Rules

Each IRFA shall also contain a description of any significant alternatives to the proposed rule that accomplish the stated objectives of applicable statutes and that minimize any significant economic impact of the proposed rule on small entities.

There are no significant alternatives to the proposed rule that accomplish the stated objectives of applicable statutes and that minimize any of the significant economic impact of the proposed rule on small entities.

The proposed action includes provisions that would have a beneficial impact on small entities. It would create a management program under which most recent participants in the Pacific Coast groundfish limited entry trawl fishery (many of which are small entities) would be eligible to continue participating in the fishery and under which the fishery itself would experience an increase in economic profitability. Small entities choosing to exit the fishery should receive financial compensation from selling their permit or share of the resource. To prevent a particular individual, corporation, or other entity from acquiring an excessive share of the total harvest privileges in the program, accumulation limits would restrict the amount of harvest privileges that can be held, acquired, or used by individuals and vessels. In addition, for the shoreside sector of the fishery, an adaptive management program would be allocated an amount of harvest privileges that could be used to mitigate any adverse impacts, including impacts on small entities, that might result from the proposed action.

The following is excerpted from "Analysis of Components, Elements, and Options for the Individual Fishing Quota Alternative Trawl Individual Components Analysis, Appendix A to the Pacific Coast Groundfish Limited entry Trawl Fishery Environmental Impact Statement."

Under the MSA, the Council is required to consider entry-level fishermen, small vessel owners, and crewmembers, and in particular the possible allocation of a portion of the annual harvest to individuals falling in those categories. No special provisions have been identified for analysis given that new entry is addressed indirectly by allowing crew, captains and others to acquire QS in small increments.

Section 303A(c)(5)(C) of the MSA requires that in developing a LAPP, the Council do the following:

> Include measures to assist, when necessary and appropriate, entry level and small vessel owner-operators, captains, crew, and fishing communities through set-asides of harvesting allocations, including providing privileges, which may include set asides or allocations of harvesting privileges, or economic assistance in the purchase of quota.[4]

The MSA requires that the Council consider, and, **if appropriate**, provide additional measures to benefit the named groups. The Council has considered these groups and certain other elements of the program have been designed with impacts on these groups in mind, including the following:

1. Allocating based on the history of the permit, allowing new entrants to receive a greater initial allocation than they would if the allocation were based just on their personal history in the fishery (Section A-2.1.1).
2. Including an equal allocation component as part of the initial allocation formula for permits, this will benefit historically smaller producers (Section A-2.1.3).
3. Not including a minimum holding requirement provision, this might be more difficult for smaller vessels to comply with than larger vessels (A-2.2.1).
4. Specifying a broad class of eligible owners, that includes crews and fishing communities (Section A-2.2.3.a).
5. Specifying that the QS/QP be highly divisible so as to facilitate the acquisition of QS/QP in small increments by crewmembers, those that have just entered the fishery, and operators of small vessels (Section A-2.2.3.d).
6. Including provisions for a set-aside, as needed to support an adaptive management program that may be used at some future time to address community concerns or create other incentives to benefit the groups listed in 303A(c)(5)(C) or for other purposes (Section A-3).

The TIQC also debated and reported to the Council options for a loan program and a provision that would allocate shares forfeited through a use-or-lose provision to new entrants. The TIQC did not recommend that the Council adopt the loan program because the rationalization program already has high costs and the program would act as a subsidy that might drive up QS prices.

4 An **Assisted Purchase Program** may be developed to aid in financing quota purchase by small vessel fishermen and first time purchase by entry-level fishermen (MSA – 303A(g)(1)).

The use-or-lose provision was not included as part of the package because of implementation obstacles. The TIQC also noted that providing a central lien registry would facilitate obtaining financing by increasing security in the collateral, reducing risk and therefore lower interest rates. This would benefit new entrants. Such a registry, while required by the MSA, has not been implemented.

Much of the focus in developing the program is on the impacts of those who are currently in the industry and who will benefit from receiving an initial allocation of QS. Those individuals will be in an economically stronger situation. The value of the QS they receive will be a stream of resource-related rents (additional profits). Because of the infusion of wealth provided by the QS, they will likely be in an economically better position to bear the brunt of increasing fuel prices, program costs, and, if it should occur, declines in the available harvest. As holders of the QS, they will also accrue the benefits that occur from factors that increase the value in the fishery.

However, over the long term, the constituents of the commercial fishery who come before the Council will be those who at one time or another have been new entrants. New entrants who choose to own QS will have paid an amount for their QS based on the best projections of future profits after taking into account expected fuel prices and other production costs, including observer costs, expected ex-vessel prices for raw fish, expected harvest levels, and, significantly, the cost of the QS. If it turns out that costs are greater than expected or revenue is less than expected, they will not have the same revenue buffer initial QS recipients have. Under such circumstances, a new entrant may experience below-normal levels of profit, possibly even similar to those seen in the status quo fishery. At the same time, if costs are lower or revenues higher, they will experience a higher than expected return that will not be dissipated by increased competition. Thus, the IFQ program provides some expectation of more stable profits even for second-generation participants that choose to own QS. However, second-generation participants need not necessarily take on the risk of QS ownership.

The need to acquire quota will add to costs for second-generation owners, as compared to those who came before. In addition to paying for the physical capital (vessel, etc.) they will have to acquire QP each year and may choose to do so by making a capital investment in QS (by acquiring QS). By owning their own QS they would control their risk with respect to changing QP prices. However, by holding their own QS they will bear risk and reward from the changing value of the QS asset (increases, if there is a trend toward higher vessel costs or lower revenue, or decreases if conditions move in the other direction). If there were not an IFQ program, entering the fishery would require less of an investment but revenues would likely be lower. Assuming that all extra profits (resource rents) under status quo are dissipated, the fishery would have similar downside risks but less upside potential as compared to a fishery managed with IFQs. Upside potential would be lower under status quo because higher than expected profits would likely be dissipated by increased competition. If a harvester enters the fishery and chooses not to acquire QS, but rather to lease QP, the capital investment will be lower, they will not risk the potential decline in value of the asset they purchase, they will have a more limited benefit from any long-term improvement in economic conditions in the fishery, and, if they are able to be competitive, will fish at a normal profit level through QP they buy during the season or are provided by processors. [Note: a normal profit implies zero economic profit but sufficient profit to compensate for their investment.]

4.9 RIR Significance Questions

The RIR Guidelines require a review of the following four questions. Responses to those issues are provided.

1) Will the rule have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities?

The proposed action is expected to have a positive effect on the national economy, although it is unlikely to exceed $100 million annually. Economic profit from the non-whiting sector of the Pacific Coast groundfish limited entry trawl fishery is estimated at about $14 million to $23 million, although various proposed measures (accumulation limits, at-sea observers) would reduce this profit somewhat. While similar estimates of changes in profits are not available for the whiting sector, the lower motivation to "race for fish" due to co-op harvest privileges is expected to result in improved product quality, slower-paced harvest activity, increased yield (which should increase ex-vessel prices), and enhanced flexibility and ability for business planning. The overall effect of these changes would be higher revenues and profits for harvesters in the shoreside and mothership portions of the whiting fishery.

Improvements in the economic performance of processors in the Pacific Coast groundfish limited entry trawl fishery may also be substantial due to increased processing of target species, increased season length, and processor consolidation. An initial allocation of QS to shoreside whiting processors is expected to replace the lost capital value potentially occurring among these processors due to a decline in processing demand.

Fleet consolidation would result in a decrease in the number of captain and crew jobs; however, those who retain jobs are expected to receive higher wages due to higher vessel profit margins. Increased vessel profits and operational flexibility are anticipated to improve safety conditions on board trawl vessels. Fleet consolidation may lead to spillover of excess vessels into nontrawl commercial fisheries that are operationally similar, thereby increasing competition in those fisheries. Fishing communities will be affected differentially, depending on whether or not fleet and processor consolidation results in a concentration or loss of vessels and commercial infrastructure.

The main socioeconomic impact of the long-term, formal allocations of specified groundfish stocks and stock complexes between sectors of the Pacific Coast groundfish fishery is increased stability for the limited entry trawl fishery. While the allocations under the proposed action do not differ significantly from status quo allocations made biennially, there is more certainty in future trawl harvest opportunities, which enables better business planning for participants in the rationalized fishery.

The proposed action does not present a risk to long-term productivity. As discussed above, productivity is expected to increase through fleet consolidation and other factors. The gains are expected to continue over the long term.

2) Will the rule create a serious inconsistency or otherwise interfere with action taken or planned by another agency?

No inconsistencies or conflicts with the activities of other agencies have been identified.

3) Will the rule materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of recipients thereof?

The MSA (§303A(e) and §304(d)(2) provides that up to 3 percent of the ex-vessel value of fish harvested under a limited access privilege program may be assessed to recover costs of management, data collection and analysis, and enforcement activities. The assessment of such a fee is included as part of the proposed action in order to cover management costs, such as maintenance of the system of quota share accounts. In 2006, the Federal government established a loan program to purchase groundfish limited entry trawl permits and associated vessels and retire them from the fishery to reduce capacity. This buyback program is based on both a grant to subsidize the cost and a loan program whereby remaining fishery participants pay a landings-based fee to retire the upfront cost. The proposed action will not alter this obligation and fishery participants will continue to pay the landings fee.

4) Will the rule raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the EO?

The Council considered various arrangements for obligating catcher vessels participating in co-ops to deliver to certain processors. In particular, the co-op proposal for shoreside whiting vessels included provisions for obligating deliveries that were found to be outside NMFS's legal authority. However, this proposal was not included in the preferred alternative. The co-op program proposed for the mothership sector, which was included in the preferred alternative, was structured in a way to avoid potential legal issues. Otherwise, the proposed action is consistent with the President's priorities as reflected in the NOAA Administrator's emphasis on the use of catch share programs in fishery management.

Attachment 1

Update to the Tracking and Monitoring Costs of the Program

Tracking and Monitoring Program

A key feature of the trawl rationalization program would be a shift from the current catch accounting system for the shoreside sector that uses fleetwide estimates of discards based on an observer sampling system that has 20 percent coverage to an 'individual accountability' system where all catch by shoreside vessels would count against participants' shares, including both retained and discarded catch based on 100 percent observer coverage on vessels and 100 percent compliance monitoring in the plants. Under the current management system, shorebased fishermen fish against bimonthly trip limits and annual fleetwide quotas and have no direct accountability for discards. Under the proposed system, shorebased fishermen would fish against "individual" quotas against which their discards would count. Within the whiting fishery, there will be two major changes. Shoreside whiting vessels will no longer be monitored by cameras as they will be required to have observers. Catcher-vessels that deliver to motherships are currently unmonitored; these vessels, too, will be required to carry observers.

Amendment 20 would include a tracking and monitoring program to ensure that all catch (including discards) would be documented. For shoreside vessels, catch would be matched against QP; for the at-sea co-ops, catch would be matched against sector amounts. The Council specified that observers would be required on all vessels, and shoreside monitoring (catch monitors) would be required during all off-loading (100 percent coverage). Compared to status quo monitoring, this would be a monitoring and observer coverage level increase for a large portion of the trawl fleet, particularly nonwhiting shoreside vessels.

The Council recommended providing NMFS with the flexibility to develop a monitoring program that would achieve the objectives of the QP program. NMFS is working closely with the states and the Council to develop the details of the tracking and monitoring program, as reported by Pacific States Marine Fisheries Commission (PSMFC) at the April 2010 Council meeting. The details of the program will be proposed in the upcoming program components rule. As reported by PSMFC, the following tracking and monitoring components will be addressed.

Amendment 20 would require NMFS-certified, at-sea observers on each vessel. This requirement includes shoreside catcher vessels, mothership catcher vessels, mothership processors, and catcher-processors. Because this is a new program, ensuring adequate observer coverage would be particularly important for monitoring the complex suite of allocations. Observers aboard vessels would be required to adequately account for catch and bycatch in the fishery. Among his or her duties, the observer would record fishing effort and estimate total, retained, and discarded catch weight by species or species group; determine species composition

of retained and discarded catch (non-whiting vessels), and document the reasons for discard; record interactions and sightings of protected species; take biological samples from tagged fish and discards; and estimate viability of Pacific halibut. Observers would be essential to monitor IBQ in the fishery, including IBQ weighing and discarding.

An increase in observer and catch-monitoring coverage requirements would result in increased costs over the status quo observer program costs. There would be a combined status quo, pay-as-you-go industry funding and agency-funded observer and catch monitoring system, as required for each sector. The agency has announced its intent, subject to available Federal funding, that participants initially be responsible for 10 percent of the cost of hiring observers and catch monitors. The industry proportion of the costs of hiring observers and catch monitors will be increased every year so that, by 2014, once the fishery has transitioned to the rationalization program, the industry will be responsible for 100 percent of the cost of hiring the observers and catch monitors. NMFS believes that an incrementally reduced subsidy to industry-funding will enhance the observer and catch monitor program's stability, ensure 100 percent observer and catch monitor coverage, and facilitate the industries' successful transition to the new quota system.

Amendment 20 would require that first receivers—shorebased processors or other entities that receive groundfish from IFQ harvesters[spf1] sort, weigh, and report all landings of IFQ species under a catch monitoring plan. First receivers will be required to hire NMFS-certified catch monitors to verify all shoreside deliveries of IFQ species, ensure that species are sorted into Federal species groups, ensure that the fish are weighed on state-certified scales that are tested periodically and record and submit catch data daily[spf2].

To ensure that the QP program goals are met, and landings are tracked, first receivers will be required to submit electronic fish tickets using software provided by the Pacific States Marine Fisheries Commission. Further, vessels will be required to use VMS to indicate vessel locations and to make declarations. In addition, there are plans to develop and require an electronic vessel logbook, but this component will not be immediately implemented.

To ensure that program goals are met to track transferrable QS and QP, NMFS is also developing an online accounting system for the tracking and trading of QS by owner and for the tracking, trading, and use of the QP that result from these quota shares by vessels.

The agency will collect fees to cover the administrative costs of issuing the quota shares, permit endorsements (one-time fee and annual renewal), and first receiver site licenses (annual). Amendment 20 would allow for assessing cost recovery fees of up to 3 percent of ex-vessel value, consistent with 303A(e) of the MSA. The costs to be recovered would be the agency's costs of management, data collection, analysis, and enforcement activities. The Council will develop the methodology required by 303(A)(e) in a trailing action.

NMFS plans to propose additional program details in a future proposed rule. Such additional details would include program components applicable to IFQ gear switching, observer programs, retention requirements, equipment requirements, catch monitors, catch weighing requirements, coop permits/agreements, first receiver site licenses, quota share accounts, vessel quota pound accounts, further tracking and monitoring components, and economic data collection requirements. In order to encourage more informed public comment, this proposed rule includes a general description of these additional program requirements. NMFS is also planning a future cost-recovery rule based on a recommended methodology yet to be developed by the Pacific Fishery Management Council.

Tracking and Monitoring Costs

The costs of the program can be broken into three categories:

> Agency Implementation Costs (one-time costs to develop the tracking and monitoring programs)
>
> Agency Annual Costs (state and Federal costs associated with running the Program when fully implemented)
>
> Direct Observer and Monitoring Costs (daily costs associated with hiring observers and plant monitors)

These costs are shown in the table below. They are based on converting quarterly estimates developed for the Federal fiscal year budget process. While funds may be received in one quarter, they may not be expended in that quarter. Estimates of agency implementation costs were based on funds received during FY 2010 and first quarter of FY 2011. As programs develop, in some cases using this approach to estimate implementation cost may yield estimates that are too high and in other cases too low. As the fishery progresses and programs adapt, new features will have to be developed, while others will be corrected or phased out. For example, the quota share trading system, while initially developed for 2011, will not be tested until 2013 because the trading in quota shares is prohibited for the first two years. There may also be implementation costs associated with the Adaptive Management Programs or the Community Fshery Association Program. As programs develop, agency costs may increase because of the transition from old programs to new programs where, for a period of time, both programs have to be maintained (see attached figure).

<u>Agency Implementation Costs</u>

These are one-time additional costs to NMFS and the states to implement the program. For managing the program, these include developing the initial issuance processes (historical database development, initial application forms, the appeals processes), permitting processes and development of the shorebased total catch accounts (electronic fish tickets, compliance monitor

reports, and observer discard estimates) and shorebased, vessel accounting systems). Based on review of NMFS Alaska and Northeast Region programs, NMFS estimates that there may be over 100 appeals. States will also incur some implementation costs for upgrading their catch tracking systems to meet the new electronic reporting requirements. The federal enforcement program will have to train new officers and staff and pay their salaries while in training. State enforcement programs will also have to train new officers and staff, but these costs[spf3] are included in annual costs. Both the NWR and NWFSC will have to expand their monitoring programs and develop the necessary infrastructure (IT, equipment, training, and office space. It may cost more than $12,000 to equip an observer with a laptop, motion-compensated scale, safety gear, and raingear. It costs about $2000 to equip a compliance monitor with gear and a computer. Approximately 100 observers and 60 to 80 plant monitors will have to be equipped and trained for the first year of implementation.

Agency Annual Costs

These are recurring state and federal costs associated with running the program when fully implemented. For the NMFS NWR Management Office, these costs include five positions for managing the permitting processes, quota share accounts, vessel accounts, catch monitoring program, and cost-recovery program. PSMFC and NMFS NWR will continue to expend about $200,000 annually to maintain the IT aspects of electronic fish ticket, total catch databases, quota share, and vessel accounts. States will continue to receive $200,000 each for managing state fish ticket system and for increased port sampling needs. For the Federal enforcement office, these costs fund four positions. For state enforcement, $800,000 is planned to be provided to the three states because of increased enforcement levels. The trawl rationalization program is complex, and there will be a initial need for high enforcement presence. These costs may decline once the program matures, and participants develop better understanding and acceptance of the regulations. These enforcement costs may also decline as a result of the expected consolidation of the fleet. Other costs may change as a better understanding of the roles of compliance monitors, port samplers, and enforcement agents develops, and the roles are revised to avoid duplication or to better complement each other. With respect to the Observer and Economic Data Collection Programs, the Northwest Fisheries Science Center will expend funds associated with about five positions. PSMFC will continue to receive grants for debriefing positions and gear. In addition, contracts for collecting economic data will be developed. The total cost is expected to be approximately $5.0 million by FY 2013. [Note that inflationary effects are taken into consideration.]

Direct Observer and Compliance Monitor Costs—Estimates by Fleet

Observer-Shoreside Non-whiting: In 2008, there were 2,166 actual non-EFP trawl trips. The number of trips has ranged from a high of 3,486 to a low of 2,088 between 2002 and 2008. Therefore, for purposes of analysis, we will assume 2,300 trips. The average trip length has been 3.3 days (trips are usually no longer than five days but range from one to eight days in length).

This yields about 7,600 sea days. The cost of an observer is estimated to be $500 a day based on conversations with the observer providers. Due to the logistical complexities of the west coast groundfish fleet and the high number of unknowns, there is considerable risk for the providers, and they estimate that the cost per sea day at $500 per day. This is higher than in the North Pacific but lower than the $510 estimates associated with the Northeast Region's industry-funded scallop observer program. This estimate leads to a direct annual cost for the shorebased non-whiting fishery of about $3.8 million. Unit costs of observers are a function of the ability to work with the observer providers and make arrangements to lower costs. At the September 2009 Pacific Fishery Management Council meeting, the NWFSC provided information suggesting that if an observer is placed on a monthly stipend under which the observer is expected and guaranteed to work 20 days, the average daily rate of the observer could be lower (Agenda Item E.6.B Supplemental NWFSC Powerpoint September 2009 "Thoughts on Costs").

Observer-Shoreside Hake: In 2008, 590 trips were taken. Using this value and $500 as the daily observer cost, the total cost is $295,000.

Observer-Mothership Catcher Vessel: It is estimated that they will fish for 30 sea days. Using 15 participants and 30 sea days each yields 450 total sea days. At $500 per day, this would yield an observer cost of $225,000. If the season were 60 days with
20 participants, at $500 per day for an observer, the total cost would be $600,000

Mothership Processors and Catcher-Processors: The NWFSC estimates the current at-sea costs of observers for both the Mothership and Catcher-Processor fleets is about $600,000.

Catch monitors: For the non-whiting fishery, if there are 7,600 sea days, and the average trip is 3.3 days, then a projected 2,300 trips that will have to be monitored. This implies that if a catch monitor can monitor one trip per day the direct annual compliance monitor cost would be about $800,000 at $350 per day. For the whiting fishery, if there are 14 processors and a 60-day season, there will be 840 processing days and potential cost of $300,000. If the season is 30 days, then the costs would be about $150,000. For approximation purposes, these estimates were rounded up to a total of $1.3 million.

The total of the direct cost observers and compliance monitors for the shoreside component is $5.4 million (observers, shoreside non-whiting, $3.8 million; observer shoreside hake, $300,000; and catch monitors, $1.3 million). The total costs for the observers in the mothership and catcher-processor fishery is about $1.2 million (observer-mothership catcher vessel, $600,000 and mothership processors and catcher-processors, $600,000). The initial grand total of the direct costs of observing and monitoring this fishery is about $6.6 million.

The agency has announced its intent, subject to available Federal funding, that participants would initially be responsible for
10 percent of the cost of hiring observers and catch monitors. The industry proportion of the costs of hiring observers and catch monitors would increase every year so that, by 2014, once the

fishery has transitioned to the rationalization program, the industry would be responsible for 100 percent of the cost of hiring the observers and catch monitors. NMFS believes that an incrementally reduced subsidy to industry funding would enhance the observer and catch monitor program's stability, ensure 100 percent observer and catch monitor coverage, and facilitate the industries' successful transition to the new quota system.

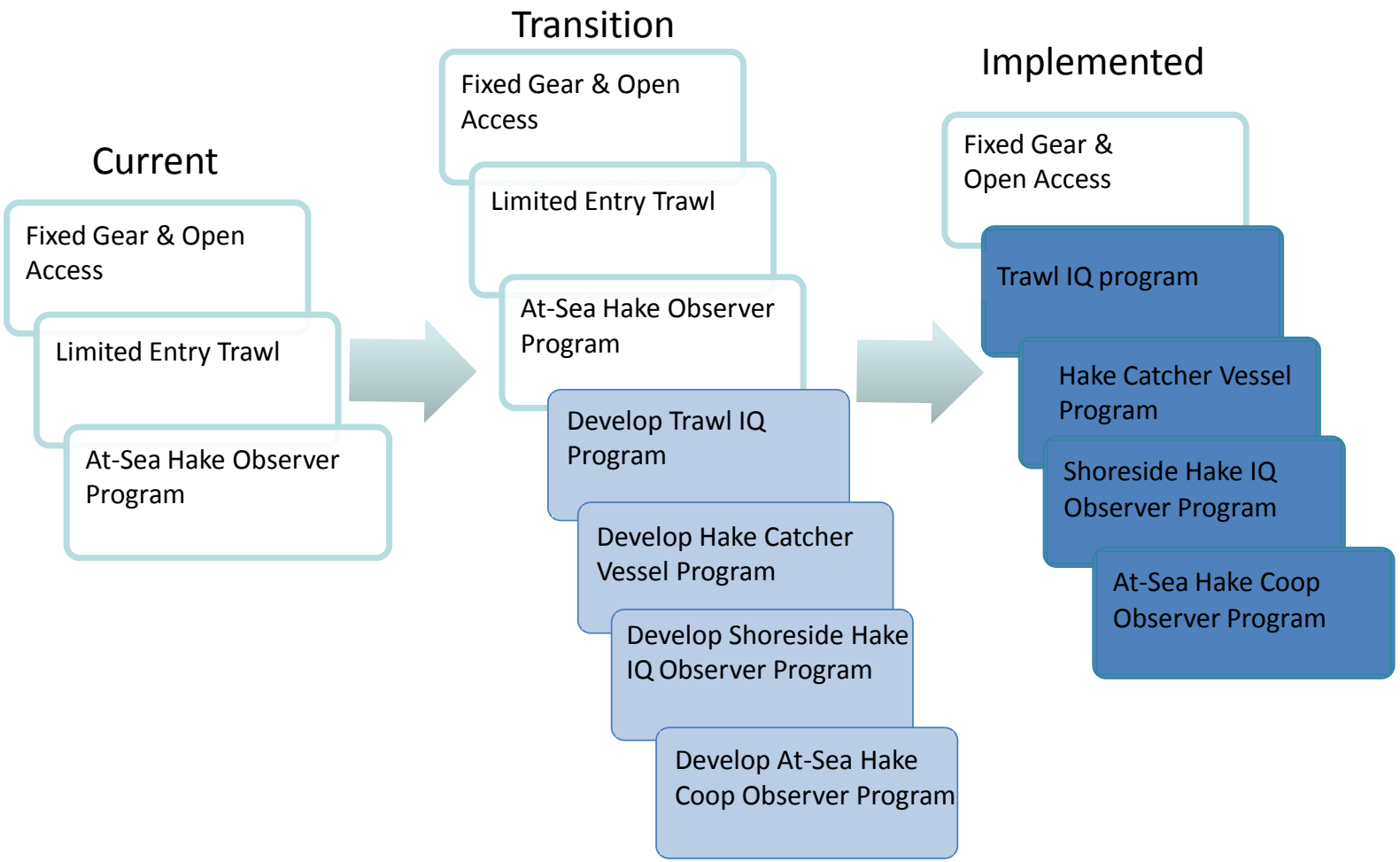
The initial observer and catch monitoring costs projections (shoreside, $5.4 million and at-sea whiting, $1.2 million) do not reflect two cost lowering effects: the effects of consolidation and as the industry increasingly bears the burden of paying for the observer and catch monitors and the ability of the industry to work with observer and compliance monitor providers to reduce costs. It is not unreasonable to expect a 25 percent reduction in costs to a level of $5.0 million annually as a result of these effects.

West Coast Trawl Rationalization program Implementation costs and funding

Funds Required

	FY2010 Q2	FY201 Q3	FY2010 Q4	FY2010 Total	FY2011 Q1	FY2011 Q2	FY2011 Q3	FY2011 Q4	FY2011 Total	FY2012 Total	FY2013 Total
Regs Dev./Permitting/ Issuance - NWR salaries	50,000	0	100,000	150,000	225,000	125,000	125,000	125,000	600,000	600,000	600,000
Appeals	0	0	0	0	170,000	20,000	20,000	20,000	80,000	0	0
Total Catch Databases and Quota Share/Vessel Accounts	1,100,000	0	0	1,100,000	200,000	0	500,000	0	700,000	700,000	700,000
State and Federal Enforcement	700,000	0	0	700,000	450,000	0	0	0	450,000	1,182,000	1,150,000
Catch Monitor Program	300,000	0	0	300,000	300,000	0	0	0	300,000	300,000	300,000
Observer and Economic Data Collection Program	519,000	0	0	519,000	1,488,500	720,500	720,500	720,500	3,650,000	3,650,000	2,050,000
Total Agency Costs	2,669,000	0	100,000	2,769,000	2,833,500	865,500	1,365,500	865,500	5,780,000	6,432,000	4,800,000

Observer Program Transition to TRat



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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, Maryland 20910

DEC 15 1999

MEMORANDUM TO: Gary C. Matlock
Director, Office of Sustainable Fisheries

FROM: Donald R. Knowles
Director, Office of Protected Resources

Don Knowles

SUBJECT: ESA Section 7 Consultation on Pacific Coast Groundfish Fishery Management Plan for the California, Oregon, and Washington Groundfish Fishery

The attached biological opinion addresses the potential effects of Pacific Coast groundfish Fishery Management Plan for the California, Oregon, and Washington groundfish fishery under the Magnuson-Stevens Fishery Conservation and Management Act on threatened and endangered species pursuant to section 7 of the Endangered Species Act of 1973, as amended (ESA). This opinion concludes that the proposed groundfish fishery is not likely to jeopardize the continued existence of threatened or endangered species or designated critical habitat. The biological opinion includes an Incidental Take Statement that provides the fishery with an exemption to the take prohibitions established in section 9 of the ESA.

The data available on the effects of the groundfish fishery on threatened and endangered species was limited. The Biological Opinion also states that if and when it becomes apparent, based on analyses by either NMFS or PFMC, that management measures cannot adequately reduce the bycatch rate to prescribed levels, the amount or extent of incidental take will have been exceeded and section 7 consultation must be reinitiated.

For further information, please contact Christopher Wright at (206) 526-4323 or Craig Johnson at (301) 713-1401.

Attachment

Endangered Species Act - Reinitiated Section 7 Consultation

BIOLOGICAL OPINION

Fishing Conducted under the Pacific Coast
Groundfish Fishery Management Plan
for the California, Oregon, and Washington
Groundfish Fishery

Agency: National Marine Fisheries Service,
Northwest and Southwest Regional
Sustainable Fisheries Divisions

Consultation Conducted by
National Marine Fisheries Service
Protected Resources Division

Date Issued: 12/15/99

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INTRODUCTION

The National Marine Fisheries Service (NMFS) has reinitiated consultation under the Endangered Species Act (ESA) section 7(a)(2) on the fishing conducted under the Pacific Fishery Management Council's (PFMC) Pacific Coast Groundfish Fishery Management Plan (FMP) for the California, Oregon, and Washington groundfish fishery. Consultation was reinitiated to consider the effect of the FMP on 22 new Evolutionarily Significant Units (ESUs) of salmonids that have been added to the list of threatened and endangered species since the last consultation on May 14, 1996 (Table 1).

The groundfish fisheries in the Exclusive Economic Zone (EEZ) off Washington, Oregon, and California are managed under authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). Annual management recommendations are developed according the FMP of the PFMC. The PFMC provides its management recommendations to the Secretary of Commerce, who implements the measures in the EEZ if they are found to be consistent with the Magnuson-Stevens Act and other applicable law. Because the Secretary, acting through NMFS, has the ultimate authority for the FMP as modified by Amendment 11 and its implementation, NMFS is both the action agency and the consulting agency in this consultation.

A. Background

The Pacific coast groundfish fishery is a year-round, multi-species fishery that takes place off the coasts of Washington, Oregon, and California. Most of the Pacific coast non-tribal, commercial groundfish harvest is taken by the limited entry fleet. The groundfish limited entry program was established in 1994 for trawl, longline, and trap (or pot) gears. There are also several open access fisheries that take groundfish incidentally or in small amounts; participants in those fisheries may use, but are not limited to longline, vertical hook-and-line, pot, setnet, trammel net, shrimp and prawn trawl, California halibut trawl, and sea cucumber trawl. In addition to these non-tribal commercial fisheries, members of the Makah, Quileute, Hoh, and Quinault tribes participate in commercial, and ceremonial and subsistence fisheries for groundfish off the Washington coast. Participants in the tribal commercial fishery use similar gear to non-tribal fishers who operate off Washington. Groundfish caught in the tribal commercial fishery is sold through the same markets as non-tribal commercial groundfish catch.

One of the primary goals of the Pacific coast groundfish FMP is to keep the fishery open throughout the entire year. Harvest rates in the limited entry fishery are constrained by annual harvest guidelines, two-month cumulative period landings limits, individual trip limits, size limits, species-to-species ratio restrictions, and other measures, all designed to control effort so that the allowable catch is taken at a slow rate that will stretch the season out to a full year. The two-month cumulative landings limits approach allows each vessel to catch up to a specific amount of different groundfish species over a two-month period, with not more than 60 percent of the cumulative period total to be taken in either month of the period. Cumulative period catch limits are set by comparing current or previous landings rates with the year's total available catch.

Landing limits have been used to slow the pace of the fishery and stretch the fishing season out

Table 1. Summary of salmon species listed and proposed for listing under the ESA.

Species	Evolutionarily Significant Unit	Present Status	Federal Register Notice	
Chinook Salmon (*O. tshawytscha*)	Sacramento River Winter	Endangered	54 FR 32085	8/1/89
	Snake River Fall	Threatened	57 FR 14653	4/22/92
	Snake River Spring/Summer	Threatened	57 FR 14653	4/22/92
	Central Valley Spring	Threatened	64 FR 50394	9/16/99
	California Coastal	Threatened	64 FR 50394	9/16/99
	Puget Sound	Threatened	64 FR 14308	3/24/99
	Lower Columbia River	Threatened	64 FR 14308	3/24/99
	Upper Willamette River	Threatened	64 FR 14308	3/24/99
	Upper Columbia River Spring	Endangered	64 FR 14308	3/24/99
Chum Salmon (*O. keta*)	Hood Canal Summer-Run	Threatened	64 FR 14508	3/25/99
	Columbia River	Threatened	64 FR 14508	3/25/99
Coho Salmon (*O. kisutch*)	Central California Coastal	Threatened	61 FR 56138	10/31/96
	S. Oregon/ N. California Coastal	Threatened	62 FR 24588	5/6/97
	Oregon Coastal	Threatened	63 FR 42587	8/10/98
Sockeye Salmon (*O. nerka*)	Snake River	Endangered	56 FR 58619	11/20/91
	Ozette Lake	Threatened	64 FR 14528	3/25/98
Steelhead (*O. mykiss*)	Southern California	Endangered	62 FR 43937	8/18/97
	South-Central California	Threatened	62 FR 43937	8/18/97
	Central California Coast	Threatened	62 FR 43937	8/18/97
	Upper Columbia River	Endangered	62 FR 43937	8/18/97
	Snake River Basin	Threatened	62 FR 43937	8/18/97
	Lower Columbia River	Threatened	63 FR 13347	3/19/98
	California Central Valley	Threatened	63 FR 13347	3/19/98
	Upper Willamette River	Threatened	64 FR 14517	3/25/99
	Middle Columbia River	Threatened	64 FR 14517	3/25/99
Cutthroat Trout (*O. clarki clarki*)	Umpqua River	Endangered	61 FR 41514	8/9/96
	Southwest Washington/Columbia	Proposed Threatened	64 FR 16397	

over as many months as possible, so that the overall harvest target is not reached until the end of the year. Open access fisheries that land groundfish are more commonly targeting non-groundfish species (e.g., shrimp, prawns, albacore, California halibut, sea cucumbers, etc.) with some incidental groundfish landings. Open access fishery limits are primarily set as monthly cumulative limits that may not exceed 50% of the 2-month limited entry limit for that same species.

There are about 500 vessels with Pacific coast groundfish limited entry permits, of which approximately 55% are trawl vessels, 40% are longline vessels, and 5% are trap vessels. Each permit is endorsed for a particular gear type and that gear endorsement cannot be changed, so the

distribution of permits between gear types is fairly stable. The number of total permits will only change if multiple permits are combined to create a new permit with a longer length endorsement. Limited entry permits can be sold and leased out by their owners, so the distribution of permits between the three states often shifts. At the beginning of 1998, roughly 40% of the limited entry permits were assigned to vessels making landings in California, 35% to vessels making landings in Oregon, and 25% to vessels making landings in Washington.

Because open access groundfish landings vary according to which non-groundfish fisheries are landing groundfish as bycatch, the number of open access boats that land groundfish accordingly varies with the changes in those non-groundfish fisheries. In recent years, however, there have been approximately 2,000 vessels per year that have been making small groundfish landings against open access allocations. Of these vessels, about 1350 land their catch in California, about 500 land their catch in Oregon, and about 150 land their catch in Washington.

Limited entry fishers who use bottom trawl, longline, and pot gears target on many different species, with the largest landings by volume (other than Pacific whiting) from these species: Dover sole, sablefish, thornyheads, widow rockfish, and yellowtail rockfish. There are 55 rockfish species managed by the Pacific coast groundfish FMP and, taken as a whole, rockfish landings represent the highest volume of non-whiting landings in the Pacific coast commercial groundfish fishery (PFMC 1999a). This is a high technology, highly skilled fleet, and it is reasonable to expect that, except where ocean conditions and geologic formations make fishing impossible, commercial fishers have found ways to target concentrations of the target species.

In addition to these mixed-species fisheries, there is a distinct mid-water trawl fishery that targets Pacific whiting (*Merluccius productus*). Pacific whiting landings are significantly higher in volume than any other Pacific coast groundfish species. In 1998, whiting accounted for approximately 66% of all Pacific coast commercial groundfish landings by weight. The Pacific whiting fleet includes catcher boats that deliver to shore-based processing plants and to at-sea processor ships, as well as catcher-processor ships. Whiting is a high volume species, but it commands a relatively low price per pound, so it accounts for only about 21% of all Pacific coast commercial groundfish landings by value (PFMC 1999a).

With the exception of the portion of Pacific whiting catch that is processed at sea, all other Pacific coast groundfish catch is processed in shore-based processing plants along the Pacific coast. By weight, commercial groundfish landings are distributed amongst the three states as follows: Washington, 15%; Oregon, 66%; California, 19%. By value, commercial groundfish landings are distributed amongst the three states as follows: Washington, 17%; Oregon, 42%; California, 41%. The discrepancies between the Oregon and California portions of the landings are expected because Oregon processors handle a relatively high percent of the shore-based whiting landings, a high volume, low value fishery. Conversely, California fishers land more of the low volume, high value species as a proportion of the total state-wide catch than Oregon fishers.

Catcher vessel owners and captains employ a variety of strategies to fill out a year of fishing. Fishers from the northern ports may fish in waters off of Alaska, as well as in the West Coast

groundfish fishery. Others may change their operations throughout the year, targeting on salmon, shrimp, crab, or albacore, in addition to various high-value groundfish species, so as to spend more time in waters close to their communities. Factory trawlers and motherships fishing for or processing Pacific whiting off of the West Coast usually also participate in the Alaska pollock seasons, allowing the vessels and crews to spend more time at sea. Commercial fisheries landings for species other than groundfish vary along the length of the coast. Dungeness crab landings are particularly high in Washington state, squid, anchovies, and other coastal pelagics figure heavily in California commercial landings, with salmon, shrimp, and highly migratory species like albacore more widely distributed, and varying from year to year.

Whiting has been processed into surimi, sold in headed and gutted form, filleted, and converted to meal and oil. Other, higher quality fish like Dover sole are dressed and rushed to fresh, local markets as quickly as possible, while most sablefish is frozen and sent to foreign markets. The quantity of groundfish caught off of the West Coast is just a small percent of the amount of groundfish caught in federal waters off Alaska, so West Coast groundfish moves through many of the same markets as Alaska groundfish, taking prices set by the northern fleet.

CONSULTATION HISTORY

NMFS has considered the impacts to salmon species listed under the ESA resulting from PFMC groundfish fisheries in several biological opinions (Table 2).

On August 10, 1990, NMFS issued a biological opinion that considered the effects that Amendment 4 of the Pacific Coast Groundfish Management Plan may have on threatened and endangered populations off California, Oregon, and Washington. The opinion reviewed impacts on marine mammals, sea turtles, and Sacramento River winter-run chinook salmon (SRWR), and concluded that the FMP, as amended, would not jeopardize the continued existence of any of the species considered.

A November 26, 1991, biological opinion considered the impact of the whiting fishery, a mid-water trawl gear, on SRWR chinook salmon in more detail than the 1990 opinion, and also briefly addressed the effects on Snake River sockeye salmon, which was newly listed (November 20, 1991) just as the opinion was being finalized.

An August 28, 1992, biological opinion considered the effects on Pacific salmon species listed under the ESA from fisheries conducted under the PFMC's Pacific Coast Groundfish FMP. The listed species considered in that biological opinion included SRWR chinook salmon, Snake River sockeye salmon, Snake River spring/summer chinook salmon, and Snake River fall (SRF) chinook salmon. The biological opinion concluded that impacts of fishing conducted under the groundfish FMP on SRWR chinook, Snake River sockeye, and Snake River spring/summer chinook salmon were negligible. This opinion further concluded that the estimated bycatch of SRF chinook salmon was low, most likely on the order of a few tens of fish per year. Based on the available information, NMFS concluded that operation of the fishery under the groundfish FMP was not likely to jeopardize the continued existence of these species.

Since the August 1992 biological opinion was issued, section 7 consultation was reinitiated twice: September 27, 1993, and May 14, 1996. The September 1993 reinitiation was caused by an unexpectedly high bycatch of pink salmon which, when incorporated into the aggregated bycatch, exceeded the incidental bycatch limit of 0.05 salmon/mt whiting specified in the opinion. Since the bycatch limits specified in the August 1992 opinion were designed to protect chinook salmon, the September 27, 1993 opinion was amended to clarify that the 0.05 salmon/mt of whiting bycatch rate limit would in the future be expressed in terms of chinook salmon with the expectation that the total bycatch of chinook in the whiting fishery would not exceed 11,000 "chinook" salmon per year or 0.05 "chinook" salmon/mt whiting. The May 1996 opinion was reinitiated because the bycatch in the 1995 fishery was estimated at the time to be 14,557 chinook salmon (0.08 chinook/mt whiting) and exceeded the limits designated in the August 1992 and September 1993 opinions. The May 1996 opinion concluded that, although the chinook limit was exceeded, it was not likely to jeopardize the continued existence of listed salmon species because impacts to listed species remained low and within the numerical range anticipated during the original analysis. Because critical habitat for these species did not include open ocean areas, the activities considered by NMFS in previous consultations determined that they were not likely to result in the destruction or adverse modification of critical habitat.

Table 2. NMFS biological opinions on PFMC groundfish fisheries implemented under the FMP.

Date	ESU covered
August 10, 1990	Sacramento River winter-run chinook salmon
November 26, 1991	Sacramento River winter-run chinook salmon and Snake River sockeye salmon
August 28, 1992	Sacramento River winter-run chinook salmon, Snake River sockeye salmon, Snake River spring/summer chinook salmon, and Snake River fall chinook salmon
September 27, 1993	Snake River fall chinook salmon
May 14, 1996	Snake River fall chinook salmon

BIOLOGICAL OPINION

I. Description of the Proposed Action

A. Proposed Action

Pursuant to the Magnuson-Stevens Act, the National Marine Fisheries Service proposes to continue and promulgate ocean groundfish fishing regulations developed in accordance with the Pacific Coast Groundfish Plan as amended by Amendment 11.

Amendment 11 was submitted by the PFMC to make the Pacific Coast Groundfish FMP consistent with the Magnuson-Stevens Act by: amending the FMP framework that defines "optimum yield" for setting annual groundfish harvest limits; setting framework control rules on defining rates of "overfishing" and levels at which managed stocks are considered "overfished";

defining Pacific Coast groundfish essential fish habitat; setting a bycatch management objective and a framework for bycatch reduction measures; establishing a management objective to take the importance of fisheries to fishing communities into account when setting groundfish management measures; providing authority within the FMP for the PFMC to require groundfish use permits for all groundfish users; authorizing the use of fish for compensation for private vessels conducting NMFS-approved resource surveys; removing jack mackerel from the fishery management unit; and updating FMP objectives, definitions and industry descriptions.

The Pacific Coast Groundfish FMP provides a framework for certain PFMC actions without requiring cumbersome amendment procedures for those actions. Portions of this amendment that are designed to meet several of the new Magnuson-Stevens Act requirements will change the way that the PFMC manages the groundfish fishery without changing the regulations that implement the FMP. A new definition of optimum yield, specific overfishing and overfished levels, and accounting for the needs of fishing communities in setting fishery management measures will become part of the guidelines the PFMC uses to set its annual specifications and management measures. Amendment 11 provides a framework to implement fishery management measures to protect groundfish essential fish habitat, which the PFMC will use to, among other things, investigate implementing marine research reserves.

The primary purpose of Amendment 11 was to incorporate the more conservative management requirements resulting from the Magnuson-Stevens Act into the existing FMP. Because of the more conservative nature of the Act, Amendment 11 will lead to less fishing than would have occurred under the previous FMP. This is immediately apparent from the preseason planning for the 2000 fisheries which were developed under provisions of Amendment 11. Several groundfish stocks were designated as overfished which led to greatly restricted fishing in 2000 and, likely, for the foreseeable future. After evaluating Amendment 11, NMFS concluded that the Amendment was not likely to adversely affect threatened or endangered species or designated critical habitat because the Amendment would have reduced the effects of the fishery on listed species to a level below the effects that supported NMFS' previous "no jeopardy" conclusion. Instead, this consultation focuses on the effect of Amendment 11 of the groundfish FMP on the ESUs that were listed since consultation was last completed in 1996 (NMFS 1996a).

The groundfish fishery off the west coast of Washington, Oregon, and California is prosecuted by three major gear types including trawl, pots, and hook-and-line gear with small amounts of additional catch taken by other miscellaneous gear types. The gear types that take the largest percentage of groundfish are trawls, principally mid-water, bottom, and shrimp trawls.

NMFS' August 28, 1992, biological opinion on the FMP concluded that shrimp trawls, pot gear, hook-and-line, and the other miscellaneous gear types in the groundfish fishery catch few if any salmonids. There have been no recent reports of salmon bycatch in these gears since the 1992 opinion, hence it is reasonable to conclude that they will continue to have a negligible impact on salmon. The two gear types that have a record of salmon bycatch are the mid-water and bottom trawls.

The Pacific whiting fishery is the only mid-water trawl groundfish fishery of significance in the

PFMC. The fishery is prosecuted by a combination of sectors including shore-based, and catcher processor and mothership operators (which includes tribal) occurring roughly during April through November period (Dorn *et al.* 1999). Dorn (1998) described the spatial distribution of the whiting fishery from the 1992 NMFS west coast acoustic survey as an area north to south of approximately 600 km, from Vancouver Island to Central California, and at widths ranging from 10-30 km running through the shelf break region at bottom depths ranging from 150-600 m. The highest whiting densities where in three areas, Heceta Bank off central Oregon, Willapa and Guide canyons off southwest Washington, and Juan de Fuca Canyon off Cape Flattery.

The bottom trawl fishery off the west coast harvests a mixture of species that include flatfishes, rockfishes, and roundfishes (Erickson and Pikitch1994). These fisheries operate at depths ranging from 10 m to 1,200 m with various seasons overlapping for the various species and stocks throughout the year. The chinook salmon that are encountered most frequently and in greatest numbers with this gear type are typically caught in the 100-482 m depths during winter, and in summer chinook are not frequently caught and are usually encountered at depths less than 220 m (Erickson and Pikitch1994). The areas where chinook are encountered most frequently appear to vary, but the data is quite limited.

B. Conservation Measures Included in the Proposed Action

As a result of the previous consultations, the whiting fishery is already subject to several conservation related constraints designed to minimize the bycatch of chinook salmon in particular. The targeted harvest of whiting inside of 100 fathoms in the Eureka catch area is prohibited. The start of the whiting fishery north of 42°00' north latitude is delayed annually until at least May 15. Finally, bycatch of chinook salmon in the whiting fishery is monitored in each sector of the fishery and limited to a bycatch rate of 0.05 chinook/mt whiting and a total bycatch of 11,000 chinook annually.

C. Action Area

NMFS establishes fishery management measures for ocean groundfish fisheries occurring in the EEZ (3-200 nautical miles off shore). Annual management recommendations are developed according the "Pacific Coast Groundfish Fishery Management Plan" of the PFMC. The PFMC provides its management recommendations to the Secretary of Commerce, who implements the measures in the EEZ if they are found to be consistent with the Magnuson-Stevens Act and other applicable law. In the case where a state's actions substantially and adversely affect the carrying out of the FMP, the Secretary may, under the Magnuson-Stevens Act, assume responsibility for the regulation of ocean fishing in state marine waters; however that authority does not extend to a state's internal waters. For the purposes of this opinion, the action area is the EEZ, which is directly affected by the federal action, as well as the marine waters (other than internal) off the States of Washington, Oregon and California, which may be indirectly affected by the federal action.

II. Status of the Species and Critical Habitat

A. Analysis of Species Likely to be Affected

A preliminary analysis of the available data for the ongoing consultation indicates that the steelhead, sockeye, and cutthroat trout are rarely, if ever, encountered in the groundfish fishery. Coho and chum are caught in relatively low numbers in the whiting fishery with average catch per year coastwide on the order of tens to a few hundred fish (See IV.A. and Table 14), and in the bottom trawl fishery on the order of tens of fish per year (See IV.B. and NMFS 1992). NMFS therefore concludes that there is little or no affect to the steelhead, sockeye, cutthroat trout, coho, or chum salmon ESUs listed in Table 1 as a result of the groundfish FMP. Relevant information supporting this conclusion is reviewed briefly in section IV, but is not the focus of this opinion.

Substantial numbers of chinook salmon are caught in some of the whiting and bottom trawl fisheries. This opinion therefore focuses on the effect of the groundfish FMP on the newly listed chinook ESUs, and reconsiders conclusions related to SRF chinook and the other previously listed ESUs.

B. Species and Critical Habitat Description

Snake River Fall Chinook

The SRF chinook ESU includes all natural-origin populations of fall chinook in the mainstem Snake River and several tributaries including the Tucannon, Grande Ronde, Salmon, and Clearwater rivers. Fall chinook from the Lyons Ferry Hatchery are included in the ESU but are not listed.

Critical habitat was designated for SRF chinook salmon on December 28, 1993 (58 FR 68543). The essential features of the critical habitat include four components: (1) spawning and juvenile rearing areas, (2) juvenile migration corridors, (3) areas of growth and development to adulthood, and (4) adult migration corridors. Marine areas including those within the action area, are not included as part of the designated critical habitat.

Puget Sound (PS) Chinook

The PS chinook ESU includes all runs of chinook salmon in the Puget Sound region from the North Fork Nooksack River to the Elwha River on the Olympic Peninsula. Chinook salmon in this area all exhibit an ocean-type life history although there are several populations with an adult spring run timing and ocean distribution. Although some spring-run chinook salmon populations in the PS ESU have a high proportion of yearling smolt emigrants, the proportion varies substantially from year to year and appears to be environmentally mediated rather than genetically determined. Several hatchery populations are also listed including spring run chinook from Kendall Creek, the North Fork Stillaguamish River, White River, and Dungeness River, and fall run fish from the Elwha River.

Lower Columbia River (LRC) Chinook

The LCR ESU includes all native populations from the mouth of the Columbia River to the crest of the Cascade Range, excluding populations above Willamette Falls. Celilo Falls, which corresponds to the edge of the drier Columbia Basin Ecosystem and historically may have presented a migrational barrier to chinook salmon at certain times of the year, is the eastern boundary for this ESU. Not included in this ESU are "stream-type" spring-run chinook salmon found in the Klickitat River (which are considered part of the Mid-Columbia River Spring-Run ESU) or the introduced Carson spring-chinook salmon strain. "Tule" fall chinook salmon in the Wind and Little White Salmon Rivers are included in this ESU, but not introduced "upriver bright" fall-chinook salmon populations in the Wind, White Salmon, and Klickitat Rivers. For this ESU, the Cowlitz, Kalama, Lewis, White Salmon, and Klickitat Rivers are the major river systems on the Washington side, and the Willamette and Sandy Rivers are foremost on the Oregon side. The majority of this ESU is represented by fall-run fish and includes both north migrating tule-type stocks and far-north migrating bright stocks. There are also several spring stocks that are considered part of the ESU. None of the hatchery populations in the Lower Columbia River are listed.

Upper Willamette River (UWR) Chinook

The UWR chinook ESU occupies the Willamette River and tributaries upstream of Willamette Falls. Historically, access above Willamette Falls was restricted to the spring when flows were high. In autumn low flows prevented fish from ascending past the falls. The Upper Willamette spring chinook are one of the most genetically distinct chinook groups in the Columbia River Basin. Fall chinook salmon spawn in the Upper Willamette but are not considered part of the ESU because they are not native. None of the hatchery populations in the Willamette River is listed, although the spring-run hatchery stocks were included in the ESU.

Upper Columbia River Spring (UCRS) Chinook

The UCRS chinook ESU includes stream-type chinook salmon spawning above Rock Island Dam including the Wenatchee, Entiat, and Methow River basins. All chinook in the Okanogan River are apparently ocean-type and are considered part of the Upper Columbia River Summer- and Fall-run ESU. The Wenatchee and Entiat rivers are in the Northern Cascades Physiographic Province and the Methow River is in the Okanogan Highlands Physiographic Province. Several hatchery populations are also listed including those from the Chiwawa, Methow, Twisp, Chewuch, and White rivers, and Nason Creek.

Central Valley Spring (CVS) Chinook

Central Valley spring chinook exhibit a characteristic run timing and other adaptive features which allow them to enter the upper reaches of river systems prior to the onset of the low flows and high water temperatures that inhibit access to these areas during the fall. The run appears in the Sacramento River and its tributaries from February to July and spawning occurs from late August through early October, with a peak in September. Their higher fat reserves, smaller body size and entry into fresh water with undeveloped gonads facilitate the accent to higher streams (up to 1,500 m elevation) (Yoshiyama et al. 1996). Spring chinook in the Sacramento River

exhibit an ocean-type life history, emigrating as fry, sub-yearlings, and yearlings.

California Coastal (CC) Chinook

This ESU includes all naturally spawned coastal spring and fall chinook salmon spawning from the Eel River to the Russian River. Chinook salmon spawn in several small tributaries to San Francisco Bay, however it is uncertain whether these small populations are part of this ESU, or strays from Central Valley chinook salmon ESUs.

C. Life History

Chinook Salmon

Chinook salmon is the largest of the Pacific salmon. The species' distribution historically ranged from the Ventura River in California to Point Hope, Alaska in North America, and in northeastern Asia from Hokkaido, Japan to the Anadyr River in Russia (Healey 1991). Additionally, chinook salmon have been reported in the Mackenzie River area of northern Canada (McPhail and Lindsey 1970). Of the Pacific salmon, chinook salmon exhibit arguably the most diverse and complex life history strategies. Healey (1986) described 16 age categories for chinook salmon, 7 total ages with 3 possible freshwater ages. This level of complexity is roughly comparable to sockeye salmon, although sockeye salmon have a more extended freshwater residence period and utilize different freshwater habitats (Miller and Brannon 1982, Burgner 1991). Two generalized freshwater life-history types were initially described by Gilbert (1912): "stream-type" chinook salmon reside in freshwater for a year or more following emergence, whereas "ocean-type" chinook salmon migrate to the ocean within their first year. Healey (1983, 1991) has promoted the use of broader definitions for "ocean-type" and "stream-type" to describe two distinct races of chinook salmon. This racial approach incorporates life history traits, geographic distribution, and genetic differentiation and provides a valuable frame of reference for comparisons of chinook salmon populations. For the purposes of this Opinion, those chinook salmon (spring and summer runs) that spawn upriver from the Cascade crest are generally "stream-type"; those which spawn down river of the Cascade Crest (including in the Willamette River) are generally "ocean-type".

The generalized life history of Pacific salmon involves incubation, hatching, and emergence in freshwater, migration to the ocean, and subsequent initiation of maturation and return to freshwater for completion of maturation and spawning. Juvenile rearing in freshwater can be minimal or extended. Additionally, some male chinook salmon mature in freshwater, thereby foregoing emigration to the ocean. The timing and duration of each of these stages is related to genetic and environmental determinants and their interactions to varying degrees. Salmon exhibit a high degree of variability in life-history traits; however, there is considerable debate as to what degree this variability is the result of local adaptation or the general plasticity of the salmonid genome (Ricker 1972, Healey 1991, Taylor 1991). More detailed descriptions of the key features of chinook salmon life history can be found in Myers, et al. (1998) and Healey (1991).

D. Population Dynamics and Distribution

Snake River Fall Chinook

The spawning grounds between Huntington (RM 328) and Auger Falls (RM 607) were historically the most important for this species. Only limited spawning activity was reported downstream from RM 273 (Waples, et al. 1991), about one mile upstream of Oxbow Dam. Since then, irrigation and hydropower projects on the mainstem Snake River have blocked access to or inundated much of this habitat—causing the fish to seek out less-preferable spawning grounds wherever they are available. Natural fall chinook salmon spawning now occurs primarily in the Snake River below Hells Canyon Dam and the lower reaches of the Clearwater, Grand Ronde, Salmon, and Tucannon Rivers.

Adult SRF chinook salmon enter the Columbia River in July and migrate into the Snake River from August through October. Fall chinook salmon generally spawn from October through November and fry emerge from March through April. Downstream migration generally begins within several weeks of emergence (Becker 1970, Allen and Meekin 1973), and juveniles rear in backwaters and shallow water areas through mid-summer prior to smolting and migrating to the ocean—thus they exhibit an "ocean" type juvenile history. Once in the ocean, they spend one to four years (though usually, three) before beginning their spawning migration. Fall returns in the Snake River system are typically dominated by four-year-old fish. For detailed information on the SRF chinook salmon, see NMFS (1991) and June 27, 1991, 56 FR 29542.

No reliable estimates of historical abundance are available, but because of their dependence on mainstem habitat for spawning, fall chinook have probably been impacted to a greater extent by the development of irrigation and hydroelectric projects than any other species of salmon. It has been estimated that the mean number of adult SRF chinook salmon declined from 72,000 in the 1930s and 1940s to 29,000 during the 1950s. In spite of this, the Snake River remained the most important natural production area for fall chinook in the entire Columbia River basin through the 1950s. The number of adults counted at the uppermost Snake River mainstem dams averaged 12,720 total spawners from 1964 to 1968, 3,416 spawners from 1969 to 1974, and 610 spawners from 1975 to 1980 (Waples, et al. 1991).

Counts of adult fish of natural-origin continued to decline through the 1980s reaching a low of 78 individuals in 1990 (Table 3). Since then the return of natural-origin fish to Lower Granite Dam (LGD) has been variable, but generally increasing reaching a recent year high of 797 in 1997. The 1998 return declined to 306. This was not anticipated and is of particular concern because it is close to the low threshold escapement level of 300 that is indicative of increased risk (BRWG 1994). It has been suggested that the low return in 1998 was due to severe flooding in 1995 that affected the primary contributing brood year. The expected return of natural-origin adults to LGD in 1999 given the anticipated ocean and in-river fisheries is 518.

Unlike many of the listed salmonid ESUs, SRF chinook is probably represented by only a single population that spawns in the parts of the mainstem that remain accessible and the lower reaches of the associated tributaries. The more complex population structure that likely existed

historically was eliminated by the upstream dams.

The recovery standard identified in the 1995 Proposed Recovery Plan (NMFS 1995a) for SRF chinook was a population of at least 2,500 naturally produced spawners (to be calculated as an eight year geometric mean) in the lower Snake River and its tributaries. The LGD counts can not be compared directly to the natural spawner escapement objective since it is also necessary to account for adults which may fall back below the dam after counting and pre-spawning mortality. A preliminary estimate suggested that a LGD count of 4,300 would be necessary to meet the 2,500 fish escapement goal (NMFS 1995a). For comparison, the geometric mean of the LGD counts of natural-origin fall chinook over the last eight years is 481.

A further consideration regarding the status of SRF chinook is the existence of the Lyons Ferry Hatchery stock which is considered part of the ESU. There have been several hundred adults returning to the Lyons Ferry Hatchery in recent years (Table 3). More recently, supplementation efforts designed to accelerate rebuilding were initiated beginning with smolt outplants from the 1995 brood year. The existence of the Lyons Ferry program has been an important consideration in evaluating the status of the ESU since it reduces the short-term risk of extinction by providing a reserve of fish from the ESU. Without the hatchery program the risk of extinction would have to be considered high since the ESU would otherwise be comprised of a few hundred individuals from a single population, in marginal habitat, with a demonstrated record of low productivity. Although the supplementation program likely contributes future natural origin spawners, it does little to change the productivity of the system upon which a naturally spawning population must rely. Supplementation is, therefore, not a long-term substitute for recovery. [See NMFS (1999e) for further discussion on the SRF chinook supplementation program.]

Recent analyses conducted through the PATH process (Plan for Analyzing and Testing Hypotheses) considered the prospects for survival and recovery given several future management options for the hydro system and other mortality sectors (Marmorek et al. 1998, Peters et al. 1999). That analysis indicated that the prospects of survival for SRF chinook were good, but that full recovery was relatively unlikely except under a very limited range of assumptions, or unless draw down was implemented for at least the four lower Snake River dams operated by the U.S. Army Corps of Engineers. Consideration of the draw down options led to a high likelihood that both survival and recovery objectives could be achieved.

The Northwest Fisheries Science Center (NFSC) has recently considered the extinction risk for SRF chinook as part of their Cumulative Risk Initiative (CRI). The results indicate that the probability of extinction for SRF chinook over the next ten years is near zero while the risk of extinction over 100 years is between 6-17% (depending on whether 1980 is included in the baseline analysis).

Table 3. Escapement and Stock Composition of Fall Chinook at Lower Granite Dam[1]						
Year	L. Granite Count	Marked Fish to Lyons Ferry Hatch.	L. Granite Dam Escapement	Stock Comp. of L. Granite Escapement		
					Hatchery Origin	
				Wild	Snake R.	Non-Snake R.
1975	1000		1000	1000		
1976	470		470	470		
1977	600		600	600		
1978	640		640	640		
1979	500		500	500		
1980	450		450	450		
1981	340		340	340		
1982	720		720	720		
1983	540		540	428	112	
1984	640		640	324	310	6
1985	691		691	438	241	12
1986	784		784	449	325	10
1987	951		951	253	644	54
1988	627		627	368	201	58
1989	706		706	295	206	205
1990	385	50	335	78	174	83
1991	630	40	590	318	202	70
1992	855	187	668	549	100	19
1993	1170	218	952	742	43	167
1994	791	185	606	406	20	180
1995	1067	430	637	350	1	286
1996	1308	389	919	639	74	206
1997	1451	444	1007	797	20	190
1998	1909	947	962	306	479	177

[1]Information taken from Revised Tables for the Biological Assessment of Impacts of Anticipated 1996-1998 Fall Season Columbia River Mainstem and Tributary Fisheries on Snake River Salmon Species Listed Under the ESA, prepared by the U.S. v. Oregon Technical Advisory Committee.

Puget Sound Chinook

This ESU encompasses all runs of chinook salmon in the Puget Sound region from the North Fork Nooksack River in the east to the Elwha River on the Olympic Peninsula. Chinook salmon in this area all exhibit an ocean-type life history. Although some spring-run chinook salmon

populations in the PS ESU have a high proportion of yearling smolt emigrants, the proportion varies substantially from year to year and appears to be environmentally mediated rather than genetically determined. Puget Sound stocks all tend to mature at ages 3 and 4 and exhibit similar, coastally-oriented, ocean migration patterns.

The peak recorded harvest landed in Puget Sound occurred in 1908, when 95,210 cases of canned chinook salmon were packed. This corresponds to a run-size of approximately 690,000 chinook salmon at a time when both ocean harvest and hatchery production were negligible. [This estimate, as with other historical estimates, needs to be viewed cautiously; Puget Sound cannery pack probably included a portion of fish landed at Puget Sound ports but originating in adjacent areas, and the estimates of exploitation rates (ER) used in run-size expansions are not based on precise data.] Recent mean spawning escapements totaling 71,000 correspond to a run entering Puget Sound of approximately 160,000 fish. Based on an exploitation rate of one-third in intercepting ocean fisheries, the recent average potential run-size would be 240,000 chinook salmon (Pacific Salmon Commission 1994).

The 5-year geometric mean of spawning escapement of natural chinook salmon runs in North Puget Sound for 1992-96 is approximately 13,000. Both long and short-term trends for these runs were negative, with few exceptions. In South Puget Sound, spawning escapement of the natural runs has averaged 11,000 spawners. In this area, both long and short-term trends are predominantly positive.

Puget Sound chinook are the largest and most complex ESU that is considered in detail in this opinion. WDF et al. (1993) identified 28 stocks that were distributed among five geographic regions and 12 management units or basins (Table 4). [The Hoko River stock was included in WDF's initial inventory, but was subsequently assigned to the neighboring ESU.] NMFS is currently engaged in delineating the population structure of PS chinook and other ESUs as an initial step in a formal recovery planning effort that is now underway. These determinations have not been finalized at this time, but it is clear that these 28 stocks represent the greatest level of potential stratification and that some further aggregation of these stocks is likely (Myers, J. NWFSC/NMFS, pers. com. P. Dygert, NMFS, Sept. 2, 1999). By considering the status of the stocks as described by WDF, NMFS can be reasonably certain that we are not overlooking population structures that may be important to the ESU.

Table 4. Distribution of stocks identified in WDF (1993) by recovery category. Stock timing designations are spring (SP), summer (S), fall (F), and summer/fall (SF).

Region of Origin	Management Unit	Stock/Timing	Recovery Category
Strait of Juan de Fuca	Strait of Juan de Fuca	Elwha/Morse Cr./SF Dungeness/SP	1 1
Hood Canal	Hood Canal	Hood Canal/SF	2 & 3
North Sound	Nooksack/Samish	NF Nooksack/SP SF Nooksack/SP Nooksack/F	1 1 2
	Skagit Spring	Upper Sauk/SP Suiattle/SP Cascade/SP	1 1 1
	Skagit Summer/Fall	Upper Skagit/S Lower Skagit/F Lower Sauk/S	1 1 1
	Stillaguamish	Stillaguamish/S Stillaguamish/F	1 1
	Snohomish	Snohomish/S Wallace/SF Snohomish/F Bridal Veil Cr/F	1 1 1 1
Mid-Sound	Lake Washington	Issaquah/SF N Lake WA Tribs/SF Cedar/SF	2 2 1
	Duwamish/Green	Duwamish/Green/SF Newaukum Cr/SF	1 1
South Sound	Puyallup	White River/SP White River/SF Puyallup River /SF	1 2 2
	Nisqually	Nisqually River/SF	2
	South Sound Tribs	South Sound Tribs/SF	3

Puget Sound includes areas where the habitat still supports self-sustaining natural production of chinook, areas where habitat for natural production has been irrevocably lost, and areas where chinook salmon were never self-sustaining. In addition, the Puget Sound contains areas where indigenous local stocks persist and areas where local stocks are a composite of indigenous stocks and introduced hatchery fish that may or may not be of local origin. In some areas where natural production has been lost, hatchery production has been used to mitigate for lost natural production.

The status of each of the identified stocks is discussed in more detail in a recent biological opinion concerning the effects of the Pacific Salmon Treaty on listed salmonids (NMFS 1999f). That discussion is incorporated here by reference. However, the analysis in this opinion requires less detail and just focuses on the aggregates of spring and summer/fall type chinook stocks. The spring stocks as a group are the most depressed component of the ESU. The status of the fall stocks varies with some being at or near spawning escapement objectives and other being quite depressed.

Lower Columbia River Chinook

The LCR ESU includes spring stocks and fall tule and bright components. Spring-run chinook salmon on the lower Columbia River, like those from coastal stocks, enter freshwater in March and April well in advance of spawning in August and September. Historically, fish migrations were synchronized with periods of high rainfall or snowmelt to provide access to upper reaches of most tributaries where spring stocks would hold until spawning (Fulton 1968, Olsen et al. 1992, WDF et al. 1993).

Fall chinook predominate the Lower Columbia River salmon runs. Fall chinook return to the river in mid-August and spawn within a few weeks (WDF et al. 1993, Kostow 1995). The majority of fall-run chinook salmon emigrate to the marine environment as sub-yearlings (Reimers and Loeffel 1967, Howell et al. 1985, WDF et al. 1993). A portion of returning adults whose scales indicate a yearling smolt migration may be the result of extended hatchery-rearing programs rather than of natural, volitional yearling emigration. It is also possible that modifications in the river environment may have altered the duration of freshwater residence. Adults return to tributaries in the Lower Columbia River at 3 and 4 years of age for fall-run fish and 4 to 5 years of age for spring-run fish. This may be related to the predominance of yearling smolts among spring-run stocks. Marine coded-wire-tag recoveries for lower Columbia River stocks tend to occur off the British Columbia and Washington coasts, though a small proportion of the tags are recovered in Alaskan waters.

There are no reliable estimates of historic abundance for this ESU, but it is generally agreed that there have been vast reductions in natural production over the last century. Recent abundance of spawners includes a 5-year geometric mean natural spawning escapement of 29,000 natural spawners and 37,000 hatchery spawners (1991-95), but according to the accounting of PFMC (1996), approximately 68% of the natural spawners are first-generation hatchery strays.

All basins in the region are affected to varying degrees by habitat degradation. Major habitat

problems are related primarily to blockages, forest practices, urbanization in the Portland and Vancouver areas, and agriculture in flood plains and low-gradient tributaries. Substantial chinook salmon spawning habitat has been blocked (or passage substantially impaired) in the Cowlitz (Mayfield Dam 1963, RKm 84), Lewis (Merwin Dam 1931, RKm 31), Clackamas (North Fork Dam 1958, RKm 50), Hood (Powerdale Dam 1929, RKm 7), and Sandy (Marmot Dam 1912, RKm 48; Bull Run River dams in the early 1900s) rivers (WDF et al. 1993, Kostow 1995).

Hatchery programs to enhance chinook salmon fisheries in the lower Columbia River began in the 1870s, expanded rapidly, and have continued throughout this century. Although the majority of the stocks have come from within this ESU, over 200 million fish from outside the ESU have been released since 1930. A particular concern noted at the time of listing related to the straying by Rogue River fall-run chinook salmon, which are released into the lower Columbia River to augment harvest opportunities. The release strategy has since been modified to minimize straying, but it is too early to assess the effect of the change. Available evidence indicates a pervasive influence of hatchery fish on most natural populations throughout this ESU, including both spring- and fall-run populations (Howell et al. 1985, Marshall et al. 1995). In addition, the exchange of eggs between hatcheries in this ESU has led to the extensive genetic homogenization of hatchery stocks (Utter et al. 1989).

The remaining spring chinook stocks in the LCR ESU are found in the Sandy on the Oregon side and Lewis, Cowlitz, and Kalama on the Washington side. Spring chinook in the Clackamas River are considered part of the UWR ESU. Naturally spawning spring chinook in the Sandy River are included in the LCR ESU despite substantial influence of Willamette hatchery fish from past years since they likely contain all that remains of the original genetic legacy for that system. Recent escapements above Marmot Dam on the Sandy River average 2,800 and have been increasing (ODFW 1998b). Hatchery-origin spring chinook are no longer released above Marmot Dam; the proportion of first generation hatchery fish in the escapement is relatively low, on the order of 10-20% in recent years.

On the Washington side spring chinook were present historically in the Cowlitz, Kalama, and Lewis rivers. Spawning areas were blocked by dam construction in the Cowlitz and Lewis. The native Lewis run became extinct soon after completion of Merwin Dam in 1932. Production in the Kalama was limited by the dams and by 1950 only a remnant population remained. Spring chinook in the Cowlitz, Kalama, and Lewis are currently all hatchery fish. There is some natural spawning in the three rivers, but these are believed to be primarily from hatchery strays (ODFW 1998b). The recent averages (1994-1998) for naturally spawning spring chinook in the Cowlitz, Kalama, and Lewis are 235, 224, and 372, respectively. The amount of natural production resulting from these escapements is unknown, but is presumably small since the remaining habitat in the lower rivers is not the preferred habitat for spring chinook. The Lewis and Kalama hatchery stocks have been mixed with out of basin stocks, but are nonetheless included in the ESU. The Cowlitz stock is largely free of introductions and is considered essential for recovery although not listed. The number of spring chinook returning to the Cowlitz, Kalama, and Lewis rivers have declined in recent years, but still number several hundred to a few thousand in each system (Table 5). Hatchery escapement goals have been consistently met in the Cowlitz and

Lewis Rivers. The goal has not been met in all years in the Kalama, but WDFW continues to use brood stock from the Lewis to meet production goals in the Kalama. Although the status of hatchery stocks are not always a concern or priority from an ESA perspective, in situations where the historic spawning habitat is no longer accessible, the status of the hatchery stocks is pertinent.

Table 5. Estimated Lower Columbia River spring chinook tributary returns, 1992-1999. (Source: Pettit 1998, ODFW/WDFW 1998.)

Year	Sandy R.	Cowlitz R.	Lewis R.	Kalama R.	Total Returns Excluding the Willamette System
1992	8,600	10,400	5,600	2,400	27,200
1993	6,400	9,500	6,600	3,000	25,500
1994	3,500	3,100	3,000	1,300	10,900
1995	2,500	2,200	3,700	700	9,100
1996	4,100	1,800	1,700	600	8,200
1997	5,200	1,900	2,200	600	9,900
1998	4,300	1,100	1,600	400	7,400
1999		1,600	1,900	600	

There are apparently three self-sustaining natural populations of tule chinook in the Lower Columbia River (Coweeman, East Fork Lewis, and Clackamas) that are not substantially influenced by hatchery strays. Returns to the East Fork and Coweeman have been stable and near interim escapement goals in recent years. Recent 5 and 10 year average escapements to the East Fork Lewis have been about 300 compared to an interim escapement goal of 300. Recent 5 and 10 year average escapements to the Coweeman are 900 and 700, respectively compared to an interim natural escapement goal of 1000 (pers. comm., from G. Norman, WDFW to P. Dygert NMFS, February 22, 1999). Natural escapement on the Clackamas has averaged about 350 in recent years. There have been no releases of hatchery fall chinook in the Clackamas since 1981 and there are apparently few hatchery strays. The population is considered depressed, but stable and self-sustaining (ODFW 1998b). There is some natural spawning of tule fall chinook in the Wind and Little White Salmon Rivers, tributaries above Bonneville Dam (the only component of the ESU that is affected by tribal fisheries). Although there may be some natural production in these systems, the spawning results primarily from hatchery-origin strays.

The LCR bright stocks are among the few healthy natural chinook stocks in the Columbia River Basin. Escapement to the North Fork Lewis River has exceed its escapement goal of 5,700 by a substantial margin every year since 1980 with a recent five year average escapement of 10,000. The forecast in 1999 is for an exceptionally low return of about 2,500 and if correct would

obviously be under the escapement goal. The low return in 1999 has been attributed to severe flooding that occurred in 1995 and 1996. Despite this apparent aberration, this population is considered healthy.

There are two smaller populations of LCR brights in the Sandy and East Fork Lewis River. Run sizes in the Sandy have averaged about 1000 and been stable for the last 10-12 years. The fall chinook hatchery program in the Sandy was discontinued in 1977, which has certainly reduced the number of hatchery strays in the system. There is also a late spawning component in the East Fork Lewis that is comparable in timing to the other bright stocks. The escapement of these fish is less well documented, but it appears to be stable and largely unaffected by hatchery fish (ODFW 1998b).

Upper Willamette River Chinook

Upper Willamette River chinook are one of the most genetically distinct groups or chinook in the Columbia River Basin. This may be related in part to the narrow time window available for passage above Willamette Falls. Chinook populations in this ESU have a life history pattern that includes traits from both ocean- and stream-type life histories. Smolt emigrations occur as young of the year and as age-1 fish. Ocean distribution of chinook in this ESU is consistent with an ocean-type life history with the majority of chinook being caught off the coasts of British Columbia and Alaska. Spring chinook from the Willamette River have the earliest return timing of chinook stocks in the Columbia Basin with freshwater entry beginning in February. Historically, spawning occurred between mid-July and late October. However, the current spawn timing of hatchery and wild chinook in September and early October likely is due to hatchery fish introgression.

The abundance of naturally-produced spring chinook in the ESU has declined substantially from historic levels. Historic escapement levels may have been as high as 200,000 fish per year. The production capacity of the system has been reduced substantially by extensive dam construction and habitat degradation. From 1946-50, the geometric mean of Willamette Falls counts for spring chinook was 31,000 fish (Myers et al. 1998), which represented primarily naturally-produced fish. The most recent 5 year (1995-1999) geometric mean escapement above the falls was 27,800 fish, comprised predominantly of hatchery-produced fish (Table 6). Nicholas (1995) estimated 3,900 natural spawners in 1994 for the ESU, with approximately 1,300 of these spawners being naturally produced. There has been a gradual increase in naturally spawning fish in recent years, but it is believed that many of these are first generation hatchery fish. The long-term trend for total spring chinook abundance within the ESU has been approximately stable although there was a series of higher returns in the late-80s and early-90s that are associated with years of higher ocean survival. The great majority of fish returning to the Willamette River in recent years have been of hatchery-origin.

Historically, there were five major basins that produced spring chinook including the Clackamas, North and South Santiam Rivers, McKenzie, and the Middle Fork Willamette. However, between 1952-1968 dams were built on all of the major tributaries occupied by spring chinook, blocking over half the most important spawning and rearing habitat. Dam operations have also

reduced habitat quality in downstream areas due to thermal and flow effects. Dams on the South Fork Santiam and Middle Fork Willamette eliminated wild spring chinook in those systems (ODFW 1997). Although there is still some natural spawning in these systems below the dams, habitat quality is such that there is probably little resulting production and the spawners are likely of hatchery origin. Populations in several smaller tributaries that also used to support spring chinook are believed to be extinct (Nicholas 1995).

The available habitat in the North Fork Santiam and McKenzie rivers was reduced to 1/4 and 2/3, respectively, of its original capacity. Spring chinook on the Clackamas were extirpated from the upper watershed after the fish ladder at Faraday Dam washed out in 1917, but recolonized the system after 1939 when the ladder was repaired. NMFS was unable to determine, based on available information whether this represents a historical affinity or a recent, human-mediated expansion into the Clackamas River. Regardless, NMFS included natural-origin spring chinook as part of the listed populations and considers Clackamas spring chinook as a potentially important genetic resource for recovery.

The McKenzie, Clackamas, and North Santiam are therefore the primarily basins that continue to support natural production. Of these the McKenzie is considered the most important. Prior to construction of major dams on Willamette tributaries, the McKenzie produced 40% of the spring chinook above Willamette Falls and it may now account for half the production potential in the Basin. Despite dam construction and other habitat degradations, the McKenzie still supports substantial production with most of the better quality habitat locate above Leaburg Dam. The interim escapement objective for the area above the Dam is 3,000-5,000 spawners (ODFW 1998a). Pristine production in that area may have been as high as 10,000, although substantial habitat improvements would be required to again achieve pristine production levels. Estimates of the number of natural-origin spring chinook returning to Leaburg Dam are available since 1994 when adults from releases of hatchery reared smolts above the dam were no longer present. The number of natural-origin fish at the Dam has increased steadily from 786 in 1994 to 1,458 in 1999 (Table 6). Additional spawning in areas below the Dam accounts for about 20% of the McKenzie return.

The Clackamas River currently accounts for about 20% of the production in the Willamette Basin. The production comes from one hatchery and natural production areas located primarily above the North Fork Dam. The interim escapement goal for the area above the Dam is 2,900 adults (ODFW 1998a). This system is heavily influenced by hatchery production so it is difficult to distinguish natural from hatchery-origin spawners. Most of the natural spawning occurs above the North Fork Dam with 1,000- 1,500 adults crossing the Dam in recent years. There were 380 redds counted above the dam in 1998 and similar counts in 1997 (Lindsay et. al. 1998). There is some spawning in the area below the Dam as well although the origin and productivity of these fish is again uncertain. There were 48 spring chinook redds counted below the North Fork Dam in 1998.

Over 70% of the production capacity of the North Santiam system was blocked by the Detroit Dam. There are no passage facilities at the Dam so all of the current natural production potential remains downstream. The remaining habitat is adversely affected by warm water and flow

regulation. The system is again influenced substantially by hatchery production, although the original genetic resources have been maintained since Marion Forks Hatchery stock has been derived almost exclusively from North Santiam brood sources (ODFW 1998a). Despite these limitations there continues to be natural spawning in the lower river. There were 194 redds counted in the area below Minto Dam (the lower-most dam) in 1998, which was marginally higher than during the prior two years (Lindsay et. al. 1998). The origin of the spawning adults or their reproductive success has not been determined.

Mitigation hatcheries were built to offset the substantial habitat losses resulting from dam construction and, as a result, 85%-95% of the production in the basin is now hatchery origin fish. On the one hand these hatchery populations represent a risk to the ESU. The genetic diversity of the ESU has been largely homogenized due to the past practice of broodstock transfers within the basin. Domestication is also a risk given the predominance of hatchery fish. Nevertheless, the hatchery populations also represent a genetic resource. All five of the hatchery stocks were included in the ESU and therefore are available to support recovery efforts. Given the extensive network of dams in the basin and other pervasive habitat degradations, it is clear that most, if not all, of the remaining populations would have been eliminated had it not been for the hatchery programs.

NMFS is currently engaged in a consultation to consider the future operation of the hatchery facilities in the Willamette Basin. This will reduce future risks associated with hatchery operations. Substantial efforts have already been taken to remedy some of the past hatchery practices including limiting the proportion of hatchery spawners in some natural production areas and reincorporating local-origin wild fish into the hatchery broodstock (ODFW 1998a). All hatchery produced fish in the Basin are now externally marked. Once these fish are fully recruited, the mass marking will allow implementation of selective fisheries in terminal areas and thus provide harvest opportunity with limited impacts to natural origin fish. The marking program will also greatly improve the managers' ability to monitor and control hatchery straying and production. The fall chinook hatchery production program was also noted as a risk to the species since fall chinook were not historically present above Willamette Falls. The fall production program at Stayton Ponds has now been closed with the last release made in 1995. It is reasonable to expect that the return of fall chinook will diminish rapidly as a result.

Table 6. Run size of spring chinook at the mouth of the Willamette River and counts at Willamette Falls and Leaburg Dam on the McKenzie River (Nicholas 1995; ODFW and WDFW 1998). The Leaburg counts show wild and hatchery combined and wild only since 1994.

Return Year	Estimated number entering Willamette River	Willamette Falls Count	Leaburg Dam Count	
			Combined	Wild Only
1985	57,100	34,533	825	
1986	62,500	39,155	2,061	
1987	82,900	54,832	3,455	
1988	103,900	70,451	6,753	
1989	102,000	69,180	3,976	
1990	106,300	71,273	7,115	
1991	95,200	52,516	4,359	
1992	68,000	42,004	3,816	
1993	63,900	31,966	3,617	
1994	47,200	26,102	1,526	786
1995	42,600	20,592	1,622	894
1996	34,600	21,605	1,445	1,086
1997	35,000	26,885	1,176	981
1998	45,100	34,461	1,874	1,364
1999	58,000*	40,410	1,458	1,416

*preliminary

Upper Columbia River Spring Chinook

Upper Columbia River Spring chinook have a stream-type life history. Adults return to the Wenatchee River from late March to early May, and from late March to June in the Entiat and Methow Rivers. Most adults return after spending two years in the ocean, while 20%-40% return after three years at sea. Peak spawning for all three populations occurs from August to September. Smolts typically spend one year in freshwater before migrating downstream. This ESU has slight genetic differences from other ESUs containing stream-type fish, but more importantly it has ecological differences in spawning and rearing habitats that were used to define the ESU boundary (Myers et al. 1998). The Grand Coulee Fish Maintenance Project

(1939-1943) was also a major influence on this ESU because fish from multiple populations were mixed into one relatively homogenous group and redistributed into streams throughout the Upper Columbia Region.

The ocean distribution of this ESU is generally to the north and offshore. Upper Columbia River Spring chinook are similar to Snake River spring/summer chinook in that they are subject to very little ocean harvest which is confirmed again here in relation to the groundfish fisheries. The status of UCRS chinook is discussed in more detail in NMFS (1999f) which is incorporated here by reference.

Central Valley Spring Chinook

Historically, spring chinook were most abundant in the San Joaquin Basin and the dominant run in both the Sacramento and San Joaquin River systems (Clark 1929, Fry 1961). Native populations in the San Joaquin River have apparently all been extirpated (Campbell and Moyle, 1990). The ESU presently occupies the Sacramento River Basin, occurring consistently in Mill, Deer and Butte creeks, with intermittent populations in Antelope, Big Chico, and Beegum creeks. Some spawning may occur in the main stem Sacramento. The long term abundance trends for the Mill, Deer, and Butte creek populations are negative (Myers et al. 1998), however since 1991 these populations have been increasing. The mean adult replacement rates for the1991 - 1996 brood years have been 2.0, 1.9 and 3.0 for Mill, Deer and Butte creeks respectively. The Butte Creek population is genetically distinct from the Deer and Mill Creek populations, returning earlier and spawning at lower elevations.

"Deer Creek is currently believed to have sufficient habitat to support "sustainable populations" of 4,000 spring-run (CDFG 1993)." (Yoshiyama et al. 1996). The Deer Creek population has been increasing since 1993; 1,900 and 1,500 adults returned in 1998 and 1999 respectively.

Artificial Propagation Efforts to enhance runs of Sacramento River spring chinook salmon through artificial propagation date back over a century. Since 1967, artificial production has focused on the program at the Feather River Hatchery. The use of a fixed date to distinguish returning spring- and fall-run fish at the Feather River Hatchery, however, has likely resulted in considerable hybridization between the two runs. In half of the years between 1987 and 1994 substantial numbers (21-46%) of the progeny of fish spawned as fall run were subsequently spawned as spring run (CDFG 1998). Genetic analysis revealed that spring-run chinook salmon from the Feather River Hatchery are genetically intermediate between spring- and fall-run samples and most similar to the sample of Feather River Hatchery fall-run chinook salmon (Myers et al. 1999). The Dept of Fish and Game compared CWT recovery rates of Feather River Hatchery spring run and Central Valley fall run (CDFG 1998). While there were minimal differences in the spacial ocean distribution of fall- and spring-run fish, they reported that 68% of the total annual harvest of age-3 Feather River Hatchery spring-run occurred during the months of February through April, compared to 41% for the fall run. Because of the hybridization of the spring and fall runs at the Feather River Hatchery, CDFG questioned whether the Feather River Hatchery spring run was an appropriate surrogate for the evaluation of the effects of ocean harvest on wild populations of spring chinook.

California Coastal Chinook

Chinook salmon from coastal areas north of the Eel River, from the Central Valley and from Klamath River Basin upstream from the Trinity River confluence are genetically and ecologically distinguishable from those in this ESU. Chinook salmon in this ESU exhibit an ocean-type life-history. No information exists on ocean distribution (based on marine CWT recoveries). Life-history information on the ESU is extremely limited. Additionally, only anecdotal or incomplete information exists on abundance of several spring-run populations including Mad and Eel Rivers.

Allozyme data indicate that this ESU is genetically distinguishable from the Oregon Coast, Upper Klamath and Trinity River, and Central Valley ESUs. Life history differences also exist between spring- and fall-run fish in this ESU, but not to the same extent as is observed in larger inland basins. Ecologically, the majority of the river systems in this ESU are relatively small and heavily influenced by a maritime climate. Low summer flows and high temperatures in many rivers result in seasonal physical and thermal barrier bars that block movement by anadromous fish.

III. Environmental Baseline

Environmental baselines for biological opinions include the past and present impacts of all state, federal or private actions and other human activities in the action area, the anticipated impacts of all proposed federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in process (50 CFR §402.02).

A. Status of the Species and Critical Habitat within the Action Area

The assessments of the size, variability and stability of chinook populations, described in the previous sections, are made in fresh water spawning and migratory environments and closely reflect the status of chinook populations in the marine environment.

Critical habitat has not been designated for any of the newly listed chinook ESUs considered in this opinion. Critical habitat has been designated for SRF chinook. Marine habitats (i.e., oceanic or near shore areas seaward of the mouth of coastal rivers) are clearly vital to the species, and ocean conditions are believed to have a major influence on chinook salmon survival and productivity (see review in Pearcy, 1992). To date NMFS has not included marine areas when designating critical habitat for other salmon ESUs because there has been no apparent need for special management action to protect offshore areas. NMFS has not included marine areas when designating critical habitat for SRF chinook, or other salmon ESUs. Inshore marine areas, such as those in Puget Sound, may be more critical to the species survival. In the event that marine areas are designated for newly listed chinook salmon, the effect of ocean fisheries on critical habitat will be reconsidered.

B. Factors Affecting Species Environment Within the Action Area

Commercial and Recreational Salmon Fisheries off the Coasts of Washington, Oregon, and California of the Pacific Fishery Management Council

Since 1989, NMFS has listed 26 ESUs of salmon, steelhead and cutthroat trout (Table 1). As the listings have occurred, NMFS has initiated formal section 7 consultations and issued biological opinions (Table 7) which consider the impacts to listed salmonid species, and some proposed salmonid species, resulting from proposed implementation of the Pacific Coast Salmon Plan (Salmon FMP), or in some cases, from implementation of the annual management measures. NMFS has also reinitiated consultation on certain ESUs when new information has become available on the status of the stocks or on the impacts of the Salmon FMP on the stocks.

In the biological opinion dated March 8, 1996, NMFS considered the impacts to salmon species then listed under the ESA resulting from implementation of the Salmon FMP including spring/summer chinook, fall chinook, and sockeye salmon from the Snake River and SRWR chinook. Provisions of the March 8, 1996, opinion regarding SRWR chinook were revised in a reinitiated section 7 biological opinion dated February 18, 1997. Two subsequent biological opinions dated April 30, 1997 and April 29, 1998 considered the effects of PFMC fisheries on the growing catalogue of listed species (Table 1). However, these latter two opinions were specific to the annual regulations adopted pursuant to implementation of the Salmon FMP and therefore were limited in duration to the year in question. The biological opinion concerning PFMC salmon fisheries, dated April 28, 1999, considered the effect of implementing Amendment 13 to the Salmon FMP on three currently listed coho ESUs. Because this opinion was programmatic in that it considered the amendment itself rather than just the annual regulations, it provides long-term coverage for PFMC fisheries regarding the three listed coho ESUs. The most recent biological opinion concerning PFMC salmon fisheries, was dated April 30, 1999, and covered ocean salmon fisheries for the 1999-2000 season.

This consultation history provides a mix of long and short-term coverage for the various ESUs with respect to PFMC ocean salmon fisheries. The effects of implementing the FMP on the three Snake River ESUs, SRWR chinook, and the three coho ESUs are covered by outstanding and still applicable opinions. The effects of PFMC fisheries on Umpqua River cutthroat and several steelhead ESUs have been considered previously, but only in opinions with an annual duration. Nine additional ESUs of chinook, sockeye, and chum salmon and steelhead were listed on March 24, 1999 (Table 1). The effects of PFMC fisheries on these species had not been previously considered. This biological opinion therefore considered the effects of the 1999 PFMC fisheries on the nine newly listed ESUs and the previously listed cutthroat and steelhead ESUs not currently covered by an existing opinion.

The Salmon FMP is currently being revised and amended primarily to incorporate required changes resulting from the Magnuson-Stevens Act. This revision, known as Amendment 14, will also be subject to consultation. Amendment 14 to the Salmon FMP and its accompanying supplemental environmental impact statement (Amendment 14) represent a comprehensive updating of the Salmon FMP. NMFS is therefore conducting a consultation under section 7 of

the ESA on the effects that Amendment 14, as submitted to NMFS, may have on listed salmon stocks. This consultation considers whether any of the provisions of Amendment 14 will modify the Salmon FMP in a manner that adversely affects any of the listed species or designated critical habitat. In general, Amendment 14 will result in more conservative management in response to the requirements of the Magnuson-Stevens Act.

Table 7. NMFS biological opinions on ocean salmon fisheries implemented under the PFMC Salmon FMP and duration of the proposed action covered by each opinion.

Date	ESU covered and effective period
March 1, 1991	Sacramento River winter-run chinook (now superseded)
March 8, 1996	Snake River chinook and sockeye (until reinitiated), Sacramento River winter-run chinook (5 years)
February 18, 1997	Sacramento River winter-run chinook (4 years)
April 30, 1997	SONCC coho, CCC coho, Umpqua River cutthroat trout, all steelhead ESUs proposed for listing (1 year) S. Oregon/ N. California Coastal coho, Central California Coastal coho, Umpqua River cutthroat trout, all steelhead ESUs proposed for listing (1 year)
April 29, 1998	S. Oregon/ N. California Coastal coho, Central California Coastal coho, Umpqua River cutthroat trout, seven listed steelhead ESUs (1 year)
April 28, 1999	Oregon Coastal coho, S. Oregon/ N. California Coastal coho, Central California Coastal coho (until reinitiated)
April 30, 1999	Upper Columbia River Spring chinook, Upper Willamette River chinook, Lower Columbia River chinook, Puget Sound chinook (1 year)

C. Factors Affecting Chinook Outside the Action Area

Salmon Fisheries Outside the Action Area - Fishing Activities

NMFS recently completed a series of consultation regarding salmon fisheries that affect the listed chinook ESUs of concern in this opinion. Consultation on the 1999 ocean salmon fisheries in Alaska was completed on June 30, 1999 (NMFS 1999a). Consultation regarding fall season fisheries in the Columbia River Basin was completed on July 30, 1999 (NMFS 1999e). On November 18, 1999, NMFS signed an opinion covering the recently completed Pacific Salmon Treaty (PST) agreement (NMFS 1999f). The PST opinion specifically covered salmon fisheries in Alaska and Canada that are subject to the agreement, but also analyzed and accounted for impacts that occurred in southern fisheries. This set of opinions provides the most recent review of harvest related impacts in salmon fisheries. Some of the information from those opinions is summarized here and is used indirectly in analyzing the species and stock-specific impacts to

listed chinook resulting from the groundfish fisheries.

Until recently the exploitation rates on most of the chinook ESUs being considered here have been too high for many of the component stocks and have contributed to their decline particularly because of what we now know about the long-term decline in ocean productivity (see following section). Upper Columbia River spring chinook is an exception. The timing and distribution of these stocks is such that ocean harvest mortality is near zero. Inriver harvest rates over the last 15 or 20 years have been 10% or less (ODFW and WDFW 1998). The current depressed status of UCRS chinook is therefore largely unrelated to harvest.

The following series of tables, which was first developed for use in the Alaska fishery opinion (NMFS 1999a), shows the magnitude and distribution of exploitation rates for the chinook ESUs or components of the ESUs. The tables show the total adult equivalent exploitation rates by brood year as well as how that exploitation was distributed across the major fisheries. The estimates are based on coded-wire-tag (CWT) recoveries which provides the most direct estimates of exploitation rates. The adult equivalent calculation is a procedure that discounts catch for expect future natural mortality which would occur prior to spawning. The estimates are reported by brood year. For example, the exploitation rate of the 1992 brood accounts for harvest mortality that occurred on age 2-5 fish in years 1994-97. The data is complete through the 1992 brood and 1997 fishery. The 1993 brood is reported, but is incomplete in that the five year old recoveries from the 1998 fishery are not yet available. There is generally a year-long time lag in updating the coast-wide CWT data base necessary to provide these estimates.

Exploitation rates can also be calculated using harvest management models by catch year. These models use the same CWT data to model exploitation rates that occurred in past years. However, once the models are calibrated, they can also be used for management planning purposes to estimate exploitation rates that would be associated with a given fishery structure in particular year. Because the models are projections, they can be used to characterize exploitation rate trends from past years and how they compare to the most recent years - 1998 and 1999 in this case - that are not available when using the more direct brood year, CWT estimates. In some cases, the model estimates are reported as an index calculated as the ratio of current exploitation rate divided by the 1989-93 average exploitation rate. Model estimates of ER for the 1999 fisheries are also reported.

The PST opinion (NMFS 1999f) used a somewhat different approach, relying primarily on the a model developed by the Chinook Technical Committee of the Pacific Salmon Commission. These model-based estimates are not directly comparable to those derived from the CWT data in part because of assumptions made in the modeling process, and in part because different stock aggregates are analyzed. For example, the CWT summary uses an aggregate of PS spring stocks while the CTC model is specific to Nooksack spring chinook, one of the component stocks. The data summaries from the Alaska opinion are use in this analysis because they permit comparison of the catch and resulting exploitation rates in PFMC salmon fisheries and with catches in groundfish fisheries.

The total brood year exploitation rate of UWR chinook averaged 0.54 from 1975 through 1990.

The average exploitation rate for the more recent 1991-93 broods was 0.35. Upper Willamette River chinook are a far-north migrating stock (Table 8). The ocean harvest occurs primarily in the Alaskan and northern Canadian fisheries. Because of their northerly distribution and earlier return timing, the exploitation rate of UWR chinook in PFMC fisheries is low, averaging 0.01 both in the past and most recent years (Table 8). The exploitation rate in the river fishery is higher, averaging 0.35 through 1990. Harvest in the river fisheries has declined substantially in recent years because of concerns for Snake River spring/summer chinook and other upriver spring stocks. Commercial harvest in the mainstem have been largely eliminated since 1992. The lower river sport fishery has been closed since 1995. Sport fisheries in the Willamette River and the tributaries have been increasingly restrictive as the return of hatchery and wild fish has declined through the 1990s. The Oregon Department of Fish and Wildlife (ODFW) is now implementing a mass marking and selective fishery program that is expected to reduce inriver recreational harvest rates on natural fish by 80% relative to the 1980-96 average once fully implemented in 2002 (Kruzic 1999).

The Lower Columbia River chinook ESU has three components including spring stocks, tule stocks, and far-north migrating bright stocks. These components have different distributions and are subject to different rates of harvest. The time series of ER for the spring component is not currently available, but the model base period (1979-82) ER for Cowlitz spring chinook in PFMC fisheries is 12%.

The total brood year exploitation rates on tule stocks have averaged 0.75 through 1990 although there has been a pattern of decline over that time period (Table 9). Total exploitation rates from 1991-93 averaged 0.39. The distribution of the tule stocks is more southerly with the ocean harvest concentrated in Canadian and PFMC fisheries. Exploitation rates in the PFMC fishery averaged 0.25 through 1990 and 0.09 for the 1991-93 brood years. The long-term exploitation rate in the river fisheries averaged 0.18. The most recent 3 year average is 0.15.

North Fork Lewis River fall chinook are the primary representative of the bright component of the Lower Columbia River ESU. As noted above this is one of the few healthy wild stocks in the Lower Columbia River. Total exploitation rates have averaged 0.49 through 1990 and 0.29 between 1991-92. This is a far-north migrating stock so the ocean harvest occurs primarily in Alaska and Canada. The long term average exploitation rate in PFMC is 0.05. The more recent average ER is 0.01. Inriver ERs have averaged 0.22 through 1990 and 0.11 in recent years (Table 10).

The PS chinook ESU includes both spring and fall components. The long-term average ER on the spring component is 0.71, but averaged 0.52 for the 1991-93 broods (Table 11). Most of the harvest occurs in Canadian and Puget Sound fisheries. PS spring chinook stocks are subject to little harvest in PFMC fisheries. The long term average ER is 0.01. The estimated ER for the most recent brood years is 0.00.

The distribution of PS fall stocks is similar although their timing is such that they are subject to somewhat higher ERs. The long-term average ER is 0.83. The most recent brood years have been subject to an ER of 0.57. Harvest of PS fall chinook again occurs primarily in Canada and

Puget Sound. The ER in PFMC fisheries averaged 0.03 through 1990 and 0.01 from 1991-93 (Table 12).

A time series of model estimates of total exploitation rates are also available for the PS spring and fall chinook stocks. These are reported as an index relative to the 1989-93 average ER. The estimated total ER indices for spring and fall stocks in 1999 are 0.67 and 0.76, respectively. This is thus an indicator of the magnitude of ER reductions across all fisheries in 1999. Although the decline in ER is moderate relative to the 1989-93 base period, Figure 1 indicates that the ER has declined steadily and more substantially since 1983.

Figure 1. Total adult equivalent exploitation rate index for a composite of Puget Sound spring and fall chinook stocks relative to the 1989-93 average ER.

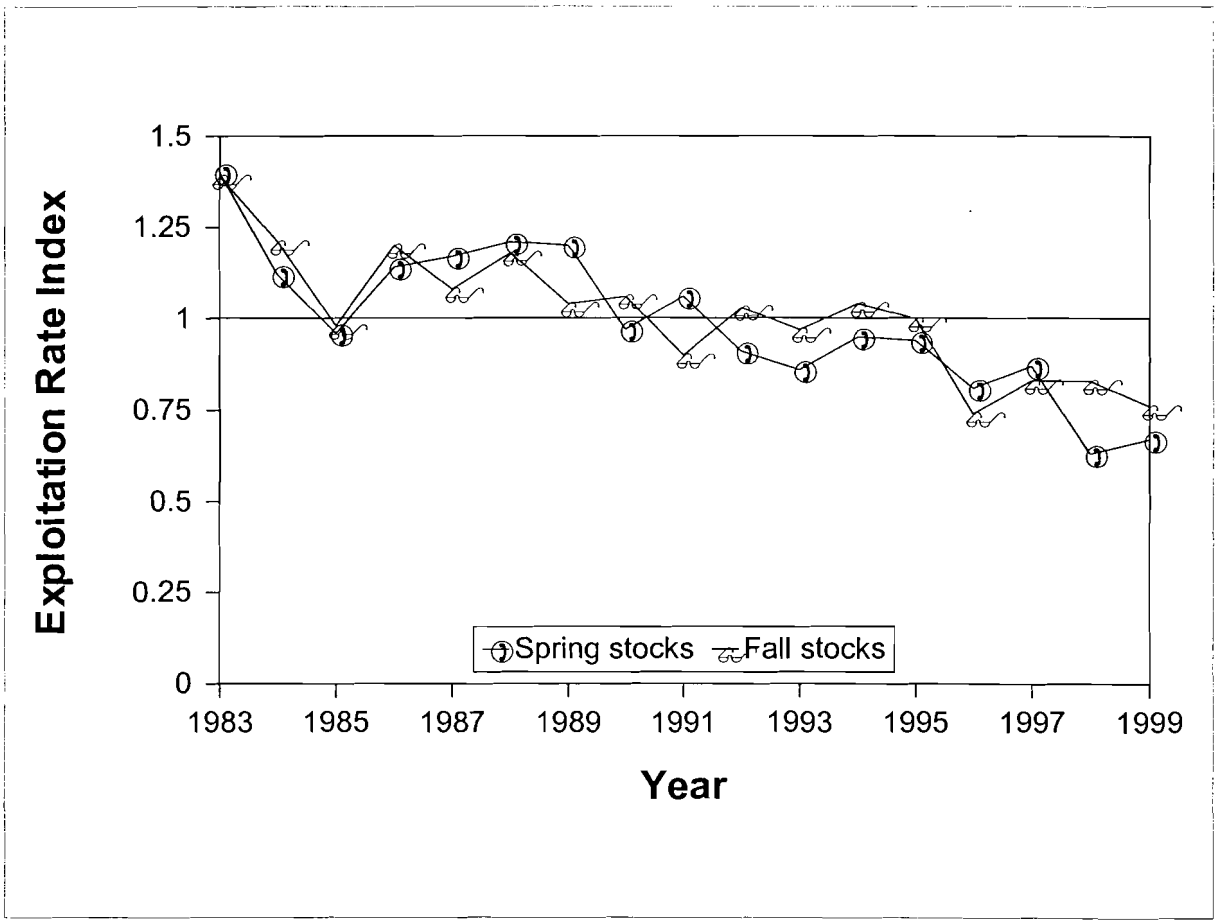


Table 8. Summary of total adult equivalent exploitation rates for the Upper Willamette River chinook ESU.

	Willamette Spring Hatchery					
Brood Year	Total	SEAK	Canada	PFMC	Columbia R.	Other
1971						
1972						
1973						
1974						
1975	0.51	0.02	0.14	0.01	0.32	0.02
1976	0.66	0.13	0.27	0.03	0.22	0.00
1977	0.38	0.06	0.12	0.01	0.18	0.01
1978	0.41	0.06	0.10	0.01	0.23	0.01
1979	0.54	0.12	0.12	0.03	0.26	0.01
1980	0.44	0.05	0.07	0.01	0.32	0.00
1981	0.48	0.13	0.07	0.01	0.26	0.00
1982	0.48	0.08	0.06	0.00	0.33	0.02
1983	0.73	0.16	0.10	0.02	0.44	0.00
1984	0.55	0.07	0.07	0.01	0.38	0.00
1985	0.54	0.04	0.05	0.01	0.43	0.00
1986	0.61	0.10	0.05	0.01	0.45	0.00
1987	0.66	0.10	0.03	0.00	0.53	0.01
1988	0.52	0.08	0.04	0.03	0.37	0.01
1989	0.61	0.12	0.04	0.02	0.43	0.00
1990	0.47	0.04	0.02	0.00	0.40	0.00
1991	0.51	0.06	0.02	0.00	0.44	0.00
1992	0.26	0.02	0.01	0.01	0.22	0.01
1993	0.29	0.08	0.02	0.02	0.17	0.00
1975-1990	0.54	0.09	0.08	0.01	0.35	0.01
1991-1993	0.35	0.05	0.02	0.01	0.27	0.00

Table 9. Summary of total adult equivalent exploitation rates for an aggregate of tule stocks from the Lower Columbia River chinook ESU.

	Tule (Spring Creek, Stayton Ponds, Cowlitz, Bonneville)					
Brood Year	Total	SEAK	Canada	PFMC	Columbia R.	Other
1971						
1972	0.89	0.00	0.27	0.27	0.29	0.05
1973	0.93	0.00	0.15	0.44	0.28	0.06
1974	0.86	0.00	0.22	0.33	0.24	0.07
1975	0.84	0.00	0.32	0.28	0.19	0.05
1976	0.85	0.01	0.35	0.27	0.16	0.06
1977	0.80	0.02	0.28	0.34	0.11	0.04
1978	0.75	0.01	0.32	0.27	0.11	0.04
1979	0.82	0.02	0.31	0.31	0.15	0.03
1980	0.73	0.01	0.41	0.15	0.10	0.06
1981	0.70	0.01	0.42	0.08	0.15	0.02
1982	0.67	0.02	0.28	0.18	0.15	0.05
1983	0.76	0.01	0.29	0.15	0.27	0.04
1984	0.77	0.01	0.25	0.20	0.27	0.04
1985	0.79	0.01	0.26	0.24	0.22	0.06
1986	0.65	0.02	0.16	0.26	0.15	0.05
1987	0.59	0.04	0.22	0.18	0.10	0.05
1988	0.59	0.02	0.23	0.17	0.14	0.03
1989	0.69	0.02	0.18	0.34	0.09	0.05
1990	0.56	0.01	0.17	0.19	0.15	0.04
1991	0.38	0.02	0.24	0.01	0.10	0.02
1992	0.45	0.01	0.03	0.24	0.16	0.01
1993	0.34	0.03	0.10	0.03	0.18	0.00
1972-1990	0.75	0.01	0.27	0.25	0.18	0.05
1991-1993	0.39	0.02	0.12	0.09	0.15	0.01

Table 10. Summary of total adult equivalent exploitation rates for the North Fork Lewis River bright stock from the Lower Columbia River chinook ESU.

	Bright (Lewis River)					
Brood Year	Total	SEAK	Canada	PFMC	Columbia R.	Other
1971						
1972						
1973						
1974						
1975						
1976						
1977	0.51	0.09	0.19	0.06	0.16	0.01
1978	0.56	0.15	0.14	0.09	0.16	0.02
1979	0.50	0.10	0.16	0.07	0.17	0.01
1980						
1981						
1982	0.59	0.09	0.16	0.02	0.31	0.00
1983	0.67	0.06	0.20	0.06	0.35	0.01
1984	0.45	0.03	0.15	0.03	0.24	0.00
1985	0.45	0.08	0.12	0.07	0.17	0.02
1986	0.41	0.05	0.15	0.05	0.16	0.01
1987	0.37	0.04	0.13	0.05	0.15	0.01
1988	0.46	0.05	0.16	0.03	0.21	0.01
1989	0.43	0.00	0.08	0.05	0.30	0.00
1990	0.45	0.08	0.09	0.01	0.27	0.00
1991	0.32	0.13	0.06	0.02	0.11	0.00
1992	0.27	0.15	0.00	0.01	0.11	0.00
1977-1990	0.49	0.07	0.14	0.05	0.22	0.01
1991-1992*	0.29	0.14	0.03	0.01	0.11	0.00

*Unresolved data uncertainties associated with CWT recoveries of this stock in the 1997 return year precluded reporting of results for the 1993 brood year.

Table 11. Summary of total adult equivalent exploitation rates for a composite of Puget Sound spring chinook stocks.

	Puget Sound Spring					
Brood Year	Total	SEAK	Canada	PFMC	Puget Snd	Other
1971						
1972						
1973						
1974						
1975						
1976						
1977						
1978						
1979	0.90	0.00	0.02	0.03	0.86	0.00
1980	0.76	0.02	0.32	0.00	0.41	0.00
1981	0.72	0.01	0.41	0.00	0.29	0.00
1982	0.81	0.00	0.42	0.00	0.38	0.00
1983	0.78	0.00	0.19	0.01	0.59	0.00
1984	0.68	0.00	0.32	0.01	0.36	0.00
1985	0.72	0.00	0.20	0.02	0.50	0.00
1986	0.77	0.00	0.15	0.02	0.60	0.00
1987	0.60	0.00	0.17	0.01	0.42	0.00
1988	0.61	0.00	0.29	0.01	0.31	0.00
1989	0.59	0.01	0.27	0.01	0.31	0.00
1990	0.65	0.00	0.21	0.00	0.43	0.00
1991	0.55	0.00	0.00	0.00	0.55	0.00
1992	0.47	0.00	0.17	0.00	0.29	0.00
1993	0.55	0.00	0.25	0.00	0.29	0.00
1979-1990	0.71	0.00	0.25	0.01	0.45	0.00
1991-1993	0.52	0.00	0.14	0.00	0.38	0.00

Table 12. Summary of total adult equivalent exploitation rates for a composite of Puget Sound fall chinook stocks.

	Puget Sound Fall					
Brood Year	Total	SEAK	Canada	PFMC	Puget Snd	Other
1971	0.82	0.00	0.29	0.05	0.48	0.00
1972	0.89	0.00	0.56	0.01	0.32	0.00
1973	0.90	0.00	0.43	0.03	0.44	0.00
1974	0.93	0.00	0.49	0.02	0.43	0.00
1975	0.91	0.00	0.40	0.05	0.45	0.00
1976						
1977						
1978	0.87	0.00	0.34	0.03	0.49	0.02
1979	0.95	0.00	0.36	0.02	0.57	0.01
1980	0.93	0.00	0.34	0.01	0.58	0.00
1981	0.83	0.00	0.24	0.01	0.57	0.00
1982	0.79	0.00	0.32	0.03	0.44	0.00
1983	0.77	0.00	0.28	0.02	0.46	0.00
1984	0.85	0.00	0.33	0.04	0.44	0.04
1985	0.76	0.00	0.25	0.04	0.47	0.00
1986	0.79	0.00	0.27	0.05	0.47	0.00
1987	0.75	0.01	0.25	0.03	0.46	0.00
1988	0.79	0.00	0.25	0.06	0.48	0.00
1989	0.81	0.01	0.33	0.07	0.40	0.00
1990	0.69	0.00	0.25	0.01	0.42	0.00
1991	0.58	0.02	0.20	0.01	0.35	0.00
1992	0.55	0.00	0.16	0.02	0.36	0.00
1993	0.57	0.01	0.19	0.01	0.35	0.00
1971-1990	0.83	0.00	0.33	0.03	0.46	0.00
1991-1993	0.57	0.01	0.18	0.01	0.36	0.00

Bering Sea/Aleutian Islands and Gulf of Alaska Groundfish Fisheries

Salmon are taken incidentally in the Bering Seas/Aleutian Islands and the Gulf of Alaska (GOA) groundfish fisheries off of the coast of Alaska. NMFS has conducted section 7 consultations on the impacts of fishing conducted under the Bering Sea and Aleutian Islands and Gulf of Alaska Fishery Management Plans (BSAI/GOA FMP) of the NPFMC on ESA listed species and concluded that impacts on species listed at that time were low and not likely to jeopardize their continued existence (NMFS 1994, 1995b). Section 7 consultation on this fishery has been reinitiated, but a biological opinion has not been issued. However, information from these previous opinions can be used to characterize the potential catch of these fisheries on the newly listed ESUs.

The incidental catch of chinook from all stocks in the BSAI groundfish fisheries has averaged 40,150 and 0.01 chinook/metric ton groundfish (range = 0 to 6 chinook/metric ton groundfish) (1990-1998)(NOAA 1999). The most recent biological opinion on the groundfish fisheries (NMFS 1995a) concluded that, given a bycatch of approximately this size, the catch of ocean-type fall chinook in the BSAI fishery would be on the order of 2,200 per year. The UWR spring and LCR brights are both ocean-type stocks that migrate to northern waters. Since the incidental catch of ocean-type chinook off the Alaskan coast is unlikely to exceed more than a few thousand fish per year including those from British Columbia, the Washington coast and the unlisted hatchery components, the catch of listed UWR spring chinook is likely to be only a rare event. This conclusion is supported by the analysis of exploitation rates (see sections II.D and IV) in the ocean salmon fishery which are generally low despite a catch that is more than an order of magnitude higher than that of the groundfish bycatch. However, the northern distribution of the LCR bright stock and the possibility that the increase in exploitation rate on the LCR bright stock in the SEAK salmon fishery in the last several years may also be occurring in the BSAI fisheries warrants consideration of the incidental catch of LCR chinook in the groundfish fishery as part of the analysis of the effect of the salmon fishery on the ESU.

The available information is insufficient to estimate impacts in the BSAI fisheries on UCRS chinook ESU. However, the UCRS and SR spring/summers share similar life history and presumably ocean distribution patterns. In its 1994 biological opinion, NMFS concluded that the catch of Snake River spring/summer chinook in the BSAI fisheries was unlikely to average more than one fish per year. Although PS chinook and LCR tules are caught more frequently than UCR springs in ocean fisheries, they have a more southerly distribution and are therefore also not likely to be caught in BSAI fisheries. Although it is possible that UCR spring, PS or LCR tule chinook are taken in the BSAI fisheries, the lack of or low numbers of coded-wire tag (CWT) recoveries in the SEAK salmon fisheries which take many more chinook, and the fact that the majority of chinook caught in the BSAI fisheries are of Alaskan or Asian origin (NMFS 1994) suggest that the annual catch of listed fish would be extremely low. A more definitive analysis of the incidental catch of listed chinook will be made in the re-initiated groundfish opinion.

The incidental catch of chinook from all stocks in the GOA groundfish fisheries has averaged 15,582 annually and 0.04 chinook/metric ton groundfish (range = 0 to 1 chinook/mt groundfish) (1990-1998)(NMFS 1999c). The most recent biological opinion on the groundfish fisheries

(NMFS 1995b) concluded that it was difficult to determine the region of origin or life history type in the GOA fishery, although it did surmise that the GOA fishery would include more stream-type fish than the SEAK fishery, because of the dominance of stream-type fish in the BSAI fishery which is further north and west. The Upper Willamette spring and Lower Columbia River brights are both ocean-type, far north migrating stocks. It is reasonable to assume that these stocks are less impacted in the GOA groundfish fishery than in the SEAK salmon fishery given the probable lower presence of ocean-type fish in the GOA groundfish fishery. The exploitation rate for UWR chinook in the SEAK salmon fishery averaged 5% over the 1990-1993 brood years. However, the average catch in the salmon fishery during those years was approximately 275,000 compared to less than 16,000 in the groundfish fishery. If we assume that the relative abundance of UWR chinook in the fisheries was similar, the estimated ER in the groundfish fishery would be about 0.3%.

A similar analysis was done for the bright component of the LCR ESU. The average 1990-1992 brood year ER in the SEAK salmon fishery is 12%. Given the relative magnitude of catches in the salmon and groundfish fisheries and assuming a similar relative stock composition, the ER in the groundfish fishery would be about 0.7%. However, much of the bycatch of the groundfish fishery is further north and west along the Aleutian Islands. These are therefore likely substantial overestimates of the actual ERs for UWR chinook and the bright component of the LCR chinook ESU in the GOA groundfish fishery.

Puget Sound chinook and LCR tules are caught less frequently in the SEAK salmon fisheries than UWR or LCR brights. The average exploitation rates for PS spring stocks, PS fall stocks, and LCR tules in the SEAK salmon fisheries are 0, < 1%, and < 2%, respectively. Because of their more southerly distribution and they are even less likely to be caught in the GOA groundfish fishery.

There are also groundfish fisheries in Canadian waters that also catch salmon incidentally. Canadian groundfish fisheries have not under gone prior consultation. The bycatch in the Canadian whiting fishery was considered in NMFS original biological opinion concerning the PFMC groundfish fishery (NMFS 1992). Although that has not been subsequently reviewed or updated, the assumption at the time was that the annual bycatch of salmon would be no greater than 14,000 fish per year. Most of these would be chinook so there would likely be some catch of listed fish. However, the total additional catch of chinook in this fishery is small relative to that being considered as part of the directed salmon fisheries. For example, the catch of chinook in the NCBC and WCVI chinook fisheries in Canada in 1998 was about 150,000, a level much reduced from what would have been allowed under the agreement given the estimated abundance levels. Bycatch in the whiting fishery is therefore not likely to be a significant additional impact. We have not reviewed other components of the Canadian groundfish fishery, but NMFS concluded in reviewing PFMC fisheries that the bycatch from bottom trawl gear was likely the same magnitude as that in the whiting fishery and that other gear types such as long lines or pots would have little or no additional catch of salmon.

D. Factors Affecting the Species Outside the Action Area - Other Human Activities

All of the listed species are affected, often substantially, by mortality factors related to other human activities that are commonly referred to as the "Hs". In addition to the harvest H that is considered in detail in this opinion, the species of concern are affected by impacts related to habitat degradation, hatchery programs, and hydro-development. The relative effect of each H to the ESUs, and to each stock within an ESU, differs. However, in general, human development associated with forestry, farming, grazing, road construction, mining, and urbanization have all contributed to the decline of the species. The combined effect of multitude of habitat degradations often poses the greatest risk and greatest challenge to species recovery because they are often the result of multiple dispersed actions, each of which must be addressed. Additionally, habitat degradations by their nature can only be remedied over time as the affected systems slowly recover their properly functioning condition.

Hatcheries have both positive and negative effects. Hatcheries are playing an increasingly important role in conserving natural populations in areas where the habitat can no longer support natural production or where the numbers of returning adults are now so low that intervention is required to reduce the immediate risk of extinction. However, there are also negative consequences associated with hatchery programs, particularly as they were developed and managed in the past. There are genetic interactions associated with the interbreeding of hatchery and wild fish. There are a number of ecological interactions such as predation of wild fish by larger hatchery fish, competition for food and space, and disease transmission. In addition, fisheries that target hatchery fish may over harvest less productive wild populations. Hatchery activities in Puget Sound and the Columbia Basin are currently the subject of ongoing section 7 consultation that are designed to address the adverse effects of ongoing hatchery programs.

Hydro development also has substantially affected or eliminated some populations or even whole ESUs. In some cases, the effects are direct as the dams block access to spawning and rearing habitat. In other cases, the effects are less direct, but nonetheless significant as they increase downstream and upstream passage mortality, change natural flow regimes, dewater or reduce flow to downstream areas, block the recruitment of spawning gravel, or result in elevated temperatures.

Although it is not possible to review here the relative importance of each of these factors on each ESU or stock within the ESUs, it is clear that it is the combined effect of all of the H's that has lead to the decline and resulting current status of the species of concern. In this opinion, NMFS focuses on harvest, in the context of the environmental baseline and the current status of the species. Although harvest can be reduce in response to the species depressed status and the reduced productivity that results from the degradations related to other human activities, the recovery of the listed species depends on improving the productivity of the natural populations in the wild. These improvements can only be made by addressing the factors of decline related to all of the H's that will be the subject of future opinions and recovery planning efforts.

E. Natural Factors Causing Variability in Population Abundance

Changes in the abundance of chinook populations are a result of variations in freshwater and marine environments. For example, large scale changes in climatic regimes, such as El Niño, likely affect changes in ocean productivity; much of the Pacific coast was subject to a series of very dry years during the first part of the decade which adversely affected some the stocks. In more recent years, severe flooding has adversely affected some stocks. For example, the anticipated low return of Lewis River bright fall chinook in 1999 is attributed to flood events during both 1995 and 1996.

Salmon are exposed to high rates of natural predation, particularly during freshwater rearing and migration stages. Ocean predation likely also contributes to significant natural mortality, although the levels of predation are largely unknown. In general, chinook are prey for pelagic fishes, birds, and marine mammals, including harbor seals, sea lions, and killer whales. There have been recent concerns that the rebounding of seal and sea lion populations, following their protection under the Marine Mammal Protection Act of 1972, has resulted in substantial mortality for salmonids. In recent years, for example, sea lions have learned to target UWR spring chinook at Willamette Falls and have gone so far as to climb into the fish ladder where they can easily pick-off migrating spring chinook.

A key factor that has substantially affected many west coast salmon stocks has been the general pattern of long-term decline in ocean productivity. The mechanism whereby stocks are affected is not well understood. The pattern of response to these changing ocean conditions has differed between stocks, presumably due to differences in their timing and distribution. It is presumed that ocean survival is driven largely by events between ocean entry and recruitment to a sub-adult life stage.

Recent evidence suggests that marine survival of salmon species fluctuates in response to 20-30 year long periods of either above or below average survival that is driven by long-term cycles of climatic conditions and ocean productivity (Cramer 1999) . This has been referred to as the Pacific Decadal Oscillation (PDO). It is apparent that ocean conditions and resulting productivity affecting many of northwest salmon populations have been in a low phase of the cycle for some time. Smolt-to-adult return rates provide another measure of survival and the effect of ocean conditions on salmon stocks. The smolt-to-adult survival rates for PS chinook stocks, for example, dropped sharply beginning with the 1979 broods to less than half of what they were during the 1974-1977 brood years (Cramer 1999). The variation in ocean conditions has been an important contributor to the decline of many stocks. However, the survival and recovery of these species depends on the ability of these species to persist through periods of low ocean survival when stocks may depend on better quality freshwater habitat and lower relative harvest rates.

The natural factors affecting salmon abundance are extremely variable, specific to different life stages, and have different magnitudes. Where possible, variations in productivity and natural mortality are incorporated in management models.

IV. Effects of the Action

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA as defined at 50 CFR §402.02. This section of the biological opinion applies those standards in determining whether the proposed fisheries are likely to jeopardize the continued existence of one or more of the listed ESUs that may be adversely affected by the fisheries. This analysis considers the direct, indirect, interrelated, and interdependent effects of the proposed fisheries and compares them against the environmental baseline to determine if the proposed fisheries will appreciably reduce the likelihood of survival and recovery of these listed salmon in the wild. The jeopardy determinations are also based on a consideration of the magnitude of salmon bycatch by species, the geographic distribution of the bycatch, and the available information indicating the relative magnitude of impacts to each ESU. Consideration is also given to the proposed management actions taken to reduce the catch of listed fish. The jeopardy determinations are largely qualitative at this time. The ESUs considered here have just recently been listed. Impacts to these ESUs in the groundfish fisheries have not been previously analyzed and are not tied to more quantitative analysis that are typically part of salmon fishery management models or more holistic life cycle or risk assessment analysis. Such analyses will necessarily be developed over time. In the meantime, NMFS must rely on the best available information in making its judgement about the risk of the proposed action to the newly listed ESUs.

For many of the ESUs considered in the opinion critical habitat has not been designated. As a result, this section will not determine, for those species, if the proposed fisheries are likely to destroy or adversely modify critical habitat. For those ESUs with designated or proposed critical habitat, the action area is outside the range of the designated habitat. As a result, the proposed fisheries are not likely to destroy or adversely modify the critical habitat of any ESU.

There are two general patterns of ocean distribution for the listed chinook ESUs. The chinook ESUs originating in CA (SRWR, CVS, CC chinook) are generally distributed off the California and southern Oregon coast. The other chinook ESUs from Puget Sound and the Columbia River basin are either north on far-north migrating stocks that will be found only rarely to the south. It is therefore useful to first consider both the magnitude and geographic distribution of the anticipated bycatch of chinook in order to characterize the likely impact on each ESU of concern.

There is insufficient information to characterize the stocks composition of the chinook bycatch in the groundfish fisheries. It is therefore not possible to estimate directly of the catch mortality by ESU. More qualitative impact estimates can be derived based on our general understanding of the distribution and timing of stocks that are derived from analysis of salmon fisheries. For some of the ESUs or stocks within an ESU the salmon management models can be used to generally characterize the relative abundance of listed fish in terms of catch per thousand. In other cases, it is more appropriate to use estimates of the exploitation rates in the salmon fisheries along with the associated catch to get a general sense of the level of impact associated with the groundfish fisheries occurring in similar areas and times. However, these estimates are best considered as approximations, as the salmon and groundfish fisheries do not occur in the same time and place, and therefore catch different stock mixes. We know, for example, that the chinook caught in the groundfish fishery are generally smaller and younger-aged fish.

Information from the salmon fishery models is supplemented in the opinion by an analysis of the CWT recoveries that are available for the whiting fishery in particular. Reported recoveries for hatchery or wild salmon stocks from each ESU that are used to represent the distribution of listed fish contribute to our understanding of the presence or absence and distribution of listed fish in the groundfish fisheries. For the SRF chinook ESU only sub-yearling release groups were used to represent the ocean distribution. There were additional releases of yearling smolts from the Lyons Ferry Hatchery. However, because the yearling releases have a different age at maturity and different ocean distribution, they are not considered representative of the listed natural origin fish.

The total annual bycatch of other listed species (coho, chum, sockeye, steelhead, and cutthroat) are reviewed briefly, but are not analyzed in detail because of the consistently low level of catch.

A. Mid-water Trawl - Whiting Fishery

The whiting catch and associated salmonid bycatch for 1991-99 seasons for at-sea and shoreside fisheries is summarized in Table 14. Chinook salmon represent the major portion of the salmon bycatch, with coho, chum, pink and sockeye making up the lessor portion in both the shoreside and at-sea components of the whiting fisheries. Coho encounters averaged only 292 fish per year in the combined shoreside and at-sea fisheries. The highest annual catch of coho was 1,379 fish caught in 1995 in the at-sea fishery compared to 138,000 coho in the ocean salmon fisheries (PFMC 1999b); the highest annual catch of chum was 215 fish caught in the 1994 season, with an average of 105 fish per year from 1991-98; and the highest annual catch of sockeye was 116 fish caught in the 1993 season, with an average of 15 fish per year from 1991-98. There is no reported bycatch of either steelhead or cutthroat trout in whiting fisheries for the eight year period summarized in Table 14.

Most salmon caught in the whiting fishery are chinook salmon. The estimated coastwide bycatch of chinook in the whiting fishery has averaged 6,182 annually since 1991 (Table 14). Limits on chinook bycatch in the whiting fishery were set as result of previous consultation. The bycatch rate is limited to 0.05 chinook/mt of whiting with an associated total catch of 11,000 chinook. Reinititiation of the biological opinion is required if both the bycatch rate and bycatch limit are exceeded (NMFS 1996a). This compares to a catch of chinook in the ocean salmon fisheries off the Oregon and Washington coast that has averaged 167,000 annually during the same 1991 to 1998 time frame (PFMC 1999b). (The salmon fishery catch off the Washington and Oregon coast is used for comparison because that is where most of the whiting fishery occurs.) Time and area restrictions that were designed to avoid areas where bycatch rates were generally higher have been implemented as a result of previous consultations (NMFS 1996a). The start of the whiting fishery in areas north of 42°00' latitude is now delayed until May 15. Fishing inside of 100 fathoms in the Eureka area is prohibited.

As a result of a combination of factors, the distribution of the chinook bycatch in the whiting fishery is primarily to the north in the Columbia and Vancouver INPFC catch areas. There is now very little catch in the Eureka area off southern Oregon and northern California or further south. This represents a substantial change in the distribution of salmon bycatch from what it

was prior to 1992 when, for some years, as much as half of the bycatch came from the Eureka area (NMFS 1992). Table 13 summarizes the distribution of chinook bycatch from the at-sea fishery for more recent years. These numbers differ slightly from those provided in Table 14 because the more detailed distributional data shown in Table 13 was taken from older summaries. Nevertheless, this summary is adequate to make the general points that there is now little bycatch to the south and that there has been a shift in the distribution of the bycatch to the more northerly Vancouver catch area in recent years. This is partly due to declining bycatch in the at-sea fishery in the Columbia area and partly due to higher bycatch associated with the tribal fishery. The underlying reasons for this shift in bycatch from south to north is not clear. It is likely due in part to the annual dynamics of the fishery that responds to the distribution of the target species. The fishery is actively managed to avoid salmon bycatch and those efforts have become increasingly sophisticated in recent years. The reasons for the generally higher bycatch and bycatch rate in the tribal fishery are also not well understood, but are likely related in part to the fact that the tribal fishery is limited geographically which limits their ability to move to areas with lower bycatch. It is not clear at this time whether salmon abundance is generally higher in the tribal fishing area or if other factors are involved.

Table 13. Pacific Whiting Fishery - At-Sea Chinook Bycatch By Area.

	Vancouver - 670 Non-Tribal(Tribal)*	Columbia - 710 Non-Tribal	Eureka - 720 Non-Tribal
1994	757	2,870	0
1995	705	10,763	111
1996	871 (1,468)	575	0
1997	377 (2,524)	625	396
1998	584 (2,085)	893	0
1999	3,651 (4,491)	740	0

* Tribal whiting fishery started in 1996.

Table 14. Salmon Bycatch in the Pacific Whiting Fisheries - Summary 1991-99.

At -Sea Fishery (Catcher -processors and vessels delivery to motherships combined)

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)	Total Salmon (no)	Total Salmon (rate)	Chinook CWT Recoveries
1991*	201,755	6,153	0.031	138	0.0007	24	0.0001	8	0	0	6,323	0.031	27
1992*	152,076	4,262	0.028	193	0.0013	0	0	48	0	0	4,503	0.030	13
1993*	93,590	4,968	0.053	17	0.0002	3,397	0.0363	58	116	0	8,556	0.091	14
1994*	176,401	4,024	0.023	65	0.0004	32	0.0002	214	0	0	4,335	0.025	56
1995*	101,858	12,108	0.119	1,379	0.0135	1,575	0.0155	181	6	0	15,249	0.150	104
1996*	128,059	1,676	0.013	64	0.0005	0	0	178	0	0	1,918	0.015	38
1997*	145,459	4,414	0.030	348	0.0024	497	0.0034	114	0	0	5,373	0.037	NA
1998**	144,960	3,563	0.025	114	0.0008	4	.00003	30	0	0	3,681	0.025	NA
1999**	141,105	8,882	0.063	117	0.0008	496	.0035	465	0	0	9964	0.071	NA

Source: NMFS Observer Database (* = Updated as of 5/18/98; ** = Updated as of 11/29/99).

Shoreside Fishery (Vessels delivering to on-shore processing)

1991	20,359	41	0.002								41	0.002	0
1992	49,092	491	0.010								491	0.010	10
1993	41,926	419	0.010								419	0.010	11
1994	72,367	581	0.008	4		0		0	0		585	0.008	11
1995	73,397	2,954	0.040	2		15		1	0		2,972	0.040	146
1996	84,680	651	0.008	0		0		0	0		651	0.008	23
1997	87,499	1,482	0.017	2		0		0	0		1,484	0.017	NA
1998	87,627	1,699	0.019	8		0		5	1	0	1,713	0.020	NA
1999*	83,350										1,630	0.020	NA

Sources: ODFW 1997, Weeks and Hutton 1998. Note :1994-99 shoreside rates based on salmon turned over by processors, 1991-93 salmon numbers based on observed rates (approx. 50% observer coverage). (* = Preliminary).

B. Bottom Trawl Fishery

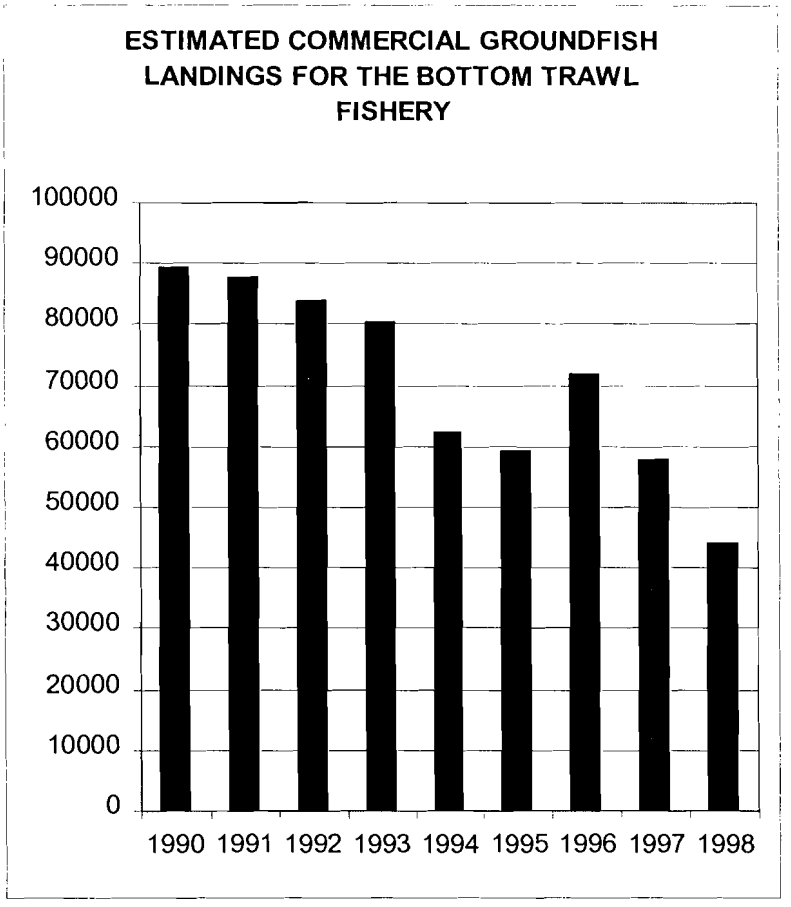
The magnitude and distribution of salmonid bycatch in the bottom trawl fishery was last reviewed in the August 28, 1992 biological opinion. As is the case in the whiting fishery, the salmon bycatch is almost entirely chinook salmon. The NMFS bottom trawl surveys indicated that 96% of the salmon bycatch was chinook (NMFS 1992). Erickson and Pikitch (1994) evaluated incidental catch of chinook salmon in the commercial bottom trawl fishery off the west coast during two time periods, 1985-1987 and 1988-1990. Erickson (Personal communication, 9/17/97) encountered no steelhead or cutthroat trout in these time periods, and a total of 22 coho salmon for the six overlapping years of study.

In the 1992 opinion the estimates of bycatch were developed by expanding bycatch rates using logbook estimates of total trawl hours. Estimates of bottom trawl effort in depths less than 300 fathoms by quarter (Erickson and Pikitch 1994), were then multiplied by estimates of chinook bycatch rates for each quarter and the PFMC area. The resulting catch of chinook in the bottom trawl fishery coastwide was estimated to be between 6,000 and 9,000 fish per year. The available information also suggested that the bycatch of chinook for northern areas is on the order of 5,000 to 8,000 off Washington and northern Oregon, with another 1,000 chinook taken off southern Oregon and California. For 1998 the bycatch rate using logbook estimates of total trawl hours off Oregon and Washington was 6,398. This is within the range that was estimated in the 1992 opinion, and indicates that the bycatch of chinook has not increased.

There has been a significant decrease in the bycatch and effort data in recent years suggesting that the associated bycatch may also be on the decline. Since 1990 the catch in the bottom trawl fishery has decreased by about half (Figure 2). There has been a coincident decline in effort. The reported trawl hours, by state and quarter for tows less than 300 fathoms, indicates that the trend in effort off Washington and Oregon has decreased approximately 63% from 1991 to 1998. Off California from 1991 to 1997 the trend appears to be more constant, with an increase in tow hours only in 1997.

The declining trend is likely to continue in the future. Lingcod , Bocaccio, Canary, Pacific Ocean Perch, and Cowcod were all recently designated as overfished species. In 2000 the Pacific Coast groundfish fisheries will be substantially restricted relative to recent years to protect these species. Of these overfished species, all but Pacific Ocean Perch, occur nearshore, hence the management measures that reduce the harvest of these stocks and associated species will likely result in reduced chinook interceptions.

Figure 2. Estimated commercial groundfish landings (mts) for the bottom trawl fisheries (Extracted from PacFIN July 29th, 1999).



C. Species Specific Affects of the Bycatch

Review of the recent salmon bycatch information suggests that estimates of the magnitude and distribution of bycatch have not changed substantially from those included in previous biological opinions. It is apparent that virtually all of the salmon bycatch is chinook and that other species are little affected by the groundfish fisheries. The chinook bycatch in the whiting fishery continues to be subject to an 11,000 fish constraint. The chinook bycatch in the whiting fishery exceeded the 11,000 fish standard only once in 1995, but has otherwise averaged only 6186 from 1991-98. In recent years the bycatch has been distributed somewhat more to the north.

There is relatively little new information regarding salmon bycatch in the bottom trawl fishery. NMFS therefore continues to rely largely on estimates from the 1992 opinion that suggested a range of 6,000-9,000 salmon per year. This was presumed to include about 1,000 salmon annually in bottom trawl fisheries in California and southern Oregon. Estimates of bycatch in the bottom trawl fishery in Oregon and Washington for 1998 are consistent with expectations. Both catch and effort in the bottom trawl fishery have declined over the last decade and NMFS

expects that trend will continue as the recent more restrictive management actions are implemented.

Previously Listed ESUs

NMFS concluded in its earlier biological opinions associated with this fishery (NMFS 1992, 1993, 1996) that the impacts to listed SR sockeye, SR spring/summer chinook, and SRW chinook resulting from implementation of the groundfish FMP were negligible and that the fishery was not likely to jeopardize their continued existence.

NMFS has provided a range of estimates for the expected annual mortality of SRF chinook in the past depending on the available information. In the 1992 opinion, NMFS concluded that the impact on naturally spawning SRF chinook is probably on the order of a few tens of fish, and that it may be less, but is unlikely to be as many as 100. NMFS reviewed its prior estimates and jeopardy conclusion with respect to SRF chinook in 1993 and 1996 and confirmed that the proposed fisheries were not likely to jeopardize the continued existence of the ESU.

For this biological opinion, NMFS again reviewed the available information on CWT recoveries in the groundfish fisheries, information on the catch and distribution of the chinook bycatch, and the associated impact to the ESU. CWT data from fingerling, non-transported releases from the Lyons Ferry Hatchery have been used to represent the SRF chinook ESU. From the analysis of salmon fishery recoveries it is apparent that SRF chinook are widely distributed and susceptible to marine fisheries from California to Alaska (NMFS 1992). However, recoveries from south of central Oregon are relatively rare. The center of distribution of SRF chinook is off the west coast of Vancouver Island. The relative abundance of SRF chinook off the Washington and northern Oregon coasts may be lower, but SRF chinook are still subject to measurable impacts in these areas. There were five observed recoveries of the Lyons Ferry indicator stock reported in the recovery data all from the Washington and northern Oregon coast. The catch rate of the listed SRF chinook in the 1999 ocean salmon fishery in the area off the Washington coast was about 3 listed fish per 1,000. The bycatch of chinook off the Washington and Oregon coasts in the combined groundfish fisheries has ranged from about 10,000-20,000 chinook per year. This suggests that the bycatch of listed SRF chinook is in order of 30-60 per year assuming that the catch rate of SRF chinook is the same in all he groundfish fisheries as it is in the salmon fisheries off the Washington coast. In fact, the concentration of SRF chinook decreases to the south. This estimate is therefore likely biased high. This estimate is consistent with prior expectations, although NMFS again cautions against comparing these directly to other estimates of catch or abundance derived using different methods.

Puget Sound Chinook

PS chinook is a complex ESU with many components each of which has a somewhat different timing and distribution. However, the salmon management models indicate that PS chinook as a group are subject to relative little harvest off the Washington coast and virtually none further south, with most of the catch occurring in Canadian and Puget Sound fisheries (NMFS 1999a).

The available information suggest that the exploitation rate on PS spring chinook as a group in PFMC salmon fisheries was zero for the 1991-1993 brood years, and only 1% in earlier years when salmon fisheries were generally higher (Table 11). The exploitation rate on PS fall stocks averaged 1% for the 1991-1993 brood years, again confirming the relative low abundance of PS stocks off the Washington coast. The average catch off the Washington coast, north of Leadbetter Point, from 1993-1998, that would have contributed to the 1991-1993 brood year harvests, was 22,950 chinook per year (PFMC 1999b). Exploitation rates in earlier years averaged about 3% (Table 12). Catches during the 1980s off the Washington coast, north of Leadbetter Point, averaged 97,800 chinook per year (PFMC 1999c). This compares to estimates of chinook bycatch in the groundfish fishery that are 10,000-20,000 fish per year coastwide. Although some PS chinook are probably caught in the groundfish fishery, the impacts to PS spring chinook, which are the most depressed component of the ESU, are close to zero. This qualitative analysis suggests that the exploitation rate to PS fall stocks is likely only a fraction of 1% per year.

There were 52 CWT recoveries from in the groundfish fishery database from the PS ESU. The distribution of those CWT recoveries in the whiting fishery were off Washington and northern Oregon. The catch rate of these CWT chinook were distributed evenly in the 1980 to 1997 time period, with an average of a 3 to 4 CWT observed recoveries per year. The relative paucity of recoveries confirms the above conclusion that PS chinook are caught only rarely in the groundfish fishery.

Lower Columbia River Chinook

The LCR chinook ESU is composed of spring run, and fall run tule and bright stocks. There are three spring stocks, three self-sustaining natural tule stocks, and likewise, three identified bright stocks that rely primarily on natural production. The population structure of the ESU has not been determined, but it is intuitively obvious that the spring, tule, and bright life history types warrant independent review with respect to their status and the effect of the proposed action. The effects analysis therefore considers each of these life history types independently and, where possible, also considers the status of and presumed effect on each stock.

The three remaining spring stocks within the ESU include those on the Cowlitz, Kalama, and Lewis rivers. Although some spring chinook spawn naturally in each of these rivers, the historic habitat for spring chinook is now largely inaccessible. The remaining spring stocks are therefore dependent, for the time being, on the associated hatchery production programs. The hatcheries have met their escapement objectives in recent years thus insuring that what remains of the genetic legacy is preserved. Harvest constraints for other stocks, including those provided specifically as a result of the recent PST agreement, will provide additional protection for the hatchery programs until such time that a more comprehensive recovery plan is implemented.

Information from salmon fishery management models provides some perspective about the distribution and likely impact to LCR spring chinook from the groundfish fisheries. The salmon fishery model base period (1979-82) ER for the Cowlitz River spring chinook is 12% for the PFMC fisheries. The 1999 model estimates are for a PFMC ER of 7.2% and a total ocean

fishery ER of 10.6%. This suggests that LCR spring stocks have a more southerly distribution than the upriver spring stocks which is consistent with the ocean-type juvenile life history that is characteristic of all LCR chinook. The 7.2% ER estimate in 1999 was associated with expected chinook mortalities in the salmon fisheries of 80,000 off the Washington coast and an additional 156,000 off the Oregon coast in the area north of Humbug Mountain which is close to the southern boundary of the Columbia INPFC catch area. This again compares to an anticipated chinook bycatch in the groundfish fisheries of 10,000-20,000 fish coast-wide.

The LCR is dominated by hatchery-origin tule stocks. The three natural-origin tule stocks in the ESU include those on the Coweeman, East Fork Lewis, and Clackamas rivers. These are apparently self-sustaining natural populations without substantial influence from hatchery-origin fish. These stocks are all relatively small. The interim escapement goals on the Coweeman and East Fork Lewis are 1,000 and 300, respectively. Escapements have been below these goals 8 of the past 10 years for the Coweeman, and 5 of the past 10 years for the East Fork Lewis. The 10 year average escapement for the Coweeman is 700 , compared to a recent 5 year average of 995 (range 146-2,100). In the East Fork Lewis, the 10 year average escapement is 300, compared to a recent 5 year average of 279. There is currently no escapement goal for the Clackamas where escapements have averaged about 350 per year.

Until recently tule hatchery production has been prioritized to support ocean and Lower Columbia River fisheries thus providing the potential for very high ERs. The tule stocks are north migrating, but are most vulnerable to catch in fisheries off the Washington coast and the west coast of Vancouver Island and in the lower river.

The total adult equivalent ERs in the PFMC salmon for the tule hatchery stocks averaged 9% for the 1991-1993 brood years and 19.5% for the decade of the 80s (Table 9). These exploitation rates were associated with average catches of 22,950 for the associated recent catch years, 1993-98, and 97,500 for the earlier time series. Because of their more southerly distribution, fisheries off the Oregon coast impact these stocks as well. The catches of chinook off the Oregon coast during these same time periods were 139,900 and 291,250, respectively. These catches and associated ERs again provide some perspective about the anticipated impacts associated with the groundfish fisheries with expected catches coasted-wide of 10,000-20,000 chinook per year.

There are also three remaining natural-origin bright stocks in the LCR ESU. There is a relatively large and healthy stock on the North Fork Lewis River. The escapement goal for this system is 5,700. That goal has been met, and often exceeded by a substantial margin every year since 1980 with the exception of 1999. In 1999 the return is expected to be substantially below goal because of severe flooding during the 1995 and 1996 brood years. Nonetheless, the stock is considered healthy. The Sandy and East Fork Lewis stocks are smaller. Escapements to the Sandy have been stable and on the order of 1,000 fish per year for the last 10-12 years. Less is known about the East Fork stock, but it too appears to be stable in abundance.

The LCR bright stocks are far-north migrating stocks and so are less in PFMC fisheries then other stocks from the ESU. The total adult equivalent brood year ER in the PFMC salmon fisheries averaged 1% in recent years and about 5% in the past (Table 10) when catches were

generally higher. Information from the PFMC salmon fishery models for 1999 suggest that the catch rate of chinook from the North Fork Lewis in fisheries off the Washington coast was approximately 2 fish per 1,000, again suggesting that the impact associated with the PFMC groundfish fisheries are quite limited.

Upper Willamette River Chinook

Because of their far-north migrating distribution and spring timing, UWR chinook are subject to relatively little harvest in PFMC fishery catch areas. Upper Willamette Spring chinook reside primarily to the north. They are an early returning spring stock so that adult migrants have largely exited the ocean by March or early April. The whiting fishery in particular does not start in areas north of 42° north latitude until May 15.

The average total brood year ER on UWR chinook in PFMC salmon fisheries is estimated to be about 1% in both the past and near-term time series (Table 8). The traditional start of the salmon fishing season is May 1 so that the salmon fisheries also miss most of the adult migrants.

Despite their distribution and timing, it is apparent from the CWT data that UWR chinook are taken occasionally in the whiting fishery. There were 68 observed recoveries of hatchery origin chinook spring from the Willamette during the 1980-1997 time period with some taken as far south as central Oregon.

The current limitation on opening the whiting fishery after May 15 did not take affect until 1996. About one third of the observed recoveries in past years occurred prior to May 1. The fishery delay my therefore help reduce the likelihood that UWR chinook will be taken in the whiting fishery in the future.

The available information suggests that UWR chinook are taken occasionally in the PFMC groundfish fisheries. The estimated ER in the salmon fisheries is 1%, but these are associated with catches that are substantially larger than the 10,000-20,000 chinook caught coast-wide in the groundfish fisheries. The catch of salmon of the Washington coast alone averaged 22,950 during the 1993-1998 period and 97,500 during the decade of the 1980s.

Upper Columbia River Spring Chinook

Upper Columbia River Spring chinook have a stream-type life history, and their ocean distribution generally to the north and offshore. Upper Columbia River Spring chinook are similar to Snake River spring/summer chinook in that they are subject to very little ocean harvest which is confirmed again here in relation to the groundfish fisheries. The available in suggests that the overall ocean exploitation rate on UCRS is quite low in the salmon fisheries, and is treated a zero in life cycling modeling efforts designed to assess extinction risk and options to promote recovery (NMFS 1999f). Hence it is reasonable to expect even lower impacts in the groundfish fisheries. There were no recoveries of UCRS chinook in the groundfish fisheries. This is consistent with what is known about their life history and distribution. Upper Columbia River chinook are similar to SR spring/summer chinook which are little affected by ocean

salmon fisheries either to the north or in PFMC catch areas and therefore presumably are also not affected by the PFMC groundfish fisheries.

California Chinook ESUs

Two additional ESUs located in California were recently listed including CVS chinook and CC chinook. Both are distributed primarily off of California. Of nearly 13,000 CWT recoveries (estimates expanded for sample size) in the salmon fisheries from the Feather River Hatchery indicator stock, 88% were taken off of California and 10% off of Oregon. Of nearly 400 estimated recoveries for the Mad River Hatchery indicator stock, 63% were found off of California with an additional 29% off of the Oregon coast. The remainder were found off of Washington with few recoveries in Canada. Although the observed recoveries from the groundfish fisheries are not directly comparable because they are not expanded for sample size, the counts were low. There were only five observed recoveries representing the CVS chinook and 11 representing CC chinook in the groundfish recovery data base.

Indicator stocks for these newly listed ESUs are not currently include in salmon management models so there are no associated estimates of the ER in salmon fisheries. However, the distribution of the chinook bycatch in the groundfish fisheries is primarily to the north away from the primary areas of distribution for these fish. The bycatch of chinook in the whiting fishery in the Eureka area from southern Oregon south has largely been eliminated in recent years (Table 13). Of the 6,000-9,000 chinook that were expected to be caught annually in the bottom trawl fishery coast-wide, only 1,000 were expected to be taken off of California. This information suggests that CVS chinook and CC chinook are taken rarely in the groundfish fisheries.

V. Cumulative Effects

Cumulative effects are defined as the "effects of future state or private activities, not involving federal activities, which are reasonably certain to occur within the action area of the federal action subject to consultation" (50 CFR 402.02). For the purposes of this analysis, the action area includes ocean fishing areas off the coast of Washington, Oregon, and California. The production of chinook and coho salmon, steelhead, and cutthroat trout by state hatchery programs will likely continue and has the potential to add cumulative impacts to listed populations in the ocean, through competition and predation. Hatchery salmon production also provides targeted harvest opportunity in the ocean through increasing chinook and coho salmon abundance above that which would occur naturally, although harvest mortality associated with these fisheries is specifically considered salmon harvest opinions. At this time, the extent of cumulative impacts from hatchery salmon production is not known. Further evaluation is warranted but this can best be done as part of an overall assessment of species specific hatchery programs.

Because the action area is limited to offshore marine areas, no additional cumulative effects to the listed species are anticipated.

VI. Integration and Synthesis of Effects

NMFS reinitiated consultation regarding the PFMC groundfish FMP to consider the impacts to recently listed species that were not subject to previous review. NMFS has reviewed the current status of each of the newly listed salmonid species shown in Table 1, the environmental baseline for the action area, the effects of the proposed action both to the newly listed and previously listed species, and the cumulative effects. Based upon this review, NMFS concludes that continued implementation of the PFMC groundfish FMP as amended will not jeopardize the continued existence of any of the salmonid ESUs listed or proposed for listing as threatened or endangered under section 7 of the ESA. For the currently listed salmonid species, critical habitat is either not yet designated, or if designated does not include marine areas affected by the groundfish fisheries. The proposed action is therefore also not likely to destroy or adversely modify designated critical habitat for any of the listed salmonid ESUs.

The analysis of the available information indicates that coastal cutthroat trout, steelhead, and sockeye are rarely, if ever, encountered in the groundfish fishery. Coho and chum are caught in relatively low numbers with an annual catch in the combined whiting and mid-water trawl fisheries of tens to a few hundred of fish coast-wide. The majority of these will be unlisted natural-origin or hatchery fish. Given the low bycatch, NMFS concludes it is unlikely that the proposed action will jeopardize the continued existence of any of the currently listed or proposed listed cutthroat trout, steelhead, sockeye, coho, or chum ESUs listed in Table 1.

The bycatch of chinook salmon in the PFMC groundfish fishery is more substantial and does result in the taking of chinook for at least some of the listed ESUs. However, the bycatch of chinook continues to be constrained and within the limits set by previous consultations. Chinook bycatch in the whiting fishery is closely monitored with on-board observer coverage for the mothership and at-sea processors and is limited subject to further consultation to a maximum of 11,000 chinook per year coast-wide. The 11,000 chinook limit has been exceeded in only one year since 1992 (approximately 15,000 in 1995), and, absent 1995, has averaged 6186 from 1991-98 (Table 14).

Substantive management actions have been taken to reduce bycatch in the whiting fishery, particularly in the south. Beginning in 1996 the start of the whiting fishery in the area north of 42° north latitude was delayed until May 15 because of information suggesting that bycatch was higher earlier in the year. The whiting fishery is also closed in the Eureka are inside the 100 fathom line. Most of the vessels participating in the shoreside and at-sea fisheries continue to actively monitor salmon bycatch and use a system of real-time information exchange that allows them to redirect their effort to minimize bycatch when necessary.

There has been one unanticipated change in the pattern of bycatch since the last consultation on the groundfish fishery in 1996. A tribal fishery directed at whiting began in 1996 using a mothership and several catch boats. The tribal fishery is constrained geographically to a relatively small area off the coast south of Neah Bay in the Vancouver INPFC area. Bycatch rates of chinook in the tribal fishery have been consistently higher than other mothership or at-sea operations. Bycatch rates in the tribal fishery have averaged 0.115 chinook/mt whiting

compared to 0.019 chinook/mt whiting in the other at-sea components of the fishery for the same period. It may be that the higher bycatch rate is the result of the geographic limitation of the fishery. However, further assessment of the monitoring and response program in the tribal fishery is in order to ensure that chinook bycatch is minimized to the degree possible in the future.

Although the tribal fishery has resulted in more chinook bycatch to the north, it does not substantively change NMFS' assessment of impacts to listed fish or prior conclusions with respect to jeopardy. There is no information to suggest that the concentration of listed chinook in the tribal catch area is higher than off the Washington coast in general. The total bycatch of chinook may be higher then it would have been absent the tribal fishery. However, the tribes' allocation of whiting in recent years has been 14% or less of the total allowable catch which limits the potential bycatch increase. Even with the higher bycatch rates associated with the tribal fishery, the whiting fishery as a whole is still constrained by the 11,000 chinook bycatch limit. Prior assessments with respect to jeopardy were done assuming an annual bycatch of up to 11,000 chinook.

Chinook are also caught incidental to the bottom trawl fishery. Estimates made using available information at the time of the 1992 opinion suggested an annual bycatch of 6,000-9,000 chinook per year most of which occur off Oregon and Washington. There is little new direct information about salmon bycatch in the bottom trawl fishery because of the absence of a bycatch monitoring program. However, both effort and landings in the bottom trawl fishery have declined by about half over the last decade suggesting that the bycatch of salmon is likely declining as well.

After considering the available information on the magnitude and distribution of the chinook bycatch in the whiting and bottom trawl fisheries, NMFS reviewed the information related to anticipated impacts to each of the newly listed chinook ESUs. NMFS reviewed information on CWT recoveries from the groundfish fisheries. Although, the CWT data was used largely to indicate distribution and presence or absence in the fishery. NMFS also used information from salmon fishery management models to approximate the likely range of impacts given the relative magnitude of catch in the respective salmon and groundfish fisheries.

There were no recoveries of UCR chinook in the groundfish fisheries. This is consistent with what is known about their life history and distribution. Upper Columbia River chinook are similar to SR spring/summer chinook which are little affected by ocean salmon fisheries either to the north or in PFMC catch areas and therefore presumably are also not affected by the PFMC groundfish fisheries.

NMFS considered the likely impacts to the spring and summer/fall components of the PS chinook ESU. NMFS concluded that spring stocks were likely caught only rarely in the groundfish fisheries. Summer/fall stocks are likely caught off the Washington coast, but the available information suggests that the ERs are likely a fraction of 1% per year.

The spring and tule components of the LCR chinook ESU are also likely taken in groundfish fisheries off the Oregon and Washington coast. Again, the relative magnitude of catch in salmon

and groundfish fisheries in those areas suggests that the exploitation rates on these stocks are quite low, likely less than 1% per year. The bright component of the LCR ESU has a more northerly distribution and is therefore subject to relatively little harvest in the PFMC groundfish fisheries, again likely some small fraction of 1% per year. Estimates for UWR chinook are about the same as those for LCR brights; some small fraction of 1% per year.

Finally, NMFS reviewed the likely impacts to CVS chinook and CC chinook. The California ESUs are distributed primarily off of California where there is relatively little bycatch of chinook. Management actions have been taken that largely preclude the whiting fishery from areas off of California and southern Oregon. Estimates indicate that the catch of chinook in the bottom trawl fishery in the south are on the order of 1,000 fish per year. As a result, this information suggest that CVS chinook and CC chinook are rarely taken in the groundfish fisheries.

NMFS recently reviewed the effect of the recent PST between the U.S. and Canada on the listed salmonid ESUs and also focused on the chinook ESUs that were the primarily subject of this opinion. NMFS considered PFMC groundfish fisheries as part of the Environmental Baseline section in the PST opinion while noting that consultation on the groundfish fisheries was, at the time, underway. This opinion now provides more of the specifics in terms of qualitative estimates of impacts for each ESU and confirms that these impacts are quite low.

Conclusion

After reviewing the current status of listed salmon, the environmental baseline for the action area, the effects of the continued implementation of the Pacific Fishery Management Council's groundfish Fishery Management Plan and the cumulative effects, it is NMFS' biological opinion that the PFMC groundfish FMP, as proposed, is not likely to jeopardize the continued existence of the listed Pacific salmon. No critical habitat has been designated for this species, therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by both FWS and NMFS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by both FWS and NMFS as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limit to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA

provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary, and must be undertaken by the agencies so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. The agencies have a continuing duty to regulate the activity covered by this incidental take statement. If the agencies (1) fail to assume and implement the terms and conditions or (2) fail to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the agencies or applicant must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement. [50 CFR §402.14(i)(3)]

I. Amount or Extent of Incidental Take

Whiting Fishery

Estimates of the bycatch of listed salmon in the whiting fishery are based on the distribution of the fishery and the observed bycatch of salmon in recent years. The estimated bycatch of listed salmon in the whiting fishery in the future assumes that the distribution of catch will not change substantially, that the bycatch will not exceed 0.05 chinook salmon/mt whiting, and that the total bycatch of chinook will not exceed 11,000 fish per year.

Because of the substantial differences in the timing, location, and capacity of the shoreside, at-sea, and Tribal components of this fishery, compliance with the 0.05 chinook salmon/mt whiting bycatch rate will be evaluated separately. Consultation shall be reinitiated if either the shoreside, catcher/processor, mothership, or Tribal components of the fishery exceed or are expected to exceed the bycatch rate of 0.05 chinook salmon/mt whiting and the expected total bycatch of chinook in the fishery is expected to exceed 11,000 fish.

Bottom Trawl Fishery

It was estimated that 6,000 to 9,000 salmon are taken in the bottom trawl fishery annually, and that 5,000 to 8,000 of these are likely to be taken in the Vancouver and Columbia catch areas. However, because there is no bycatch monitoring program, it is not possible to access directly an incidental take limit that would normally be expressed as some measure of salmon bycatch or bycatch rate. This estimate of bycatch in the bottom trawl fishery is based on an analysis of available information from 1985-1990. Because bycatch is not being monitored directly, expectations of bycatch in the future are based on the assumption that the general character of the fishery will not change substantially, particularly in times and places where bycatch rates are assumed to be higher. If the fishery in the future changes substantially in magnitude or character compared to 1985-1990, and particularly, if there is increased catch in nearshore areas or during the winter months or in the Eureka or Monterey areas, consultation shall be reinitiated.

Miscellaneous Gear

Review of available information regarding salmon bycatch for other groundfish gear types, including shrimp trawls, pots, hook-and-line gear, and setnets used in PFMC area fisheries indicates that salmon interactions are unlikely to be more than rare events and that the impacts on listed species will be negligible. As a result, NMFS concludes that the taking of any of the listed salmonid species by these gear types is neither anticipated or authorized.

II. Effect of the Take

In the accompanying biological opinion, NMFS determined that the level of anticipated take in the proposed groundfish fisheries is not likely jeopardize the continued existence of any of the currently listed or proposed salmonid ESUs shown in Table 1, or result in the destruction or adverse modification of their critical habitat.

III. Reasonable and Prudent Measures

NMFS included reasonable and prudent measures in the incidental take statement of the August 28, 1992, and May 14,1996, biological opinions, which remain in effect:

Whiting Fishery

The impacts included in the incidental take statement for the whiting fishery are based, in part, on the assumed bycatch rate of 0.05 chinook salmon/mt whiting. In order to evaluate whether that assumption is valid for future fisheries, continued monitoring at a level sufficient to define the bycatch rate of the motherships and at-sea processors, Tribal, and shorebased components is required to estimate bycatch rates and detect any changing patterns of bycatch.

In addition to collecting bycatch information in the whiting fishery, it is necessary to evaluate, at least monthly, the projected annual total bycatch rate of the fishery. If at anytime during the fishery, it is anticipated that the seasonal coastwide bycatch will exceed 11,000 chinook salmon, NMFS and the PFMC must take action to reduce the bycatch to ensure that the annual authorized take limit can be met. If and when it becomes apparent, based on analysis by either NMFS or PFMC that management measures cannot adequately reduce the bycatch rate to the prescribed level, consultation must be reinitiated.

As specified in the August 1996 biological opinion, the restriction on targeted harvest of whiting inside of 100 fathoms in the Eureka area continues as a condition of the incidental take statement. In addition, the delay of the start of the season until May 15 in areas north of 42° 00' N. latitude will continue.

Bottom Trawl Fishery

The bottom trawl fishery is not being monitored at this time. The incidental take statement permits an annual bycatch of 9,000 salmon, but assumes that the magnitude and character of the

fishery will not increase substantially, particularly in those times and areas where bycatch rates are assumed to be higher. In order to evaluate this condition, the PFMC must provide an annual summary that characterizes the bottom trawl fishery and can thus be used to evaluate potential changing trends in fishing patterns.

IV. Terms and Conditions

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action or RPA. In order to be exempt from the prohibitions of sections 9 and 4(d) of the ESA, NMFS must continue to comply with all of the terms and conditions listed in the August 28, 1992, biological opinion, as amended by the September 27, 1993 and May 14,1996, biological opinions. In addition, NMFS must comply with the following terms and conditions to implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. NMFS shall confer with the affected states, Tribes, and PFMC chair to ensure that in-season management actions taken during the course of the fisheries are consistent with the harvest objectives established preseason.

2. NMFS, in cooperation with the affected states, Tribes, and PFMC chair, shall monitor the catch and implementation of other management measures at levels that are sufficient to ensure compliance with specified management limitations.

3. NMFS, in cooperation with the affected states, Tribes, and PFMC chair, shall sample the fisheries for stock composition, including the collection of CWTs in all fisheries and other biological information to allow for a thorough post-season analysis of fishery impacts on listed species.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of threatened and endangered species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. NMFS believes the following conservation recommendations, in addition to those included in the August 28, 1992, biological opinion, are consistent with these obligations, and therefore should be implemented by NMFS.

1. Since the tribal whiting fishery was initiated in 1996, the associated bycatch rates of salmon have exceeded the 0.05 chinook salmon/mt whiting monitoring standard and have been substantially higher than other components of the fleet. The chinook bycatch rate in the tribal fishery has averaged 0.115 chinook salmon/mt whiting since 1996 compared to estimates for the mothership (excluding tribal), catcher/processor, and shoreside fleets of 0.022, 0.016, and 0.016, respectively. It is not clear at this time whether the bycatch rate could be reduced by

better monitoring or more active inseason management or if the observed rate is the result of geographic limitations associated with the tribal fishery or some other factor. To address this situation, NMFS, in cooperation with the effected tribe or tribes, should review the available information prior to the start of the 2000 fishery and develop an inseason monitoring program and action plan that is designed to minimize the bycatch of salmon to the maximum extent practical.

REINITIATION OF CONSULTATION

This concludes formal consultation on the Pacific Coast Groundfish FMP as amended by Amendment 11. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take specified in the Incidental Take Statement is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) the identified action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in the biological opinion; (4) a new species is listed or critical habitat designated that may be affected by the identified action. In instances where the amount or extent of incidental take is exceeded, the action agency must immediately reinitiate formal consultation.

In the Reasonable and Prudent Measures of the Incidental Take Statement, NMFS made it clear that if and when it becomes apparent, based on analyses by either NMFS or PFMC, that management measures cannot adequately reduce the bycatch rate to prescribed levels, the amount or extent of incidental take will have been exceeded and section 7 consultation must be reinitiated.

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amount equal to five percent of the combined amounts covered each fiscal year into the Federal aid to wildlife restoration fund under section 3 of the Act of September 2, 1937, and paid, transferred, or otherwise credited each fiscal year to the Sport Fishing Restoration Account established under 1016 of the Act of July 18, 1984.

(2) Amounts deposited into the special fund are authorized to be appropriated annually and allocated in accordance with subsection (d) of this section.

INTERAGENCY COOPERATION

SEC. 7. [16 U.S.C. 1536] (a) FEDERAL AGENCY ACTIONS AND CONSULTATIONS.—(1) The Secretary shall review other programs administered by him and utilize such programs in furtherance of the purposes of this Act. All other Federal agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to section 4 of this Act.

(2) Each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency (hereinafter in this section referred to as an "agency action") is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with affected States, to be critical, unless such agency has been granted an exemption for such action by the Committee pursuant to subsection (h) of this section. In fulfilling the requirements of this paragraph each agency shall use the best scientific and commercial data available.

(3) Subject to such guidelines as the Secretary may establish, a Federal agency shall consult with the Secretary on any prospective agency action at the request of, and in cooperation with, the prospective permit or license applicant if the applicant has reason to believe that an endangered species or a threatened species may be present in the area affected by his project and that implementation of such action will likely affect such species.

(4) Each Federal agency shall confer with the Secretary on any agency action which is likely to jeopardize the continued existence of any species proposed to be listed under section 4 or result in the destruction or adverse modification of critical habitat proposed to be designated for such species. This paragraph does not require a limitation on the commitment of resources as described in subsection (d).

(b) OPINION OF SECRETARY.—(1)(A) Consultation under subsection (a)(2) with respect to any agency action shall be concluded within the 90-day period beginning on the date on which initiated or, subject to subparagraph (B), within such other period of time as is mutually agreeable to the Secretary and the Federal agency.

(B) In the case of an agency action involving a permit or license applicant, the Secretary and the Federal agency may not mutually agree to conclude consultation within a period exceeding 90 days unless the Secretary, before the close of the 90th day referred to in subparagraph (A)—

(i) if the consultation period proposed to be agreed to will end before the 150th day after the date on which consultation was initiated, submits to the applicant a written statement setting forth—

(I) the reasons why a longer period is required;

(II) the information that is required to complete the consultation; and

(III) the estimated date on which consultation will be completed; or

(ii) if the consultation period proposed to be agreed to will end 150 or more days after the date on which consultation was initiated, obtains the consent of the applicant to such period.

The Secretary and the Federal agency may mutually agree to extend a consultation period established under the preceding sentence if the Secretary, before the close of such period, obtains the consent of the applicant to the extension.

(2) Consultation under subsection (a)(3) shall be concluded within such period as is agreeable to the Secretary, the Federal agency, and the applicant concerned.

(3)(A) Promptly after conclusion of consultation under paragraph (2) or (3) of subsection (a), the Secretary shall provide to the Federal agency and the applicant, if any, a written statement setting forth the Secretary's opinion, and a summary of the information on which the opinion is based, detailing how the agency action affects the species or its critical habitat. If jeopardy or adverse modification is found, the Secretary shall suggest those reasonable and prudent alternatives which he believes would not violate subsection (a)(2) and can be taken by the Federal agency or applicant in implementing the agency action.

(B) Consultation under subsection (a)(3), and an opinion based by the Secretary incident to such consultation, regarding an agency action shall be treated respectively as a consultation under subsection (a)(2), and as an opinion issued after consultation under such subsection, regarding that action if the Secretary reviews the action before it is commenced by the Federal agency and finds, and notifies such agency, that no significant changes have been made with respect to the action and that no significant change has occurred regarding the information used during the initial consultation.

(4) If after consultation under subsection (a)(2) of this section, the Secretary concludes that—

(A) the agency action will not violate such subsection, or offers reasonable and prudent alternatives which the Secretary believes would not violate such subsection;

(B) the taking of an endangered species or a threatened species incidental to the agency action will not violate such subsection; and

(C) if an endangered species or threatened species of a marine mammal is involved, the taking is authorized pursuant to section 101(a)(5) of the Marine Mammal Protection Act of 1972;

the Secretary shall provide the Federal agency and the applicant concerned, if any, with a written statement that—

(i) specifies the impact of such incidental taking on the species,

(ii) specifies those reasonable and prudent measures that the Secretary considers necessary or appropriate to minimize such impact,

(iii) in the case of marine mammals, specifies those measures that are necessary to comply with section 101(a)(5) of the Marine Mammal Protection Act of 1972 with regard to such taking, and

(iv) sets forth the terms and conditions (including, but not limited to, reporting requirements) that must be complied with by the Federal agency or applicant (if any), or both, to implement the measures specified under clauses (ii) and (iii).

(c) BIOLOGICAL ASSESSMENT.—(1) To facilitate compliance with the requirements of subsection (a)(2) each Federal agency shall, with respect to any agency action of such agency for which no contract for construction has been entered into and for which no construction has begun on the date of enactment of the Endangered Species Act Amendments of 1978, request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action. If the Secretary advises, based on the best scientific and commercial data available, that such species may be present, such agency shall conduct a biological assessment for the purpose of identifying any endangered species or threatened species which is likely to be affected by such action. Such assessment shall be completed within 180 days after the date on which initiated (or within such other period as in mutually agreed to by the Secretary and such agency, except that if a permit or license applicant is involved, the 180-day period may not be extended unless such agency provides the applicant, before the close of such period, with a written statement setting forth the estimated length of the proposed extension and the reasons therefor) and, before any contract for construction is entered into and before construction is begun with respect to such action. Such assessment may be undertaken as part of a Federal agency's compliance with the requirements of section 102 of the National Environmental Policy Act of 1969 (42 U.S.C. 4332).

(2) Any person who may wish to apply for an exemption under subsection (g) of this section for that action may conduct a biological assessment to identify any endangered species or threatened species which is likely to be affected by such action. Any such biological assessment must, however, be conducted in cooperation with the Secretary and under the supervision of the appropriate Federal agency.

(d) LIMITATION ON COMMITMENT OF RESOURCES.—After initiation of consultation required under subsection (a)(2), the Federal agency and the permit or license applicant shall not make any irreversible or irretrievable commitment of resources with respect to the agency action which has the effect of foreclosing the formulation or implementation of any reasonable and prudent alternative measures which would not violate subsection (a)(2).

(e)(1) ESTABLISHMENT OF COMMITTEE.—There is established a committee to be known as the Endangered Species Committee (hereinafter in this section referred to as the "Committee").

(2) The Committee shall review any application submitted to it pursuant to this section and determine in accordance with sub-

section (h) of this section whether or not to grant an exemption from the requirements of subsection (a)(2) of this action for the action set forth in such application.

(3) The Committee shall be composed of seven members as follows:

(A) The Secretary of Agriculture.

(B) The Secretary of the Army.

(C) The Chairman of the Council of Economic Advisors.

(D) The Administrator of the Environmental Protection Agency. Agency. [1]

(E) The Secretary of the Interior.

(F) The Administrator of the National Oceanic and Atmospheric Administration.

(G) The President, after consideration of any recommendations received pursuant to subsection (g)(2)(B) shall appoint one individual from each affected State, as determined by the Secretary, to be a member of the Committee for the consideration of the application for exemption for an agency action with respect to which such recommendations are made, not later than 30 days after an application is submitted pursuant to this section.

(4)(A) Members of the Committee shall receive no additional pay on account of their service on the Committee.

(B) While away from their homes or regular places of business in the performance of services for the Committee, members of the Committee shall be allowed travel expenses, including per diem in lieu of subsistence, in the same manner as persons employed intermittently in the Government service are allowed expenses under section 5703 of title 5 of the United States Code [1]

(5)(A) Five members of the Committee or their representatives shall constitute a quorum for the transaction of any function of the Committee, except that, in no case shall any representative be considered in determining the existence of a quorum for the transaction of any function of the Committee if that function involves a vote by the Committee on any matter before the Committee.

(B) The Secretary of the Interior shall be the Chairman of the Committee.

(C) The Committee shall meet at the call of the Chairman or five of its members.

(D) All meetings and records of the Committee shall be open to the public.

(6) Upon request of the Committee, the head of any Federal agency is authorized to detail, on a nonreimbursable basis, any of the personnel of such agency to the Committee to assist it in carrying out its duties under this section.

(7)(A) The Committee may for the purpose of carrying out its duties under this section hold such hearings, sit and act at such times and places, take such testimony, and receive such evidence, as the Committee deems advisable.

[1] So in law. At the end of section 7(e)(3)(D) of the Endangered Species Act of 1973, the second "Agency." should had been stricken.

[1] So in law. At the end of section 7(e)(4)(B) of the Endangered Species Act of 1973, the period at end of the paragraph was omitted.

(B) When so authorized by the Committee, any member or agent of the Committee may take any action which the Committee is authorized to take by this paragraph.

(C) Subject to the Privacy Act, the Committee may secure directly from any Federal agency information necessary to enable it to carry out its duties under this section. Upon request of the Chairman of the Committee, the head of such Federal agency shall furnish such information to the Committee.

(D) The Committee may use the United States mails in the same manner and upon the same conditions as a Federal agency.

(E) The Administrator of General Services shall provide to the Committee on a reimbursable basis such administrative support services as the Committee may request.

(8) In carrying out its duties under this section, the Committee may promulgate and amend such rules, regulations, and procedures, and issue and amend such orders as it deems necessary.

(9) For the purpose of obtaining information necessary for the consideration of an application for an exemption under this section the Committee may issue subpoenas for the attendance and testimony of witnesses and the production of relevant papers, books, and documents.

(10) In no case shall any representative, including a representative of a member designated pursuant to paragraph (3)(G) of this subsection, be eligible to cast a vote on behalf of any member.

(f) REGULATIONS.—Not later than 90 days after the date of enactment of the Endangered Species Act Amendments of 1978, the Secretary shall promulgate regulations which set forth the form and manner in which applications for exemption shall be submitted to the Secretary and the information to be contained in such applications. Such regulations shall require that information submitted in an application by the head of any Federal agency with respect to any agency action include but not be limited to—

(1) a description of the consultation process carried out pursuant to subsection (a)(2) of this section between the head of the Federal agency and the Secretary; and

(2) a statement describing why such action cannot be altered or modified to conform with the requirements of subsection (a)(2) of this section.

(g) APPLICATION FOR EXEMPTION AND REPORT TO THE COMMITTEE.—(1) A Federal agency, the Governor of the State in which an agency action will occur, if any, or a permit or license applicant may apply to the Secretary for an exemption for an agency action of such agency if, after consultation under subsection (a)(2), the Secretary's opinion under subsection (b) indicates that the agency action would violate subsection (a)(2). An application for an exemption shall be considered initially by the Secretary in the manner provided for in this subsection, and shall be considered by the Committee for a final determination under subsection (h) after a report is made pursuant to paragraph (5). The applicant for an exemption shall be referred to as the "exemption applicant" in this section.

(2)(A) An exemption applicant shall submit a written application to the Secretary, in a form prescribed under subsection (f), not later than 90 days after the completion of the consultation process; except that, in the case of any agency action involving a permit or

license applicant, such application shall be submitted not later than 90 days after the date on which the Federal agency concerned takes final agency action with respect to the issuance of the permit or license. For purposes of the preceding sentence, the term "final agency action" means (i) a disposition by an agency with respect to the issuance of a permit or license that is subject to administrative review, whether or not such disposition is subject to judicial review; or (ii) if administrative review is sought with respect to such disposition, the decision resulting after such review. Such application shall set forth the reasons why the exemption applicant considers that the agency action meets the requirements for an exemption under this subsection.

(B) Upon receipt of an application for exemption for an agency action under paragraph (1), the Secretary shall promptly (i) notify the Governor of each affected State, if any, as determined by the Secretary, and request the Governors so notified to recommend individuals to be appointed to the Endangered Species Committee for consideration of such application; and (ii) publish notice of receipt of the application in the Federal Register, including a summary of the information contained in the application and a description of the agency action with respect to which the application for exemption has been filed.

(3) The Secretary shall within 20 days after the receipt of an application for exemption, or within such other period of time as is mutually agreeable to the exemption applicant and the Secretary—

(A) determine that the Federal agency concerned and the exemption applicant have—

(i) carried out the consultation responsibilities described in subsection (a) in good faith and made a reasonable and responsible effort to develop and fairly consider modifications or reasonable and prudent alternatives to the proposed agency action which would not violate subsection (a)(2);

(ii) conducted any biological assessment required by subsection (c); and

(iii) to the extent determinable within the time provided herein, refrained from making any irreversible or irretrievable commitment of resources prohibited by subsection (d); or

(B) deny the application for exemption because the Federal agency concerned or the exemption applicant have not met the requirements set forth in subparagraph (A)(i), (ii), and (iii).

The denial of an application under subparagraph (B) shall be considered final agency action for purposes of chapter 7 of title 5, United States Code.

(4) If the Secretary determines that the Federal agency concerned and the exemption applicant have met the requirements set forth in paragraph (3)(A) (i), (ii) and (iii) he shall, in consultation with the Members of the Committee, hold a hearing on the application for exemption in accordance with sections 554, 555, and 556 (other than subsection (b) (1) and (2) thereof) of title 5, United States Code, and prepare the report to be submitted pursuant to paragraph (5).

(5) Within 140 days after making the determinations under paragraph (3) or within such other period of time as in mutually agreeable to the exemption applicant and the Secretary, the Secretary shall submit to the Committee a report discussing—

(A) the availability and reasonable and prudent alternatives to the agency action, and the nature and extent of the benefits of the agency action and of alternative courses of action consistent with conserving the species of the critical habitat;

(B) a summary of the evidence concerning whether or not the agency action is in the public interest and is of national or regional significance;

(C) appropriate reasonable mitigation and enhancement measures which should be considered by the Committee; and

(D) whether the Federal agency concerned and the exemption applicant refrained from making any irreversible or irretrievable commitment of resources prohibited by subsection (d).

(6) To the extent practicable within the time required for action under subsection (g) of this section, and except to the extent inconsistent with the requirements of this section, the consideration of any application for an exemption under this section and the conduct of any hearing under this subsection shall be in accordance with sections 554, 555, and 556 (other than subsection (b)(3) of section 556) of title 5, United States Code.

(7) Upon request of the Secretary, the head of any Federal agency is authorized to detail, on a nonreimbursable basis, any of the personnel of such agency to the Secretary to assist him in carrying out his duties under this section.

(8) All meetings and records resulting from activities pursuant to this subsection shall be open to the public.

(h) EXEMPTION.—(1) The Committee shall make a final determination whether or not to grant an exemption within 30 days after receiving the report of the Secretary pursuant to subsection (g)(5). The Committee shall grant an exemption from the requirements of subsection (a)(2) for an agency action if, by a vote of not less than five of its members voting in person—

(A) it determines on the record, based on the report of the Secretary, the record of the hearing held under subsection (g)(4), and on such other testimony or evidence as it may receive, that—

(i) there are no reasonable and prudent alternatives to the agency action;

(ii) the benefits of such action clearly outweigh the benefits of alternative courses of action consistent with conserving the species or its critical habitat, and such action is in the public interest;

(iii) the action is of regional or national significance; and

(iv) neither the Federal agency concerned nor the exemption applicant made any irreversible or irretrievable commitment of resources prohibited by subsection (d); and

(B) it establishes such reasonable mitigation and enhancement measures, including, but not limited to, live propagation, transplantation, and habitat acquisition and improvement, as

are necessary and appropriate to minimize the adverse effects of the agency action upon the endangered species, threatened species, or critical habitat concerned.

Any final determination by Committee under this subsection shall be considered final agency action for purposes of chapter 7 of title 5 of the United States Code.

(2)(A) Except as provided in subparagraph (B), an exemption for an agency action granted under paragraph (1) shall constitute a permanent exemption with respect to all endangered or threatened species for the purposes of completing such agency action—

(i) regardless whether the species was identified in the biological assessment; and

(ii) only if a biological assessment has been conducted under subsection (c) with respect to such agency action.

(B) An exemption shall be permanent under subparagraph (A) unless—

(i) the Secretary finds, based on the best scientific and commercial data available, that such exemption would result in the extinction of a species that was not the subject of consultation under subsection (a)(2) or was not identified in any biological assessment conducted under subsection (c), and

(ii) the Committee determines within 60 days after the date of the Secretary's finding that the exemption should not be permanent.

If the Secretary makes a finding described in clause (i), the Committee shall meet with respect to the matter within 30 days after the date of the finding.

(i) REVIEW BY SECRETARY OF STATE.—Notwithstanding any other provision of this Act, the Committee shall be prohibited from considering for exemption any application made to it, if the Secretary of State, after a review of the proposed agency action and its potential implications, and after hearing, certifies, in writing, to the Committee within 60 days of any application made under this section that the granting of any such exemption and the carrying out of such action would be in violation of an international treaty obligation or other international obligation of the United States. The Secretary of State shall, at the time of such certification, publish a copy thereof in the Federal Register.

(j) Notwithstanding any other provision of this Act, the Committee shall grant an exemption for any agency action if the Secretary of Defense finds that such exemption is necessary for reasons of national security.

(k) SPECIAL PROVISIONS.—An exemption decision by the Committee under this section shall not be a major Federal action for purposes of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.): *Provided,* That an environmental impact statement which discusses the impacts upon endangered species or threatened species or their critical habitats shall have been previously prepared with respect to any agency action exempted by such order.

(l) COMMITTEE ORDERS.—(1) If the Committee determines under subsection (h) that an exemption should be granted with respect to any agency action, the Committee shall issue an order granting the exemption and specifying the mitigation and enhance-

ment measures established pursuant to subsection (h) which shall be carried out and paid for by the exemption applicant in implementing the agency action. All necessary mitigation and enhancement measures shall be authorized prior to the implementing of the agency action and funded concurrently with all other project features.

(2) The applicant receiving such exemption shall include the costs of such mitigation and enhancement measures within the overall costs of continuing the proposed action. Notwithstanding the preceding sentence the costs of such measures shall not be treated as project costs for the purpose of computing benefit-cost or other ratios for the proposed action. Any applicant may request the Secretary to carry out such mitigation and enhancement measures. The costs incurred by the Secretary in carrying out any such measures shall be paid by the applicant receiving the exemption. No later than one year after the granting of an exemption, the exemption applicant shall submit to the Council on Environmental Quality a report describing its compliance with the mitigation and enhancement measures prescribed by this section. Such report shall be submitted annually until all such mitigation and enhancement measures have been completed. Notice of the public availability of such reports shall be published in the Federal Register by the Council on Environmental Quality.

(m) NOTICE.—The 60-day notice requirement of section 11(g) of this Act shall not apply with respect to review of any final determination of the Committee under subsection (h) of this section granting an exemption from the requirements of subsection (a)(2) of this section.

(n) JUDICIAL REVIEW.—Any person, as defined by section 3(13) of this Act, may obtain judicial review, under chapter 7 of title 5 of the United States Code, of any decision of the Endangered Species Committee under subsection (h) in the United States Court of Appeals for (1) any circuit wherein the agency action concerned will be, or is being, carried out, or (2) in any case in which the agency action will be, or is being, carried out outside of any circuit, the District of Columbia, by filing in such court within 90 days after the date of issuance of the decision, a written petition for review. A copy of such petition shall be transmitted by the clerk of the court to the Committee and the Committee shall file in the court the record in the proceeding, as provided in section 2112, of title 28, United States Code. Attorneys designated by the Endangered Species Committee may appear for, and represent the Committee in any action for review under this subsection.

(o) EXEMPTION AS PROVIDING EXCEPTION ON TAKING OF ENDANGERED SPECIES.—Notwithstanding sections 4(d) and 9(a)(1)(B) and (C) of this Act, sections 101 and 102 of the Marine Mammal Protection Act of 1972, or any regulation promulgated to implement any such section—

(1) any action for which an exemption is granted under subsection (h) of this section shall not be considered to be a taking of any endangered species or threatened species with respect to any activity which is necessary to carry out such action; and

(2) any taking that is in compliance with the terms and conditions specified in a written statement provided under subsection (b)(4)(iv) of this section shall not be considered to be a prohibited taking of the species concerned.

(p) EXEMPTIONS IN PRESIDENTIALLY DECLARED DISASTER AREAS.—In any area which has been declared by the President to be a major disaster area under the Disaster Relief and Emergency Assistance Act, the President is authorized to make the determinations required by subsections (g) and (h) of this section for any project for the repair or replacement of a public facility substantially as it existed prior to the disaster under section 405 or 406 of the Disaster Relief and Emergency Assistance Act, and which the President determines (1) is necessary to prevent the recurrence of such a natural disaster and to reduce the potential loss of human life, and (2) to involve an emergency situation which does not allow the ordinary procedures of this section to be followed. Notwithstanding any other provision of this section, the Committee shall accept the determinations of the President under this subsection.

INTERNATIONAL COOPERATION

SEC. 8. [16 U.S.C. 1537] (a) FINANCIAL ASSISTANCE.—As a demonstration of the commitment of the United States to the worldwide protection of endangered species and threatened species, the President may, subject to the provisions of section 1415 of the Supplemental Appropriation Act, 1953 (31 U.S.C. 724), use foreign currencies accruing to the United States Government under the Agricultural Trade Development and Assistance Act of 1954 or any other law to provide to any foreign county (with its consent) assistance in the development and management of programs in that country which the Secretary determines to be necessary or useful for the conservation of any endangered species or threatened species listed by the Secretary pursuant to section 4 of this Act. The President shall provide assistance (which includes, but is not limited to, the acquisition, by lease or otherwise, of lands, waters, or interests therein) to foreign countries under this section under such terms and conditions as he deems appropriate. Whenever foreign currencies are available for the provision of assistance under this section, such currencies shall be used in preference to funds appropriated under the authority of section 15 of this Act.

(b) ENCOURAGEMENT OF FOREIGN PROGRAMS.—In order to carry out further the provisions of this Act, the Secretary, through the Secretary of State shall encourage—

(1) foreign countries to provide for the conservation of fish or wildlife and plants including endangered species and threatened species listed pursuant to section 4 of this Act;

(2) the entering into of bilateral or multilateral agreements with foreign countries to provide for such conservation; and

(3) foreign persons who directly or indirectly take fish or wildlife or plants in foreign countries or on the high seas for importation into the United States for commercial or other purposes to develop and carry out with such assistance as he may provide, conservation practices designed to enhance such fish or wildlife or plants and their habitat.

SEC. 303. CONTENTS OF FISHERY MANAGEMENT PLANS 16 U.S.C. 1853

95-354, 99-659, 101-627, 104-297

(a) REQUIRED PROVISIONS.—Any fishery management plan which is prepared by any Council, or by the Secretary, with respect to any fishery, shall—

(1) contain the conservation and management measures, applicable to foreign fishing and fishing by vessels of the United States, which are—

(A) necessary and appropriate for the conservation and management of the fishery to prevent overfishing and rebuild overfished stocks, and to protect, restore, and promote the long-term health and stability of the fishery;

(B) described in this subsection or subsection (b), or both; and

(C) consistent with the national standards, the other provisions of this Act, regulations implementing recommendations by international organizations in which the United States participates (including but not limited to closed areas, quotas, and size limits), and any other applicable law;

(2) contain a description of the fishery, including, but not limited to, the number of vessels involved, the type and quantity of fishing gear used, the species of fish involved and their location, the cost likely to be incurred in management, actual and potential revenues from the fishery, any recreational interest in the fishery, and the nature and extent of foreign fishing and Indian treaty fishing rights, if any;

(3) assess and specify the present and probable future condition of, and the maximum sustainable yield and optimum yield from, the fishery, and include a summary of the information utilized in making such specification;

(4) assess and specify—

(A) the capacity and the extent to which fishing vessels of the United States, on an annual basis, will harvest the optimum yield specified under paragraph (3),

(B) the portion of such optimum yield which, on an annual basis, will not be harvested by fishing vessels of the United States and can be made available for foreign fishing, and

(C) the capacity and extent to which United States fish processors, on an annual basis, will process that portion of such optimum yield that will be harvested by fishing vessels of the United States;

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(5) specify the pertinent data which shall be submitted to the Secretary with respect to commercial, recreational, charter fishing, and fish processing in the fishery, including, but not limited to, information regarding the type and quantity of fishing gear used, catch by species in numbers of fish or weight thereof, areas in which fishing was engaged in, time of fishing, number of hauls, economic information necessary to meet the requirements of this Act, and the estimated processing capacity of, and the actual processing capacity utilized by, United States fish processors;

(6) consider and provide for temporary adjustments, after consultation with the Coast Guard and persons utilizing the fishery, regarding access to the fishery for vessels otherwise prevented from harvesting because of weather or other ocean conditions affecting the safe conduct of the fishery; except that the adjustment shall not adversely affect conservation efforts in other fisheries or discriminate among participants in the affected fishery;

(7) describe and identify essential fish habitat for the fishery based on the guidelines established by the Secretary under section 305(b)(1)(A), minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat;

(8) in the case of a fishery management plan that, after January 1, 1991, is submitted to the Secretary for review under section 304(a) (including any plan for which an amendment is submitted to the Secretary for such review) or is prepared by the Secretary, assess and specify the nature and extent of scientific data which is needed for effective implementation of the plan;

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(9) include a fishery impact statement for the plan or amendment (in the case of a plan or amendment thereto submitted to or prepared by the Secretary after October 1, 1990) which shall assess, specify, and analyze the likely effects, if any, including the cumulative conservation, economic, and social impacts, of the conservation and management measures on, and possible mitigation measures for—

(A) participants in the fisheries and fishing communities affected by the plan or amendment;

(B) participants in the fisheries conducted in adjacent areas under the authority of another Council, after consultation with such Council and representatives of those participants; and

(C) the safety of human life at sea, including whether and to what extent such measures may affect the safety of participants in the fishery;

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

(11) establish a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery, and include conservation and management measures that, to the extent practicable and in the following priority—

(A) minimize bycatch; and

(B) minimize the mortality of bycatch which cannot be avoided;

(12) assess the type and amount of fish caught and released alive during recreational fishing under catch and release fishery management programs and the mortality of such fish, and include conservation and management measures that, to the extent practicable, minimize mortality and ensure the extended survival of such fish;

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(13) include a description of the commercial, recreational, and charter fishing sectors which participate in the fishery, including its economic impact, and, to the extent practicable, quantify trends in landings of the managed fishery resource by the commercial, recreational, and charter fishing sectors;

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(14) to the extent that rebuilding plans or other conservation and management measures which reduce the overall harvest in a fishery are necessary, allocate, taking into consideration the economic impact of the harvest restrictions or recovery benefits on the fishery participants in each sector, any harvest restrictions or recovery benefits fairly and equitably among the commercial, recreational, and charter fishing sectors in the fishery and;

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(15) establish a mechanism for specifying annual catch limits in the plan (including a multiyear plan), implementing regulations, or annual specifications, at a level such that overfishing does not occur in the fishery, including measures to ensure accountability.

97-453, 99-659, 101-627, 102-251, **104-297**

(b) DISCRETIONARY PROVISIONS.—Any fishery management plan which is prepared by any Council, or by the Secretary, with respect to any fishery, may—

(1) require a permit to be obtained from, and fees to be paid to, the Secretary, with respect to—

(A) any fishing vessel of the United States fishing, or wishing to fish, in the exclusive economic zone [or special areas,]* or for anadromous species or Continental Shelf fishery resources beyond such zone [or areas]*;

(B) the operator of any such vessel; or

(C) any United States fish processor who first receives fish that are subject to the plan;

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(2)(A) designate zones where, and periods when, fishing shall be limited, or shall not be permitted, or shall be permitted only by specified types of fishing vessels or with specified types and quantities of fishing gear;

(B) designate such zones in areas where deep sea corals are identified under section 408, to protect deep sea corals from physical damage from fishing gear or to prevent loss or damage to such fishing gear from interactions with deep sea corals, after considering long-term sustainable uses of fishery resources in such areas; and

(C) with respect to any closure of an area under this Act that prohibits all fishing, ensure that such closure—

(i) is based on the best scientific information available;

(ii) includes criteria to assess the conservation benefit of the closed area;

(iii) establishes a timetable for review of the closed area's performance that is consistent with the purposes of the closed area; and

(iv) is based on an assessment of the benefits and impacts of the closure, including its size, in relation to other management measures (either alone or in combination with such measures), including the benefits and impacts of limiting access to: users of the area, overall fishing activity, fishery science, and fishery and marine conservation;

(3) establish specified limitations which are necessary and appropriate for the conservation and management of the fishery on the—

(A) catch of fish (based on area, species, size, number, weight, sex, bycatch, total biomass, or other factors);

(B) sale of fish caught during commercial, recreational, or charter fishing, consistent with any applicable Federal and State safety and quality requirements; and

(C) transshipment or transportation of fish or fish products under permits issued pursuant to section 204;

(4) prohibit, limit, condition, or require the use of specified types and quantities of fishing gear, fishing vessels, or equipment for such vessels, including devices which may be required to facilitate enforcement of the provisions of this Act;

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(5) incorporate (consistent with the national standards, the other provisions of this Act, and any other applicable law) the relevant fishery conservation and management measures of the coastal States nearest to the fishery and take into account the different circumstances affecting fisheries from different States and ports, including distances to fishing grounds and proximity to time and area closures;

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(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;

(F) the fair and equitable distribution of access privileges in the fishery; and

(G) any other relevant considerations;

(7) require fish processors who first receive fish that are subject to the plan to submit data which are necessary for the conservation and management of the fishery;

(8) require that one or more observers be carried on board a vessel of the United States engaged in fishing for species that are subject to the plan, for the purpose of collecting data necessary for the conservation and management of the fishery; except that such a vessel shall not be required to carry an observer on board if the facilities of the vessel for the quartering of an observer, or for carrying out observer functions, are so inadequate or unsafe that the health or safety of the observer or the safe operation of the vessel would be jeopardized;

(9) assess and specify the effect which the conservation and management measures of the plan will have on the stocks of naturally spawning anadromous fish in the region;

(10) include, consistent with the other provisions of this Act, conservation and management measures that provide harvest incentives for participants within each gear group to employ fishing practices that result in lower levels of bycatch or in lower levels of the mortality of bycatch;

(11) reserve a portion of the allowable biological catch of the fishery for use in scientific research;

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(12) include management measures in the plan to conserve target and non-target species and habitats, considering the variety of ecological factors affecting fishery populations; and

(14)[sic][15] prescribe such other measures, requirements, or conditions and restrictions as are determined to be necessary and appropriate for the conservation and management of the fishery.

97-453, **104-297**

(c) PROPOSED REGULATIONS.—Proposed regulations which the Council deems necessary or appropriate for the purposes of—

(1) implementing a fishery management plan or plan amendment shall be submitted to the Secretary simultaneously with the plan or amendment under section 304; and

(2) making modifications to regulations implementing a fishery management plan or plan amendment may be submitted to the Secretary at any time after the plan or amendment is approved under section 304.

[15] So in original.

P.L. 109-479, sec. 104(b), MSA § 303 note **16 U.S.C. 1853 note**

EFFECTIVE DATES; APPLICATION TO CERTAIN SPECIES.—The amendment made by subsection (a)(10)[16]—

(1) shall, unless otherwise provided for under an international agreement in which the United States participates, take effect—

(A) in fishing year 2010 for fisheries determined by the Secretary to be subject to overfishing; and

(B) in fishing year 2011 for all other fisheries; and

(2) shall not apply to a fishery for species that have a life cycle of approximately 1 year unless the Secretary has determined the fishery is subject to overfishing of that species; and

(3) shall not limit or otherwise affect the requirements of section 301(a)(1) or 304(e) of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1851(a)(1) or 1854(e), respectively).

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SEC. 303A. LIMITED ACCESS PRIVILEGE PROGRAMS. **16 U.S.C. 1853a**

(a) IN GENERAL.—After the date of enactment of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, a Council may submit, and the Secretary may approve, for a fishery that is managed under a limited access system, a limited access privilege program to harvest fish if the program meets the requirements of this section.

(b) NO CREATION OF RIGHT, TITLE, OR INTEREST.—Limited access privilege, quota share, or other limited access system authorization established, implemented, or managed under this Act—

(1) shall be considered a permit for the purposes of sections 307, 308, and 309;

(2) may be revoked, limited, or modified at any time in accordance with this Act, including revocation if the system is found to have jeopardized the sustainability of the stock or the safety of fishermen;

(3) shall not confer any right of compensation to the holder of such limited access privilege, quota share, or other such limited access system authorization if it is revoked, limited, or modified;

(4) shall not create, or be construed to create, any right, title, or interest in or to any fish before the fish is harvested by the holder; and

(5) shall be considered a grant of permission to the holder of the limited access privilege or quota share to engage in activities permitted by such limited access privilege or quota share.

[16] Section 104(a)(10) of P.L. 109-479 added section 303(a)(15).

(c) REQUIREMENTS FOR LIMITED ACCESS PRIVILEGES.—

(1) IN GENERAL.—Any limited access privilege program to harvest fish submitted by a Council or approved by the Secretary under this section shall—

(A) if established in a fishery that is overfished or subject to a rebuilding plan, assist in its rebuilding;

(B) if established in a fishery that is determined by the Secretary or the Council to have over-capacity, contribute to reducing capacity;

(C) promote—

(i) fishing safety;

(ii) fishery conservation and management; and

(iii) social and economic benefits;

(D) prohibit any person other than a United States citizen, a corporation, partnership, or other entity established under the laws of the United States or any State, or a permanent resident alien, that meets the eligibility and participation requirements established in the program from acquiring a privilege to harvest fish, including any person that acquires a limited access privilege solely for the purpose of perfecting or realizing on a security interest in such privilege;

(E) require that all fish harvested under a limited access privilege program be processed on vessels of the United States or on United States soil (including any territory of the United States);

(F) specify the goals of the program;

(G) include provisions for the regular monitoring and review by the Council and the Secretary of the operations of the program, including determining progress in meeting the goals of the program and this Act, and any necessary modification of the program to meet those goals, with a formal and detailed review 5 years after the implementation of the program and thereafter to coincide with scheduled Council review of the relevant fishery management plan (but no less frequently than once every 7 years);

(H) include an effective system for enforcement, monitoring, and management of the program, including the use of observers or electronic monitoring systems;

(I) include an appeals process for administrative review of the Secretary's decisions regarding initial allocation of limited access privileges;

(J) provide for the establishment by the Secretary, in consultation with appropriate Federal agencies, for an information collection and review process to provide any additional information needed to determine whether any illegal acts of anti-competition, anti-trust, price collusion, or price fixing have occurred among regional fishery associations or persons receiving limited access privileges under the program; and

(K) provide for the revocation by the Secretary of limited access privileges held by any person found to have violated the antitrust laws of the United States.

(2) WAIVER.—The Secretary may waive the requirement of paragraph (1)(E) if the Secretary determines that—

(A) the fishery has historically processed the fish outside of the United States; and

(B) the United States has a seafood safety equivalency agreement with the country where processing will occur.

(3) FISHING COMMUNITIES.—

(A) IN GENERAL.—

(i) ELIGIBILITY.—To be eligible to participate in a limited access privilege program to harvest fish, a fishing community shall—

(I) be located within the management area of the relevant Council;

(II) meet criteria developed by the relevant Council, approved by the Secretary, and published in the Federal Register;

(III) consist of residents who conduct commercial or recreational fishing, processing, or fishery-dependent support businesses within the Council's management area; and

(IV) develop and submit a community sustainability plan to the Council and the Secretary that demonstrates how the plan will address the social and economic development needs of coastal communities, including those that have not historically had the resources to participate in the fishery, for approval based on criteria developed by the Council that have been approved by the Secretary and published in the Federal Register.

(ii) FAILURE TO COMPLY WITH PLAN.—The Secretary shall deny or revoke limited access privileges granted under this section for any person who fails to comply with the requirements of the community sustainability plan. Any limited access privileges denied or revoked under this section may be reallocated to other eligible members of the fishing community.

(B) PARTICIPATION CRITERIA.—In developing participation criteria for eligible communities under this paragraph, a Council shall consider—

(i) traditional fishing or processing practices in, and dependence on, the fishery;

(ii) the cultural and social framework relevant to the fishery;

(iii) economic barriers to access to fishery;

(iv) the existence and severity of projected economic and social impacts associated with implementation of limited access privilege programs on harvesters, captains, crew, processors, and other businesses substantially dependent upon the fishery in the region or subregion;

(v) the expected effectiveness, operational transparency, and equitability of the community sustainability plan; and

(vi) the potential for improving economic conditions in remote coastal communities lacking resources to participate in harvesting or processing activities in the fishery.

(4) REGIONAL FISHERY ASSOCIATIONS.—

(A) IN GENERAL.—To be eligible to participate in a limited access privilege program to harvest fish, a regional fishery association shall—

(i) be located within the management area of the relevant Council;

(ii) meet criteria developed by the relevant Council, approved by the Secretary, and published in the Federal Register;

(iii) be a voluntary association with established by-laws and operating procedures;

(iv) consist of participants in the fishery who hold quota share that are designated for use in the specific region or subregion covered by the regional fishery association, including commercial or recreational fishing, processing, fishery-dependent support businesses, or fishing communities;

(v) not be eligible to receive an initial allocation of a limited access privilege but may acquire such privileges after the initial allocation, and may hold the annual fishing privileges of any limited access privileges it holds or the annual fishing privileges that is [sic][17] members contribute; and

(vi) develop and submit a regional fishery association plan to the Council and the Secretary for approval based on criteria developed by the Council that have been approved by the Secretary and published in the Federal Register.

(B) FAILURE TO COMPLY WITH PLAN.—The Secretary shall deny or revoke limited access privileges granted under this section to any person participating in a regional fishery association who fails to comply with the requirements of the regional fishery association plan.

[17] So in original.

(C) PARTICIPATION CRITERIA.—In developing participation criteria for eligible regional fishery associations under this paragraph, a Council shall consider—

(i) traditional fishing or processing practices in, and dependence on, the fishery;

(ii) the cultural and social framework relevant to the fishery;

(iii) economic barriers to access to fishery;

(iv) the existence and severity of projected economic and social impacts associated with implementation of limited access privilege programs on harvesters, captains, crew, processors, and other businesses substantially dependent upon the fishery in the region or subregion;

(v) the administrative and fiduciary soundness of the association; and

(vi) the expected effectiveness, operational transparency, and equitability of the fishery association plan.

(5) ALLOCATION.—In developing a limited access privilege program to harvest fish a Council or the Secretary shall—

(A) establish procedures to ensure fair and equitable initial allocations, including consideration of—

(i) current and historical harvests;

(ii) employment in the harvesting and processing sectors;

(iii) investments in, and dependence upon, the fishery; and

(iv) the current and historical participation of fishing communities;

(B) consider the basic cultural and social framework of the fishery, especially through—

(i) the development of policies to promote the sustained participation of small owner-operated fishing vessels and fishing communities that depend on the fisheries, including regional or port-specific landing or delivery requirements; and

(ii) procedures to address concerns over excessive geographic or other consolidation in the harvesting or processing sectors of the fishery;

(C) include measures to assist, when necessary and appropriate, entry-level and small vessel owner-operators, captains, crew, and fishing communities through set-asides of harvesting allocations, including providing privileges, which may include set-asides or allocations of harvesting privileges, or economic assistance in the purchase of limited access privileges;

(D) ensure that limited access privilege holders do not acquire an excessive share of the total limited access privileges in the program by—

(i) establishing a maximum share, expressed as a percentage of the total limited access privileges, that a limited access privilege holder is permitted to hold, acquire, or use; and

(ii) establishing any other limitations or measures necessary to prevent an inequitable concentration of limited access privileges; and

(E) authorize limited access privileges to harvest fish to be held, acquired, used by, or issued under the system to persons who substantially participate in the fishery, including in a specific sector of such fishery, as specified by the Council.

(6) PROGRAM INITIATION.—

(A) LIMITATION.—Except as provided in subparagraph (D), a Council may initiate a fishery management plan or amendment to establish a limited access privilege program to harvest fish on its own initiative or if the Secretary has certified an appropriate petition.

(B) PETITION.—A group of fishermen constituting more than 50 percent of the permit holders, or holding more than 50 percent of the allocation, in the fishery for which a limited access privilege program to harvest fish is sought, may submit a petition to the Secretary requesting that the relevant Council or Councils with authority over the fishery be authorized to initiate the development of the program. Any such petition shall clearly state the fishery to which the limited access privilege program would apply. For multispecies permits in the Gulf of Mexico, only those participants who have substantially fished the species proposed to be included in the limited access program shall be eligible to sign a petition for such a program and shall serve as the basis for determining the percentage described in the first sentence of this subparagraph.

(C) CERTIFICATION BY SECRETARY.—Upon the receipt of any such petition, the Secretary shall review all of the signatures on the petition and, if the Secretary determines that the signatures on the petition represent more than 50 percent of the permit holders, or holders of more than 50 percent of the allocation in the fishery, as described by subparagraph (B), the Secretary shall certify the petition to the appropriate Council or Councils.

(D) NEW ENGLAND AND GULF REFERENDUM.—

(i) Except as provided in clause (iii) for the Gulf of Mexico commercial red snapper fishery, the New England and Gulf Councils may not submit, and the Secretary may not approve or implement, a fishery management plan or amendment that creates an individual fishing quota program, including a Secretarial plan, unless such a system, as ultimately developed, has been approved by more than 2⁄3 of those voting in a referendum among eligible permit holders, or other persons described in clause (v), with respect to the New England Council, and by a majority of those voting in the referendum among eligible permit holders with respect to the Gulf Council. For multispecies permits in the Gulf of Mexico, only those participants who have substantially fished the species proposed to be included in the individual fishing quota program shall be eligible to vote in such a referendum. If an individual fishing quota program fails to be approved by the requisite number of those voting, it may be revised and submitted for approval in a subsequent referendum.

(ii) The Secretary shall conduct a referendum under this subparagraph, including notifying all persons eligible to participate in the referendum and making available to them information concerning the schedule, procedures, and eligibility requirements for the referendum process and the proposed individual fishing quota program. Within 1 year after the date of enactment of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, the Secretary shall publish guidelines and procedures to determine procedures and voting eligibility requirements for referenda and to conduct such referenda in a fair and equitable manner.

(iii) The provisions of section 407(c) of this Act shall apply in lieu of this subparagraph for an individual fishing quota program for the Gulf of Mexico commercial red snapper fishery.

(iv) Chapter 35 of title 44, United States Code, (commonly known as the Paperwork Reduction Act) does not apply to the referenda conducted under this subparagraph.

(v) The Secretary shall promulgate criteria for determining whether additional fishery participants are eligible to vote in the New England referendum described in clause (i) in order to ensure that crew members who derive a significant percentage of their total income from the fishery under the proposed program are eligible to vote in the referendum.

(vi) In this subparagraph, the term ‘individual fishing quota’ does not include a sector allocation.

(7) TRANSFERABILITY.—In establishing a limited access privilege program, a Council shall—

(A) establish a policy and criteria for the transferability of limited access privileges (through sale or lease), that is consistent with the policies adopted by the Council for the fishery under paragraph (5); and

(B) establish, in coordination with the Secretary, a process for monitoring of transfers (including sales and leases) of limited access privileges.

(8) PREPARATION AND IMPLEMENTATION OF SECRETARIAL PLANS.—This subsection also applies to a plan prepared and implemented by the Secretary under section 304(c) or 304(g).

(9) ANTITRUST SAVINGS CLAUSE.—Nothing in this Act shall be construed to modify, impair, or supersede the operation of any of the antitrust laws. For purposes of the preceding sentence, the term ‘antitrust laws’ has the meaning given such term in subsection (a) of the first section of the Clayton Act, except that such term includes section 5 of the Federal Trade Commission Act to the extent that such section 5 applies to unfair methods of competition.

(d) AUCTION AND OTHER PROGRAMS.—In establishing a limited access privilege program, a Council shall consider, and may provide, if appropriate, an auction system or other program to collect royalties for the initial, or any subsequent, distribution of allocations in a limited access privilege program if—

(1) the system or program is administered in such a way that the resulting distribution of limited access privilege shares meets the program requirements of this section; and

(2) revenues generated through such a royalty program are deposited in the Limited Access System Administration Fund established by section 305(h)(5)(B) and available subject to annual appropriations.

(e) COST RECOVERY.—In establishing a limited access privilege program, a Council shall—

(1) develop a methodology and the means to identify and assess the management, data collection and analysis, and enforcement programs that are directly related to and in support of the program; and

(2) provide, under section 304(d)(2), for a program of fees paid by limited access privilege holders that will cover the costs of management, data collection and analysis, and enforcement activities.

(f) CHARACTERISTICS.—A limited access privilege established after the date of enactment of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 is a permit issued for a period of not more than 10 years that—

(1) will be renewed before the end of that period, unless it has been revoked, limited, or modified as provided in this subsection;

(2) will be revoked, limited, or modified if the holder is found by the Secretary, after notice and an opportunity for a hearing under section 554 of title 5, United States Code, to have failed to comply with any term of the plan identified in the plan as cause for revocation, limitation, or modification of a permit, which may include conservation requirements established under the plan;

(3) may be revoked, limited, or modified if the holder is found by the Secretary, after notice and an opportunity for a hearing under section 554 of title 5, United States Code, to have committed an act prohibited by section 307 of this Act; and

(4) may be acquired, or reacquired, by participants in the program under a mechanism established by the Council if it has been revoked, limited, or modified under paragraph (2) or (3).

(g) LIMITED ACCESS PRIVILEGE ASSISTED PURCHASE PROGRAM.—

(1) IN GENERAL.—A Council may submit, and the Secretary may approve and implement, a program which reserves up to 25 percent of any fees collected from a fishery under section 304(d)(2) to be used, pursuant to section 53706(a)(7) of title 46, United States Code, to issue obligations that aid in financing—

(A) the purchase of limited access privileges in that fishery by fishermen who fish from small vessels; and

(B) the first-time purchase of limited access privileges in that fishery by entry level fishermen.

(2) ELIGIBILITY CRITERIA.—A Council making a submission under paragraph (1) shall recommend criteria, consistent with the provisions of this Act, that a fisherman must meet to qualify for guarantees under subparagraphs (A) and (B) of paragraph (1) and the portion of funds to be allocated for guarantees under each subparagraph.

(h) EFFECT ON CERTAIN EXISTING SHARES AND PROGRAMS.—Nothing in this Act, or the amendments made by the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, shall be construed to require a reallocation or a reevaluation of individual quota shares, processor quota shares, cooperative programs, or other quota programs, including sector allocation in effect before the date of enactment of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006.

(i) TRANSITION RULES.—

(1) IN GENERAL.—The requirements of this section shall not apply to any quota program, including any individual quota program, cooperative program, or sector allocation for which a Council has taken final action or which has been submitted by a Council to the Secretary, or approved by the Secretary, within 6 months after the date of enactment of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, except that—

(A) the requirements of section 303(d) of this Act in effect on the day before the date of enactment of that Act shall apply to any such program;

(B) the program shall be subject to review under subsection (c)(1)(G) of this section not later than 5 years after the program implementation; and

(C) nothing in this subsection precludes a Council from incorporating criteria contained in this section into any such plans.

(2) PACIFIC GROUNDFISH PROPOSALS.—The requirements of this section, other than subparagraphs (A) and (B) of subsection (c)(1) and subparagraphs (A), (B), and (C) of paragraph (1) of this subsection, shall not apply to any proposal authorized under section 302(f) of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 that is submitted within the timeframe prescribed by that section.

P.L. 109-479, sec. 106(e), MSA § 303A note **16 U.S.C. 1853a note**
APPLICATION WITH AMERICAN FISHERIES ACT.—Nothing in section 303A of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.), as added by subsection (a) [P.L. 109-479], shall be construed to modify or supersede any provision of the American Fisheries Act (46 U.S.C. 12102 note; 16 U.S.C. 1851 note; et alia).

P.L. 104-297, sec. 108(i), MSA § 303 note
EXISTING QUOTA PLANS.—Nothing in this Act [P.L.104-297] or the amendments made by this Act shall be construed to require a reallocation of individual fishing quotas under any individual fishing quota program approved by the Secretary before January 4, 1995.

SEC. 304. ACTION BY THE SECRETARY 16 U.S.C. 1854

104-297

(a) REVIEW OF PLANS.—

(1) Upon transmittal by the Council to the Secretary of a fishery management plan or plan amendment, the Secretary shall—

(A) immediately commence a review of the plan or amendment to determine whether it is consistent with the national standards, the other provisions of this Act, and any other applicable law; and

(B) immediately publish in the Federal Register a notice stating that the plan or amendment is available and that written information, views, or comments of interested persons on the plan or amendment may be submitted to the Secretary during the 60-day period beginning on the date the notice is published.

(2) In undertaking the review required under paragraph (1), the Secretary shall—

(A) take into account the information, views, and comments received from interested persons;

(B) consult with the Secretary of State with respect to foreign fishing; and

(C) consult with the Secretary of the department in which the Coast Guard is operating with respect to enforcement at sea and to fishery access adjustments referred to in section 303(a)(6).

(3) The Secretary shall approve, disapprove, or partially approve a plan or amendment within 30 days of the end of the comment period under paragraph (1) by written notice to the Council. A notice of disapproval or partial approval shall specify—

(A) the applicable law with which the plan or amendment is inconsistent;

(B) the nature of such inconsistencies; and

(C) recommendations concerning the actions that could be taken by the Council to conform such plan or amendment to the requirements of applicable law.

If the Secretary does not notify a Council within 30 days of the end of the comment period of the approval, disapproval, or partial approval of a plan or amendment, then such plan or amendment shall take effect as if approved.