Authorization of an Oregon Recreational Fishery for Midwater Groundfish Species

Preliminary Draft Environmental Assessment

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Prepared by

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Authorization of an Oregon Recreational Fishery for Midwater Groundfish Species

Proposed Action:	To develop alternatives for targeting healthy and underutilized midwater groundfish species using midwater long-leader gear designed to avoid contact with bottom habitat and avoid and/or minimize impacts on overfished rockfish species.
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Executive Summary

To be completed once the Council decides a final preferred alternative for this action.

TABLE OF CONTENTS

Contents

LIST OF TABLES

LIST OF FIGURES

ACRONYMS AND GLOSSARY

Acronym	Definition
ACL	annual catch limit
BB	briefing book
CCE	California Current Ecosystem
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
Council	Pacific Fishery Management Council
CPS	coastal pelagic species
CZMA	Federal Coastal Zone Management Act
DEIS	draft environmental impact statement
DPS	distinct population segment
EA	environmental assessment
EEZ	Exclusive Economic Zone
EFH	essential fish habitat
EFP	exempted fishing permit
EIS	environmental impact statement
EO	Executive Order
ENSO	El Niño Southern Oscillation
ESA	Endangered Species Act
ESU	evolutionarily significant units

Acronym	Definition
fm	fathom or fathoms
FMP	fishery management plan
F_{MSY}	the fishing mortality rate that maximizes catch biomass in the long term
GAP	Groundfish Advisory Subpanel
GMT	Groundfish Management Team
HAPC	habitat areas of particular concern
IFQ	individual fishing quota
IOPAC	Input-Output Model for Pacific Coast Fisheries
IRFA	initial regulatory flexibility analysis
m	meter or meters
MBTA	Migratory Bird Treaty Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSST	minimum spawning stock threshold
MSY	maximum sustainable yield
mt	metric ton
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration – the parent agency of National Marine Fisheries Service
ODFW	Oregon Department of Fish and Wildlife

Acronym	Definition
OFL	overfishing level
OMZ	oxygen minimum zone
ORBS	Oregon Recreational Boat Survey
OY	optimum yield
PacFIN	Pacific Coast Fisheries Information Network. Provides commercial fishery information for Washington, Oregon, and California. Maintained by the Pacific States Marine Fisheries Commission.
PDO	Pacific Decadal Oscillation
POP	Pacific ocean perch – a rockfish species that was declared overfished in 1999
PSMFC	Pacific States Marine Fisheries Commission
RCA	Rockfish Conservation Area
RecFIN	Recreational Fishery Information Network. Provides recreational fishery information for Washington, Oregon, and California. Maintained by the Pacific States Marine Fisheries Commission.
RFA	Regulatory Flexibility Analysis, or Regulatory Flexibility Act
RIR	Regulatory Impact Review
SAFE	stock assessment and fishery evaluation
SSC	Science and Statistical Committee
USFWS	U.S. Fish and Wildlife Service – a representative of USFWS is a nonvoting member of the Council
WCR	West Coast Region
YRCA	Yellowtail Rockfish Conservation Area

1 INTRODUCTION

This Environmental Assessment (EA) provides an analysis of alternatives regarding a proposed action by the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) to authorize a midwater long-leader recreational fishery for healthy midwater rockfish species (e.g., yellowtail rockfish, *Sebastes flavidus)* in waters seaward of approximately 40 fathoms (fm) off the coast of Oregon (42° 00' N. lat. to 46° 18' N. lat.). The proposed action would take place during the established Oregon recreational groundfish fishery, open from April to September, managed under the seasonal depth restriction framework.

This document addresses the statutory requirements of the National Environmental Policy Act (NEPA) and provides an assessment of the environmental impacts of the proposed action and its reasonable alternatives compared to the No Action alternative. An EA provides the analytical background for decision-making and has four essential components: 1) a description of the purpose and need for the proposed action; 2) alternatives that represent different ways of accomplishing the proposed action; 3) a description of the human environment affected by the proposed action; and 4) an evaluation of the expected direct, indirect, and cumulative impacts of the alternatives. The human environment includes the natural and physical environment and the relationship of people with that environment, as defined at 40 CFR 1508.14. These elements allow decision makers to look at different approaches to accomplishing a stated purpose and need and the likely consequences of each alternative. Based on this structure, the document is organized into the following chapters:

- Chapter 1 describes the purpose and need, the proposed action, the proposed action area, and considerations that went into the development of this EA.

- Chapter 2 outlines the alternatives that have been considered to address the purpose and need of the proposed action.

- Chapter 3 describes the components of the human environment potentially affected by the proposed action (i.e., the "affected environment"). The affected environment represents the baseline condition, which would be potentially changed by the proposed action.

- Chapter 4 evaluates the effects of the alternatives on components of the human environment to provide the information necessary to determine whether such effects are significant or potentially significant.

This action must conform to the Magnuson-Stevens Fishery Conservation and Management Act (MSA), which is the principal legal basis for fishery management within the U.S. Exclusive Economic Zone (EEZ) that extends from the outer boundary of the territorial sea to a distance of 200 nautical miles from shore, as well as other applicable laws.

1.1 Proposed Action

The proposed action is to authorize the use of midwater long-leader gear for recreational fishing in waters seaward of a line (as defined by waypoints) approximating 40fm off the coast of Oregon. This action would require a regulatory amendment within the existing framework of the Pacific Coast Groundfish Fishery Management Plan (FMP), which contains the policies and framework for managing the harvestable surplus of groundfish.

Recreational groundfish fisheries are primarily managed with time/area closures, length limits, and bag limits. The primary restriction that impedes additional recreational fishing activity on healthy stocks is low bycatch limits for co-occurring overfished species (e.g., yelloweye rockfish, *S. ruberrimus*). Allowing the use of the midwater long-leader gear during the seasonal depth restriction is intended to allow additional opportunity to access healthy or underutilized mid-water rockfish species while avoiding the more benthic yelloweye rockfish.

Based on the recommendations of the Pacific Fishery Management Council (Council), midwater long-leader gear would be allowed for both charter and private vessels seaward of the 40fm seasonal depth closure and monitored with the existing Oregon Ocean Recreational Boat Sampling (ORBS) program. The season would be limited and occur between the months of April and September, months currently subject to depth restrictions. The gear configuration would be as described in the September 2015 Groundfish Advisory Subpanel Report[1], including no more than three hooks, at least 30-feet (ft) between the sinker on the bottom and the lowest hook, and a non-compressible float required above the hooks. The term "long-leader" denotes the unusual length of line (>~30ft) between the hooks and sinker (Fig. 1-1) deployed on rod and reel sportfishing gear used during the Oregon midwater long-leader exempted fishing permit (EFP) to target midwater rockfish species. Further, lingcod (*Ophiodon elongate*) retention would be prohibited to discourage anglers from fishing the gear closer to the bottom. This is intended to aid in limiting bycatch of yelloweye rockfish, which, like lingcod, tend to stay closer to the bottom than the intended target midwater species. All other existing state and Federal groundfish regulations, such as bag limits and Rockfish Conservation Areas (RCAs), among others, would remain in effect.

The proposed action is based in part on favorable EFP test fishing results using midwater long-leader gear onboard sport charter fishing vessels off the coast of Oregon. The EFP test fishing, which commenced in 2009 and ended in 2011, was conducted by the Oregon Recreational Fishing Alliance in cooperation with the Oregon Department of Fish and Wildlife (ODFW) under a NMFS-authorized EFP[2]. An EFP was required to allow test fishing using this legal gear type in an area that would otherwise be closed to the recreational fishery.

[1] http://www.pcouncil.org/wp-content/uploads/2015/09/H1a_SUP_GAP_Rpt_SEPT2015BB.pdf
[2] Oregon Recreational Yellowtail Rockfish EFP Application to National Marine Fisheries Service, March 2, 2009.

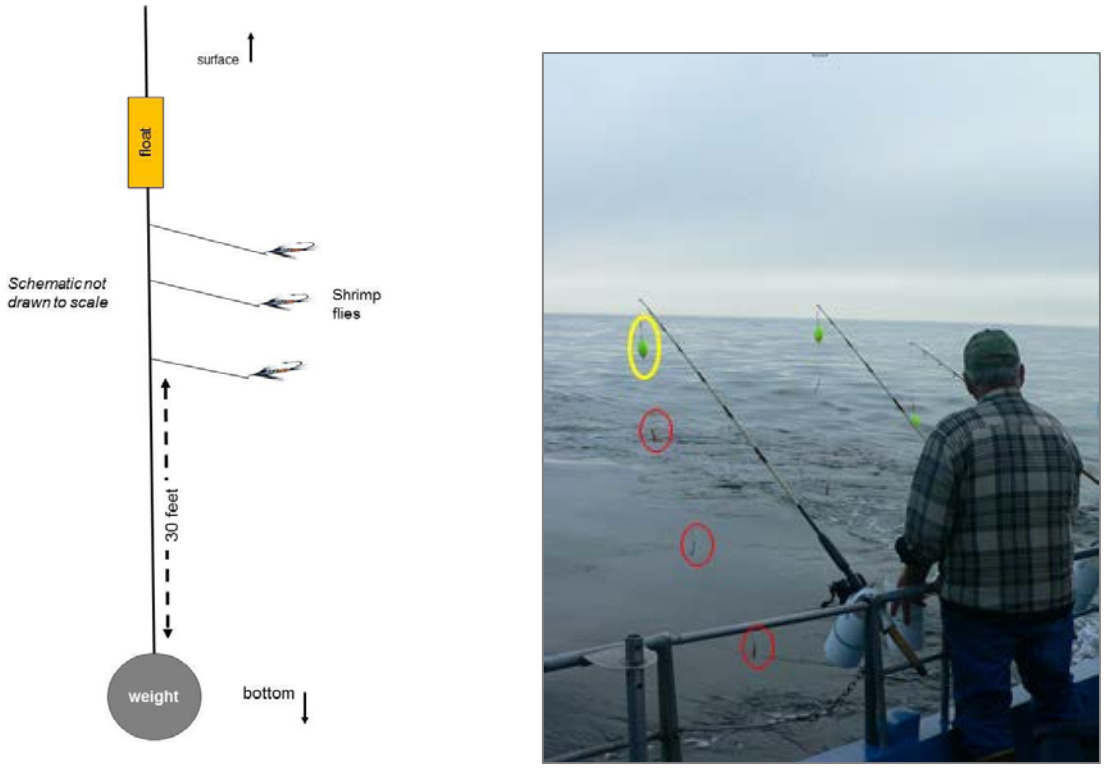

Figure 1-1. Schematic of the EFP midwater long-leader gear with photo of gear ready for deployment off the coast of Oregon. ***Note:*** *The bucket was used to contain the 30ft of leader between the sinker and the shrimp flies. Lynn Mattes, ODFW.*

The midwater long-leader EFP gear contained a float that was affixed to the upper end of the leader (Figure 1-1). The purpose of the float was to prevent hooking gear from descending below the upper level of the leader and into deeper waters where constraining rockfish species, such as yelloweye rockfish, are found. The float had sufficient buoyancy (~2.25 ounces) to support all hooking gear and line above the leader. The maximum number of hooks used in the midwater long-leader EFP was 3, which conformed to current Oregon state regulations that allow no more than 3 hooks per line. Small plastic worms and shrimp flies were used while weighted hooks, bait, and large lures were prohibited.

1.2 Purpose and Need

The purpose of this action is to allow access to abundant midwater rockfish while avoiding and/or minimizing impacts on overfished and rebuilding rockfish species during the seasonal depth restrictions. The action is needed to diversify and ensure viable recreational fishing opportunities off Oregon with the aim to provide increased opportunities because recreational rockfish fisheries have been constrained in recent years to help rebuild overfished stocks. The action could also provide substitute recreational fishing opportunities to alleviate fishing pressure on nearshore rockfish species and serve as an additional fishing option during periods of constrained recreational salmon harvest.

The action is intended to alleviate fishing pressure on nearshore rockfish species and provide increased recreational fishing opportunities. The recreational groundfish fisheries are an important part of the local economy and social fabric in Oregon's coastal communities, and the implementation of deep-water rockfish closures in 2004 has left several ports without any viable groundfish fishing opportunities. Increasing recreational fishing opportunities are stated policy goals and objectives for sustainably managing groundfish resources in the "NOAA Fisheries National Recreational Fisheries Policy"[3] and the MSA.

Recreational fishing depth and area closures in recent years have constrained fishing opportunity in Oregon, due in part to the overfished status of yelloweye rockfish. Yelloweye rockfish reside near the bottom of rocky habitats, while midwater species, which exist in relative abundance above those habitats, are inaccessible to recreational fishermen due to existing depth and area closures. This species is encountered more frequently in deeper water and have lower survival rates when released in shallower water due to barotruama inflicated injuries[4]. Since 2004, the Oregon sport groundfish fisheries have been restricted to shallow depths (< 20-40fm) during the peak months for effort and catch to reduce interactions with deeper water species. These depth restrictions have greatly reduced the ability for anglers to access healthy and robust stocks, such as yellowtail and widow rockfish, *S. entomelas*.

The depth restrictions have also eliminated groundfish fishing opportunity for ports like Florence and Winchester Bay in southern Oregon that lack access to shallow reef habitat. And for ports with access to nearby shallow reef habitat, the depth restrictions have caused the fisheries to become almost entirely dependent on shallow water groundfish stocks. In Oregon, the recreational groundfish fishery has become almost exclusively dependent on a single shallow water species, black rockfish, *S. melanops*, which constitutes ~70 percent of total recreational groundfish catch (in number of fish). If the black rockfish stock was to decline and the fishery was closed or restricted significantly, the consequences to the Oregon fishery could be detrimental as other shallow water stocks are not productive enough to replace displaced black rockfish catches.

Authorizing the use of midwater long-leader gear in waters seaward of approximately 40fm off the coast of Oregon during currently prohibited months would extend access to more fishing grounds where healthy midwater species may be caught while minimizing impacts to deeper water species, such as yelloweye rockfish. The recreational groundfish fishery in Oregon is currently restricted to shoreward of the management line approximating the 30fm curve[5] from April 1 through September 30. The resulting 10fm buffer zone between the traditional recreational fishery and the area in which use of midwater long-leader gear is proposed would aid in monitoring and enforcement. The midwater long-leader gear has been proven to be effective at catching the healthy and robust semi-pelagic stocks in deep water with minimal yelloweye rockfish interactions. Authorizing the midwater gear and providing access to additional fishing grounds could provide a hedge against negative consequences in the event of a decline in the black rockfish fishery or the traditional salmon ocean recreational fishery.

[3] http://www.nmfs.noaa.gov/sfa/management/recreational/policy/index.html
[4] http://www.pcouncil.org/wp-content/uploads/D3b_GMT_MAR2014BB.pdf
[5] http://www.dfw.state.or.us/MRP/regulations/sport_fishing/docs/30fmwaypts.pdf

1.3 Description of the Management Area

The area under consideration for the proposed action comprises the fishing grounds seaward of a line approximating the 40fm depth curve that are used by federally-managed U.S. West Coast recreational groundfish fisheries and associated coastal communities in Oregon (42° 00' N. lat. to 46° 18' N. lat.). In general, the fishing grounds are within the west coast EEZ, which stretches from 3 to 200 nautical miles (Figure 1-2). However, recreational groundfish fishing is largely confined to depths of 300fm or less, or roughly within 30 miles of the coast. This area is currently open to recreational groundfish fishing between October 1 and April 30.

Figure 1-2. The proposed affected area off the coast of Oregon with key recreational fishing ports and the 30 and 40 fm management lines.

1.4 Recreational Groundfish Fishery Management Measures

Federal recreational groundfish regulations are not intended to supersede more restrictive state recreational groundfish regulations relating to federally-managed groundfish. The state-managed groundfish fisheries are not interrelated to, or interdependent with, the proposed action. However, vessels participating in federally-managed fisheries transit through state waters and land fish within the coastal states. Thus, some effects of the federally-managed groundfish fishery occur in state waters. For most groundfish regulations, the State of Oregon adopts the Federal regulation by reference into state regulations (e.g., bag limits include fish taken in both state and Federal waters). Off the coast of Oregon, boat limits apply, whereby each fisher aboard a vessel may continue to use angling gear until the combined daily limits of groundfish for all licensed and juvenile anglers aboard has been attained.

Recreational groundfish conservation areas off the coast of Oregon include the Stonewall Bank Yelloweye Rockfish Conservation Area (YRCA). Recreational fishing for groundfish and halibut is prohibited within the Stonewall Bank YRCA. It is unlawful for recreational fishing vessels to take and retain, possess, or land groundfish taken with recreational gear within the Stonewall Bank YRCA. A vessel fishing in the Stonewall Bank YRCA may not be in possession of any groundfish. Recreational vessels may transit through the Stonewall Bank YRCA with or without groundfish on board. The Stonewall Bank YRCA is defined by latitude and longitude coordinates specified at §660.70, subpart C.

1.5 Additional Background

The history of discussions and considerations leading up to the proposed action and alternatives analysed in this document is robust. This section includes an historical overview of the discussions between NMFS and the Council to consider use of the midwater long-leader gear. These discussions included considerations for testing the gear under EFPs, reviewing the results of these EFPs, and authorizing use of the gear in currently closed areas under the groundfish FMP as described in the proposed action.

The Council process, which is based on stakeholder involvement and allows for public participation and public comment on fishery management proposals during Council, subcommittee, and advisory body meetings, as well as through state agencies, is the principal mechanism to scope this proposed action for allowing the midwater long-leader sport fishery off Oregon during months subjected to seasonal depth restrictions.

EFPs provide a process for testing innovative fishing gears and strategies to substantiate methods for prosecuting sustainable and risk-averse fishing opportunities that would otherwise be prohibited. EFPs are commonly used to explore ways to reduce effort on depressed stocks, encourage innovation and efficiency in the fisheries, provide access to underutilized target stocks while directly measuring the bycatch associated with those fishing strategies, and evaluate current and proposed management measures. A primary requirement of EFPs is the evaluation of fishing gear or management measures that can be transferred into regulation and applied fleet wide.

1.5.1 History of Council and Agency Scoping and Decisions Related to the Proposed Action

The Council first considered the use of midwater long-leader gear with the submission of the initial recreational midwater long-leader EFP at their June 2008 meeting in Foster City, California[6]. The Council recommended approval of the final EFP[7] at their September 2008 meeting in Boise, Idaho and recommended renewal of the EFP at their November 2009 and September 2010 meetings. The NMFS Northwest Region Sustainable Fisheries Division (now merged with the former NMFS Southwest Region, for the newly created NMFS West Coast Region) issued EFPs to fish with midwater long-leader gear in 2009, 2010, and 2011. However, due to permit issuing delays in 2010, no activities occurred under the EFP that year.

Based on initially favorable EFP results on 100 percent observer-monitored sport charter fishing vessels, the Council first considered implementing this recreational fishing opportunity into regulation at the November 2012 meeting, but concrete action with potential deliverables and timelines did not take place until the June 2013 meeting[8]. At that meeting, the Council advanced consideration with a target implementation date of January 1, 2015, contingent on NMFS conducting a detailed analysis of all relevant considerations that would be reviewed at a future Council meeting[9]. Specifically, the Council recommended NMFS, with assistance from ODFW, prepare an analysis for authorizing a midwater long-leader recreational groundfish fishing in Oregon and California. Between September 2013 and March 2014, the Council took no further concrete action on this item and NMFS did not initiate the contingent analysis.

In June 2014, the Council included authorization of the midwater long-leader gear outside a line approximating 40fm during the seasonal depth restrictions (April-September) in the list of actions under a proposed omnibus amendment[10]. The ODFW provided NMFS with a preliminary analysis and supporting rationale for the Oregon component of the proposed fishery to be included in the NEPA analysis. The California Department of Fish and Wildlife (CDFW) engaged in initial discussions on the California component of the proposed action. However, CDFW did not provide an analysis. In conducting the preliminary draft NEPA analysis, NMFS noted several issues, including monitoring and enforcement concerns raised by CDFW, that necessitated further Council discussion and guidance. NMFS prepared an Issues Paper[11] in August 2015 to guide the Council in addressing the stated issues and concerns and to seek needed clarifications to continue preparing the analysis as requested in June 2013. NMFS recommended Council discussion at the September 2015 Council meeting to:

- define the purpose and need for authorizing the use of the gear as proposed;
- clarify the range of alternatives for consideration, including the geographic scope; and
- provide guidance on key issues, including monitoring, management response to quota overages, enforcement, allocation, and socioeconomic factors.

[6] http://www.pcouncil.org/bb/2008/0608/F3_0608.pdf
[7] http://www.pcouncil.org/bb/2008/0908/I6a_ATT4_0908.pdf
[8] http://www.pcouncil.org/wp-content/uploads/F3_SITSUM_JUN2013BB.pdf
[9] http://www.pcouncil.org/wp-content/uploads/0613decisions.pdf
[10] http://www.pcouncil.org/wp-content/uploads/F9a_SUP_ATT1_UPDATED_Compilation_F3_and_F6Actions_JUNE2014BB.pdf
[11] http://www.pcouncil.org/wp-content/uploads/2015/08/H1a_NMFS_Rpt_SEPT2015BB.pdf

At the September 2015 Council meeting, CDFW submitted a report[12] that summarized their concerns in regards to authorizing midwater long-leader gear during seasonal depth restrictions in California waters. The report laid the foundation for subsequent Council discussion and CDFW's recommendation to withdraw all California waters from further consideration and analysis in the draft NEPA analysis. Based in part on CDFW's recommendation, the Council adopted[13] a range of alternatives for developing mid-water recreational fishing regulations for areas of the Oregon coast only. They also adopted a draft purpose and need statement (which has been included in this analysis), as requested by NMFS, and directed that the draft NEPA analysis be updated for further consideration at their March 2016 Council meeting.

1.5.2 Summary of EFP Results for Midwater Long-leader Gear

Mr. John Holloway, Regional Director of the Oregon Recreational Fishing Alliance, conducted and administered the midwater long-leader EFP test fishing off the coast of Oregon (Figure 1-3), beginning in in 2009 and ending in 2011. In sum, 35 charter vessel trips were taken, along with 306 different drifts on those trips. During each drift, at-sea observers provided by ODFW recorded the number and length of fish caught by species. Below, Table 1-1 presents the observed catch in the long-leader EFPs, which was dominated by catch of the target healthy stocks (i.e., yellowtail and widow rockfish), with very minor catch of overfished yelloweye rockfish (only two of the total catch of ~5,000 fish were yelloweye rockfish).

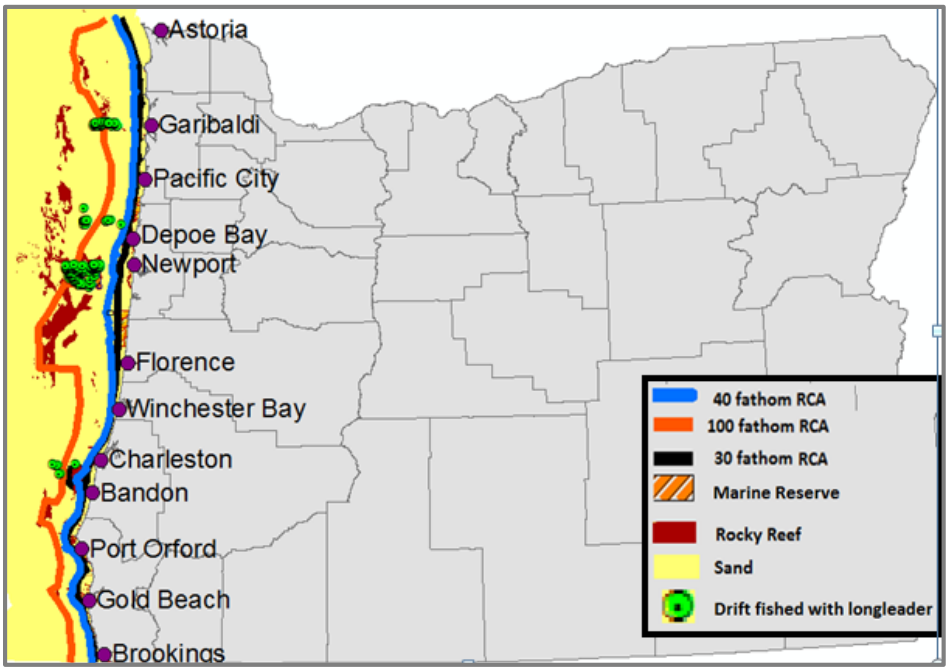

Figure 1-3. Depth and area locations for midwater long-leader EFP fishing trials**.**

[12] http://www.pcouncil.org/wp-content/uploads/2015/09/H1a_SUP_CDFW_Rpt_SEPT2015BB.pdf
[13] http://www.pcouncil.org/wp-content/uploads/2015/09/0915decisions.pdf

Table 1-1. Species composition of long-leader catch by numbers of fish and total weight.

Species	Fish	percent of Total	Kg	percent of total
Yellowtail RF	2,930	59.2 percent	3,348	62.1 percent
Widow RF	1,228	24.8 percent	816	15.1 percent
Canary RF	636	12.8 percent	1,111	20.6 percent
Blue RF	84	1.7 percent	58	1.1 percent
Redstripe RF	40	0.8 percent	28	0.5 percent
Silvergray RF	16	0.3 percent	11	0.2 percent
Salmon	7	0.1 percent		0.0 percent
Bocaccio RF	3	0.1 percent	4	0.1 percent
Lingcod	3	0.1 percent	13	0.2 percent
Quillback RF	2	0.0 percent	2	0.0 percent
Yelloweye RF	2	0.0 percent	4	0.1 percent
Total	**4,951**	**100.0 percent**	**5,395**	**100.0 percent**

Note: *Canary rockfish were signicantly larger and heavier than widow rockfish, thus the flip in their respective ranking of fish vs weight.*

Although catch of yelloweye rockfish was minor, the midwater long-leader EFP gear encountered bycatch of other potential constraining species (e.g., blue and canary rockfish). Of greatest concern during execution of the EFP was the relatively large bycatch of canary rockfish, another semi-pelagic species that, at the time, was considered overfished. However, the results of the 2015 stock assessment indicate that the canary rockfish stock has been rebuilt. As a result, the canary rockfish annual catch limit (ACL) will likely increase, such that bycatch of this species in the midwater long-leader fishery is potentially not a major concern.

1.5.3 Summary of Key Differences between the Proposed Action and the Midwater Long-leader EFP

The Council and NMFS decided not to apply several conditions of the EFPs to the proposed action or the reasonable alternatives for the proposed action. These conditions and the rationale for excluding them from proposed action and further consideration and analysis in this EA are summarized below.

As part of the Oregon midwater long-leader EFP, sport charter vessels had their own daily rockfish bag limits, separate and distinct from the state and Federal daily rockfish bag limits. The 15 fish bag limit used during the EFP was to entice more participation and to have a larger sample size of possible catches. The proposed action does not include separate bag limits for this fishery. Rather, the proposed action includes adherence to existing state and Federal groundfish regulations, including the existing bag limits.

As part of the Oregon midwater long-leader EFP, fishing was allowed in the Stonewall Bank YRCA. The proposed action, however, would not allow this exemption to continue. This adherence to existing regulations in the proposed action reduces the need to make changes to regulations and anticipate other potential implications to enforcement operations and the affected environment (e.g., considering the potential for bycatch of yelloweye rockfish in the YRCA).

As part of the Oregon midwater long-leader EFP, fishing was not allowed shoreward of the 40fm curve on the same trip in which long-leader gear was utilized seaward of the 40fm curve. However, the proposed action does not include this provision because separating the two trips types creates an unnecessary burden on anglers and enforcement personnel. Instead, the trip types would be coded separately through the ORBS program allowing for estimates by trip type to be adequately drawn.

As part of the Oregon midwater long-leader EFP, anglers were allowed to use long-leader lengths of 30ft, 40ft, or 60ft at their discretion. The majority of the EFP drifts, however, employed a 30ft long-leader length, which demonstrated a significant reduction of yelloweye rockfish bycatch while also reducing tangles when compared to the longer leader lengths. Therefore, the proposed action exclusively specifies use of a 30ft long-leader.

2 DESCRIPTION OF ALTERNATIVES

To meet the stated Purpose and Need above, the Council and NMFS considered three alternatives in addition to the No Action alternative. All three of the action alternatives would allow fishing seaward of 40fm.

2.1 The No Action Alternative

Under the No Action Alternative, the status quo recreational groundfish regulations in Oregon remain in place, including the use of midwater long-leader gear in open areas, providing year-round fishing opportunities to harvest a suite of groundfish species. The existing deepwater closures would remain seasonally in place, prohibiting access to otherwise healthy and underutilized midwater species, to avoid interactions with overfished rockfish species. The status quo groundfish sportfishing state regulations for Oregon include, among others[14]: (1) no fishing for groundfish within the Stonewall Bank Yelloweye Rockfish Conservation Area[15], (2) ocean waters closed April 1-September 30 outside of the boundary line approximating the 30fm depth contour (defined by waypoints; 40fm in Federal regulations), (3) retention of yelloweye rockfish prohibited, (4) daily catch limits of seven (ten in Federal regulations) groundfish species in aggregate, and (5) daily catch limit of two (three in Federal regulations) lingcod with a minimum size limit of 22 inches.

2.2 Alternative 1 – Allow midwater long-leader recreational groundfish fishing in waters seaward of a line approximating the 40fm depth curve off the coast of Oregon for the time period April-September.

Under Alternative 1, midwater long-leader recreational groundfish fishing would be authorized seaward of a line approximating the 40fm depth curve exclusively off the coast of Oregon (42°00' N lat.to 46°18' N lat.) from April-September to target abundant and healthy midwater species while avoiding or minimizing interactions with overfished rockfish species. The gear configuration would include no more than one line with three hooks, a minimum of 30 feet between the sinker and the lowest hook, and a non-compressible float required above the hooks. Small plastic worms and flies would be used along with weighted hooks; bait and large lures would be prohibited. Further, lingcod retention would be prohibited. All other existing state and Federal groundfish regulations, such as bag limits, rockfish conservation areas, etc., would remain in effect. This alternative would be monitored with the existing ORBS program.

2.3 Alternative 2 – Allow midwater long-leader recreational groundfish fishing in waters seaward of a line approximating the 40fm depth curve off the coast of Oregon for the time period July-September.

Under Alternative 2, midwater long-leader recreational groundfish fishing would be authorized seaward of a line approximating the 40fm depth curve exclusively off the coast of Oregon (42°00' N lat.to 46°18' N lat.) from July-September to target abundant and healthy midwater

[14] http://www.dfw.state.or.us/fish/docs/2015/2015%20Marine%20Zone%20Sport%20Fishing%20Regs_r11-5-14.pdf
[15] The Stonewall Bank YRCA is defined by latitude and longitude coordinates specified at §660.70, subpart C.

species while avoiding or minimizing interactions with overfished rockfish species. The gear configuration would include no more than one line with three hooks, a minimum of 30 feet between the sinker and the lowest hook, and a non-compressible float required above the hooks. Small plastic worms and flies would be used along with weighted hooks, bait and large lures would be prohibited. Further, lingcod retention would be prohibited. All other existing state and Federal groundfish regulations, such as bag limits, rockfish conservation areas, etc., would remain in effect. This alternative would be monitored with the existing ORBS program.

2.4 Alternative 3 – Allow midwater long-leader recreational groundfish fishing in waters seaward of a line approximating the 40fm depth curve off the coast of Oregon for the month of August.

Under Alternative 3, midwater long-leader recreational groundfish fishing would be authorized seaward of a line approximating the 40fm depth curve exclusively off the coast of Oregon (42°00' N lat.to 46°18' N lat.) during the month of August to target abundant and healthy midwater species while avoiding or minimizing interactions with overfished rockfish species. The gear configuration would include no more than one line with three hooks, a minimum of 30 feet between the sinker and the lowest hook, and a non-compressible float required above the hooks. Small plastic worms and flies would be used along with weighted hooks, bait and large lures would be prohibited. Further, lingcod retention would be prohibited. All other existing state and Federal groundfish regulations, such as bag limits, rockfish conservation areas, etc., would remain in effect. This alternative would be monitored with the existing ORBS program.

2.5 Alternatives Considered and Eliminated from Further Detailed Analysis

Additional alternatives to the proposed action were considered, but ultimately rejected for the purposes of further analysis in this EA. These alternatives represent additional considerations beyond those described in Section 1.4. as differences between the proposed action and the EFP.

An alternative to establish a midwater long-leader recreational groundfish fishery in California waters was considered, but it was eliminated from further analysis due to a CDFW recommendation and Council adoption of that recommendation[16]. CDFW expressed concerns regarding the monitoring, enforcement, and funding challenges associated with establishing a new fishery in California waters. Additionally, there has been very little EFP test fishing of the midwater long-leader recreational gear in California waters. It was argued that until robust observer-verified data exist, this potential alternative presents too high a risk to include in the suite of alternatives under consideration.

An alternative to establish a midwater long-leader recreational groundfish fishery in Oregon waters for the sport charter vessel fleet only was considered by the Council, as that fleet could carry observers on board the vessels to collect data on interactions with prohibited and constraining species. It was noted that no current program exists for placing observers on the private recreational vessels, and such a program would require additional analyses and

[16] http://www.pcouncil.org/wp-content/uploads/2015/09/0915decisions.pdf

consideration. The Council decided not to recommend this alternative for further analysis due in part to ODFW's policy regarding sector separation and the goal of preserving equality in managing sport recreational fisheries modes in Oregon.

The Council considered allowing retention of all groundfish species, including lingcod. However, the Council did not recommend further analysis of this alternative given concerns about the increased potential for yelloweye rockfish bycatch should anglers choose to target more bottom-dwelling species, like lingcod.

The Council considered including additional monitoring and reporting requirements for anglers fishing in deep waters with the long-leader gear. However, ODFW regards the current sampling rate of the ORBS monitoring program (which includes angler-reported discard estimates by species and area) to be sufficient for adequately covering new activities under the proposed action. Additionally, charter vessels may also be included in the sampling frame with a voluntary at-sea observer program conducted by ODFW and the Pacific States Marine Fisheries Commission (PSMFC).

Finally, the Council considered allowing the fishery to operate seaward of 30fm but did not make that part of their recommended alteratives for further analysis. This decision was based in part on input from law enforcement that a 10fm buffer zone (i.e., fishing seaward of 40fm enforceable depth contour) would be preferred to allow for effective and efficient enforcement when using depth-based regulations.

3 Description of the Affected Environment

This chapter describes the Pacific Coast groundfish fishery and the resources that would be affected by the alternative action. Physical resources are discussed in Section 3.1, biological resources are described in Section 3.4, and socioeconomic resources are described in Section 3.7. The 2014 Status of the Pacific Groundfish Fishery, Stock Assessment and Fishery Evaluation (SAFE) document[17], and the most recent Environmental Impact Statement[18] (EIS) completed for the Groundfish Harvest Specifications and Management Measures for 2015-2016 provides detailed information pertaining to the physical, biological, and socioeconomic environment. These documents are incorporated by reference and information contained within them is used throughout this chapter.

3.1 Physical Environment

The area affected by the proposed alternatives is the recreational groundfish fishing grounds within the west coast EEZ, from 3 to 200 nautical miles off the coast of Oregon (Figure 1-2). Groundfish fishing is largely confined to depths of 30 fathoms or less, or roughly within 30 miles of the coast. Federally-managed recreational groundfish fishing that could be directly affected by the proposed action occurs in Federal waters seaward of 40fm off the Oregon coast (42° 00' N. lat. to 46° 18' N. lat.). For the period 2011-2015, anglers fished, on average, approximately 84,405 trips per year for bottomfish (groundfish) in Oregon waters, which is the largest ocean recreational fishery in Oregon representing about 44 percent of the total effort over that time period (Table 3-1).

Table 3-1. Oregon Recreational Ocean Angler Trips by Target Species, 2011-2015.

Year	2011	2012	2013	2014	2015	5-year avg.
Bottomfish	71,230	72,526	91,848	79,917	106,504	84,405
Combo	6,008	9,941	13,918	18,776	11,549	12,038
Halibut	16,528	18,055	19,409	14,193	17,551	17,147
Salmon	42,663	57,359	71,705	102,793	54,465	65,797
Tuna	10,784	16,011	9,435	12,045	11,930	12,041
Total	147,213	173,892	206,315	227,724	201,999	191,429

Source: ODFW ORBS program

Recreational fisheries are managed by a series of seasons, area closures, and bag limits. Fishing participation and effort in Oregon recreational fisheries varies seasonally and geographically with participation highest during warmer months.

[17] http://www.pcouncil.org/wp-content/uploads/SAFE_Dec2014_v12.pdf)
[18] http://www.pcouncil.org/wp-content/uploads/GF15_16_SpexFEISJanuary2015.pdf

3.2 West Coast Marine Ecosystems

The proposed alternatives would be contained within the California Current ecosystem (CCE), in particular the waters seaward of approximately 40fm off the coast of Oregon (42° 00' N. lat. to 46° 18' N. lat.). The California Current is essentially the eastern limb of the Central Pacific Gyre. It begins where the west wind drift (or the North Pacific Current) reaches the North American Continent. This occurs near the northern end of Vancouver Island (Ware and McFarlane 1989). A divergence in the prevailing wind patterns causes the west wind drift to split into two broad coastal currents, the California Current to the south and the Alaska Current to the north. There are several dominant currents in the region, which vary in geographical location, intensity, and seasonal direction (Hickey 1979).

The CCE, like other eastern boundary current ecosystems, is especially difficult to define, as it is characterized by tremendous fluctuations in physical conditions and productivity over multiple timescales (Mann and Lazier 1996; Parrish et al. 1981). Food webs tend to be structured around coastal pelagic species (CPS) that exhibit boom-bust cycles over decadal time scales (Bakun 1996; Schwartzlose, et al. 1999). Similarly, the top trophic levels of such ecosystems are often dominated by highly migratory species such as salmon, albacore tuna, sooty shearwaters, fur seals and baleen whales, whose dynamics may be partially or wholly driven by processes in entirely different ecosystems, even different hemispheres.

In contrast to the highly variable, and often volatile, population cycles of many CPS and invertebrate populations in the California Current, many of the resident groundfish in the California Current have evolved entirely different life history approaches to coping with environmental variability. A large number of rockfish (Sebastes and Sebastolobus) species have life spans that typically span decades, and in some extreme examples may reach ages of 100 or greater (Beamish, et al. 2006; Love, et al. 2002). Although large initial catches of many rockfish had given the impression that these stocks were also highly productive, a growing body of scientific evidence soon made it clear that many of these species were incapable of sustaining high intensity fishing pressure using modern fishing methods (Francis 1986; Gunderson 1977; Gunderson 1984; Leaman and Beamish 1984).

For the purposes of this analysis, the ecosystem is considered in terms of physical and biological oceanography, climate, biogeography, essential fish habitat (EFH), and the marine protected areas. A more detailed description of the CCE, including waters seaward of approximately 40fm off the coast of Oregon, can be found in the 2014 SAFE document (PFMC 2014) and the EIS for the 2015-2016 Groundfish Harvest Specifications and Management Measures (PFMC, 2015).

3.3 Essential Fish Habitat

The MSA defines EFH to mean “those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity” (16 U.S.C. 1802 sec. 3(10)). Regulatory guidelines elaborate that the words “essential” and “necessary” mean EFH should be sufficient to “support a population adequate to maintain a sustainable fishery and the managed species’ contributions to a healthy ecosystem.” The regulatory guidelines also establish authority for Councils to designate Habitat Areas of Particular Concern (HAPC) based on the vulnerability and ecological value of specific habitats. Councils are required to minimize, to the extent practicable, the

adverse effects of fishing on EFH. NMFS works through an EFH consultation process to minimize adverse effects (50 CFR 600 subpart J).

Amendment 19 revised the groundfish EFH definitions, specified habitat areas of particular concern (HAPCs), and delineated area closures to mitigate the adverse impacts of fishing on habitat (NMFS 2005). There are 43 areas closed to bottom trawling and 17 areas to all bottom-contact gear off the west coast. Furthermore, all waters deeper than 700fm are closed to bottom trawling. A comprehensive description of groundfish EFH can be found in the Final Groundfish Essential Fish Habitat EIS (NMFS 2005). Federal regulations (50 CFR 600.815(a)(10)) require that EFH provisions in FMPs be periodically reviewed and revised, as warranted, at least every 5 years. Section 6.2.4 of the FMP describes the habitat conservation framework.

In 2005, the Council and NMFS established EFH for Pacific Coast groundfish as follows:

- Depths less than or equal to 3,500m (1,914fm) to mean higher high water level or the upriver extent of saltwater intrusion, defined as upstream and landward to where ocean-derived salts measure less than 0.5 ppt during the period of average annual low flow.
- Seamounts in depths greater than 3,500m as mapped in the EFH assessment Geographic Information System.
- Areas designated as HAPCs not already identified by the above criteria.

In 2010 the Council initiated a review of groundfish EFH, as required by the Federal regulatory guidance. The review consisted of compiling new information, and determining whether the new information warrants formal consideration of changes to the existing EFH designations. The Council determined that there was enough new information to warrant possible changes to EFH, and initiated a process to develop alternatives for Council consideration. The Council subsequently incorporated consideration of changes to RCA delineations into the EFH action. Selection of a preliminary preferred alternative is tentatively scheduled for September 2016. A final preferred alternative is likely to include some combination of relaxed restrictions to bottom trawling, as well as some newly-closed areas.

The proposed action would authorize use of midwater long-leader hook and line gear which would not come into contact with the bottom substrate given the configurations in place, including 30ft leader length (measured as distance from weight to first hook) and a float to keep the gear off the bottom. As such, the potential impact to groundfish EFH is expected to be negligible and is not considered further in the analysis.

3.4 Target and Non-target Species of Groundfish

There are more than 90 species of groundfish managed under the groundfish FMP. They includes over 60 species of rockfish in the family Scorpaenidae, seven roundfish species, 12 flatfish species, assorted shark species, all endemic skate species, all endemic grenadier species, and a few miscellaneous bottom-dwelling marine fish species. Groundfish species occur throughout the Federal EEZ off the coast of Oregon and within state waters, occupying diverse habitats at all stages in their life history.

Rockfish vary in their morphological and behavioral traits, with some species being semi-pelagic and found in mid-water schools, and others leading solitary, sedentary, bottom-dwelling lives (Love et al. 2002). Rockfish inhabit varied depths, ranging from nearshore kelp forests and rock outcroppings to deepwater (more than 150fm) habitats on the continental slope. Despite the range of behaviors and habitats, most rockfish share general life history characteristics, including slow growth rates, bearing live young, and having large infrequent recruitment events. These life history characteristics contribute to relatively low average productivity that may reduce their ability to withstand heavy exploitation (Parker et al. 2000), especially during periods of unfavorable environmental conditions.

Under the Pacific coast groundfish FMP, stocks are defined as healthy, precautionary, or overfished. The passage of the Sustainable Fisheries Act in 1996 and the reauthorization of the MSA in 2006 incorporated the current conservation and rebuilding mandates into the MSA. These mandates—including abundance-based standard reference points for declaring the status of a stock (overfished; in a "precautionary" status; or at levels that can support maximum sustainable yield (MSY) (healthy or "rebuilt"))—were subsequently incorporated in the groundfish FMP with adoption of Amendments 11, 12, and 23. The detailed information on life history, historical catch, and management information for each of these stock categories can be found in the 2014 SAFE document (PFMC 2014).

Under the groundfish FMP, healthy stocks are those non-flatfish stocks with current biomass levels greater than 40 percent of their unfished biomass level (depletion is the term used to define the ratio of current spawning biomass relative to unfished spawning biomass). The current list of 23 healthy rockfish stocks noted in the 2014 SAFE document includes the primary target species for this proposed action, yellowtail rockfish, with an estimated 69 percent depletion based on the 2013 assessment; and a secondary target species, widow rockfish with an estimated 51.1 percent depletion based on the 2011 assessment. These two species comprised 84 percent of the total number of fish captured during the Oregon midwater long-leader EFP (Table 1-1). The northern lingcod stock was also listed as a healthy stock and comprised 0.1 percent by number (3 fish) of the total fish captured during the Oregon midwater long-leader EFP.

Precautionary zone non-flatfish stocks are those with depletion between 25 and 40 percent. To prevent a precautionary zone stock from becoming overfished, an ACL adjustment is made reducing the allowable catch to a level below the acceptable biological catch. The more the stock biomass is below the precautionary threshold of 40 percent depletion for non-flatfish stocks or 25 percent depletion for flatfish stocks, the greater the precautionary adjustment. Five of the current six rockfish species listed as precautionary stocks in the 2014 SAFE document were not captured as part of the Oregon midwater long-leader EFP. The sixth species, blue rockfish, comprised 1.7 percent of the total fish captured during the Oregon midwater long-leader EFP (Table 1-1) and has an estimated 29.7 percent depletion based on the 2007 assessment.

Overfished stocks are those whose abundance has fallen below the depletion threshold of 25 percent (i.e., their spawning biomasses that have dropped below the MSST). The Groundfish FMP requires overfished stocks to be rebuilt to BMSY through harvest restrictions and conservation measures. Furthermore, the MSA requires the rebuilding periods to be the shortest time possible while considering the status and biology of the stock, the needs of fishing communities, and the interaction of the stock within the marine ecosystem. A rebuilding analysis

that considers alternate harvest levels and rebuilding times is prepared for each overfished species.

At the start of 2015, five west coast rockfish stocks were considered overfished: bocaccio south of 40º10' N lat., cowcod south of 40º10' N lat., darkblotched rockfish, Pacific ocean perch, and yelloweye rockfish. All five of these stocks are rebuilding and two (i.e., bocaccio south of 40º10' N lat. and darkblotched rockfish) are predicted to be successfully rebuilt by the start of 2016[19]. Darkblotched rockfish and Pacific ocean perch are slope rockfish that are not caught by hook and line gear. Of the overfished species, only the yelloweye rockfish occurs within the management area for the proposed midwater long-leader fishery and is vulnerable to hook and line gear. There were only two yelloweye rockfish caught out of 5,395 fish captured during the Oregon midwater long-leader EFP (Table 1-1). Detailed background information on yelloweye rockfish is presented below.

The EIS for Groundfish Harvest Specifications and Management Measures 2015-2016 lists canary rockfish, *S. pinniger*, as an overfished stock (estimated depletion of 24 percent based on the 2011 assessment). However, a canary rockfish status update was presented at the Council's June 2015 meeting[20] stating that the canary stock is now fully rebuilt, and has been since 2006. The update and assessment report covered the canary rockfish resource off the coast of the United States from southern California to the U.S.-Canadian border using data through 2014.

Unassessed groundfish stocks include species managed in complexes (i.e., the Minor Shelf Rockfish complexes, Other Flatfish, and Other Fish). For these species, it is usually impossible to determine stock status or an overfished threshold quantitatively. Relatively data-poor, catch-based methods are used to determine the OFL. There were three species from the Minor Shelf Rockfish complex captured during the Oregon midwater long-leader EFP: redstripe rockfish, *S. proriger*; sivergray rockfish, *S. brevispinis*; and quillback rockfish, *S. maliger*. A total of 40 redstripe rockfish were captured (0.8 percent of total), 16 silvergray (0.3 percent of total), and 2 quillback (0.04 percent of total).

3.4.1 Yelloweye Rockfish Distribution and Life History

Yelloweye rockfish range from the Aleutian Islands, Alaska, to northern Baja California, Mexico, and are common from the Gulf of Alaska southward to Central California (Eschmeyer, et al. 1983; Hart 1988; Love, et al. 2002; Miller and Lea 1972; O'Connell and Funk 1986). Yelloweye rockfish occur in waters 25m to 550m deep with 95 percent of survey catches occurring from 50m to 400m (Allen and Smith 1988). Yelloweye rockfish are bottom dwelling, generally solitary, rocky reef fish, found either on or just over reefs (Eschmeyer, et al. 1983; Hart 1988; Love, et al. 2002; Miller and Lea 1972; O'Connell and Funk 1986). Boulder areas in deep water (>180 m) are the most densely populated habitat type, and juveniles prefer shallow-zone broken-rock habitat (O'Connell and Carlile 1993). They also reportedly occur around steep cliffs and offshore pinnacles (Rosenthal, et al. 1982). The presence of refuge spaces is an important factor affecting their occurrence (O'Connell and Carlile 1993). Yelloweye rockfish are a large predatory reef fish that usually feeds close to the bottom (Rosenthal, et al. 1982). They have a

[19] Rebuilding status to be reported in the 2016 SAFE which is expected to be finalized by June 2016 (Pers.comm. John DeVore)
[20] Agenda Item D.8, Attachment, June 2015

widely varied diet, including fish, crabs, shrimps and snails, rockfish, cods, sand lances, and herring (Love, et al. 2002). Yelloweye rockfish have been observed underwater capturing smaller rockfish with rapid bursts of speed and agility. Off Oregon, the major food items of the yelloweye rockfish include cancroid crabs, cottids, righteye flounders, adult rockfishes, and pandalid shrimps (Steiner 1978).

3.4.2 Yelloweye Rockfish Stock Status and Management History

The first yelloweye rockfish stock assessment on the U.S. west coast was conducted in 2001 (Wallace 2002). The assessment concluded yelloweye rockfish stock biomass in 2001 was at about 7 percent of unexploited biomass in Northern California and 13 percent of unexploited biomass in Oregon. The assessment revealed a thirty-year declining biomass trend in both areas with the last above average recruitment occurring in the late 1980s. The assessment's conclusion that yelloweye rockfish biomass was well below the 25 percent of unexploited biomass threshold for overfished stocks led to this stock being declared overfished in 2002. The last full assessment of yelloweye was conducted in 2009 (Stewart, 2009), and an update for yelloweye rockfish was done in 2011 (Taylor and Wetzel, 2011). The resource is modeled as a single stock, but with three explicit spatial areas: Washington, Oregon, and California. As with the other overfished stocks, yelloweye rockfish harvest is now tracked separately and managed against a species-specific ACL. Yelloweye ACLs for 2012-14 were 17, 18, and 18mt, while fishing mortalities are estimated to have been 12, 11, and 16 mt, respectively, representing 51 percent of the aggregate allowable catch over that period. A yelloweye catch report[21] was provided in 2015 (Agenda Item I.1.a NWFSC Report 3) which indicated 2014 total catches were well below specified ACLs/OYs (e.g., 9mt of estimated catch approximately 51 percent of the allowable 18mt ACL). The recreational fisheries sector from Oregon accounted for 2.63mt of the total catch. The ACLs for 2015 and 2016 are 18 and 19mt, respectively, and the probability of rebuilding the yelloweye rockfish stock by the current TTARGET year of 2067 is 62.1 percent (PFMC, 2014; NOAA, 2015).

3.4.3 Yelloweye Rockfish Fishing Mortality

Yelloweye rockfish are caught coastwide in all sectors of the fishery. Yelloweye rockfish are particularly vulnerable to hook-and-line gears, which are effective in the high relief habitats in which they reside. The current non-trawl RCA and the recreational depth closures are primarily configured based on yelloweye rockfish distribution and projected impacts in these hook-and-line fisheries. Area closures and a prohibition on retention are the main strategies used to minimize recreational yelloweye impacts. Depth management is the main tool used for controlling yelloweye rockfish fishing mortality in the Oregon recreational fisheries. Catch monitoring uncertainty is high given the relatively small contribution of yelloweye to rockfish market categories and the relatively large scale of recreational removals. In addition, since 2001, management restrictions have required nearly all yelloweye rockfish caught by recreational and commercial fishermen to be discarded at sea. Precisely tracking recreational catch inseason has

[21] Somers[1], K.A., J. Jannot[1], Y.-W. Lee[1], N.B. Riley[1], V. Tuttle[1], and J. McVeigh[1]. 2015. Estimated discard and catch of groundfish species in the 2014 U.S. west coast fisheries. NOAA Fisheries, NWFSC Observer Program, 2725 Montlake Blvd E., Seattle, WA 98112.

been a challenge. Mortality rates for yelloweye rockfish discard at the surface vary by depth of capture but can be significant for fish captured from deep-water habitat (e.g., 56 percent mortality for fish captured from 21-30fm depth and 100 percent mortality for fish captured greater than 30fm depth (PFMC, 2014)).

3.4.4 Canary Rockfish Distribution and Life History

Canary rockfish are distributed in the northeastern Pacific Ocean from the western Gulf of Alaska to northern Baja California; however, the species is most abundant from British Columbia to central California (Hart 1988; Love, et al. 2002; Miller and Lea 1972). Adults are primarily found along the continental shelf shallower than 300 m, although they are occasionally observed in deeper waters. Juvenile canary rockfish are found in shallow and intertidal areas (Love, et al. 2002). Canary rockfish spawn in the winter, producing pelagic larvae and juveniles that remain in the upper water column for 3-4 months (Love, et al. 2002). These juveniles settle in shallow water around nearshore rocky reefs, where they may congregate for up to three years (Boehlert 1980; Sampson 1996) before moving into deeper water. Canary rockfish are a medium to large-bodied rockfish; achieving a maximum size of around 70 cm. Female canary rockfish reach slightly larger sizes than males. Adult canary rockfish primarily inhabit areas in and around rocky habitat. They form very dense schools, leading to an extremely patchy population distribution that is reflected in both fishery and survey encounter rates. Canary rockfish off the west coast exhibit a protracted spawning period from September through March, probably peaking in December and January off Washington and Oregon (Hart 1988; Johnson, et al.1982).

Little is known about ecological relationships between canary rockfish and other organisms. Adult canary rockfish are often caught with bocaccio, sharpchin, yelloweye, and yellowtail rockfishes, and lingcod. Researchers have also observed canary rockfish associated with silvergray and widow rockfish. Young -of-the-year feed on copepods, amphipods, and young stages of euphausiids. Adult canary rockfish feed primarily on euphausiids, as well as pelagic shrimp, cephalopods, mesopelagic fishes and other prey (Brodeur and Percy 1984; Lee 2002; Phillips 1964). Small canary rockfish are consumed by seabirds, Chinook salmon, lingcod, and marine mammals.

3.4.5 Canary Rockfish Stock Status and Management History

Canary rockfish have long been an important component of rockfish fisheries. The Council began to recommend increasingly restrictive regulations after an assessment in 1994 (Sampson and Stewart 1994) indicated that fishing rates were too high. Prior to passage of the Sustainable Fisheries Act of 1996, there was no requirement for stock assessments to estimate biomass status; and until 1997 the Council's default target rate for fishing mortality corresponded to an SPR of 35 percent. Wallace and Cope (2011) estimated that the abundance of the canary rockfish stock dropped below BMSY (B40 percent) in 1983 and below the MSST in 1990, at which time the annual catch was more than double the current estimate of the MSY level. Harvest rates in excess of the current fishing mortality target for rockfish (SPR= 50 percent) is estimated to have begun in the late 1970s and persisted through 1999. Recent management actions appear to have curtailed the rate of removal such that overfishing has not occurred since 1999, and recent SPR values are in excess of 90 percent.

An updated assessment was prepared in 2011(Wallace and Cope 2011), which estimated stock depletion was 23.2 percent at the start of 2011. This change in stock status was due to a lower estimate of initial, unfished biomass (B0) largely attributable to the inclusion of revised historical Oregon catches from a formal reconstruction of Oregon catch data. For the period 2000-2011, the spawning biomass was estimated to have increased from 11.2 percent to 23.2 percent of the unfished biomass level. The 2011 canary rebuilding analysis (Wallace 2011) predicted the stock would not rebuild to the target year of 2027 with at least a 50 percent probability. The rebuilding plan was revised slightly by changing the target to rebuild the stock to 2030 while maintaining the 88.7 percent SPR harvest rate; the revised rebuilding plan was implemented in 2013.

3.4.6 Canary Rockfish Fishing Mortality

Fishing mortality rates for canary rockfish in excess of the current proxy FMSY harvest rates for rockfish (SPR = 50 percent) are estimated to have begun in the late 1970s and persisted through 1999. Recent management actions appear to have curtailed the rate of removal such that overfishing has not occurred since before 1999 and have maintained harvest rates below the current rebuilding SPR since 2005. Relative exploitation rates (catch/biomass of age-5 and older fish) are estimated to have been less than 1 percent since 2001.

3.4.7 Blue Rockfish Distribution and Life History

Blue rockfish range from the Gulf of Alaska to northern Baja California, although they are most commonly found between Oregon and central California (Love, et al. 2002). They inhabit kelp forests and rocky reefs in relatively shallow depths usually to about 90 m (50 fm) (Miller and Lea 1972; Reilly 2001), but have been landed as deep as 549 meters (300 fm) (Love, et al.2002). Blue rockfish are residential, with their movements restricted to a small area, usually near the kelp canopy or pinnacles for shelter and spatial orientation (Jorgensen, et al.2006; Lea, et al.1999; Miller and Geibel 1973). Blue rockfish are primarily "selective opportunity" planktivores (Gotshall, et al.1965; Love and Ebeling 1978). As juveniles, they feed on planktonic crustacea, hydroids, and algae (Miller and Geibel 1973). Adults also consume fish, squid, tunicates, scyphozoids, bull kelp nori, and pelagic gastropods (Hobson, et al.1996; Lea, et al.1999; Love, et al.2002). Due to their great abundance in kelp forests, blue rockfish juveniles are recognized as a key species in the piscivore trophic web of these ecosystems (Hallacher and Roberts 1985)

3.4.8 Blue Rockfish Stock Status and Management History

Blue rockfish on the West coast were assessed in 2007 to determine the status of the California stock from the Oregon border to Point Conception where blue rockfish are most commonly found, using data through 2006[22]. The assessment treats these fish as a single stock. Blue rockfish are also harvested in Oregon and Washington, but black rockfish are more sought after in those waters.

[22] http://www.pcouncil.org/wp-content/uploads/KeySAFE_BlueRF_Jan08.pdf

The blue rockfish assessment was initially reviewed by a STAR panel in May 2007[23]. The assessment area is based on management boundaries and not on population structure. The assessment covers only the core of the species range. The status of blue rockfish off Oregon (and further north) is unknown. The next assessment should provide documentation of historical blue rockfish catches off Oregon and south of Point Conception. A comprehensive assessment of blue rockfish throughout its West Coast range should be considered.

3.5 Protected Species

The term "protected species" refers to organisms for which killing, capture, or harm is prohibited under several Federal laws, unless authorized. Incidental take of these species in the course of groundfish fishing operations may be allowed under provisions of applicable law. This section describes protected species that may be encountered in recreational groundfish fisheries off Oregon

Table 3-1A. Endangered Species Act (ESA) listed endangered and threatened species under the jurisdiction of the National Marine Fisheries Service that may occur off the Oregon coast. This list is current as of July 2015.

Species	**Status**	**May occur 40 miles offshore**
Marine Mammals		
Blue whale (*Balaenoptera musculus*)	Endangered	X
Fin whale (*Balaenoptera physalus*)	Endangered	X
Humpback whale (*Megaptera novaeangliae*)**	Endangered	X
Sei whale (*Balaenoptera borealis*)	Endangered	X
North Pacific right whale (*Eubalaena japonica*)	Endangered	X
Gray whale (*Eschrichtius robustus*) western North Pacific population	Endangered	
Sperm whale (*Physeter macrocephalus*)	Endangered	X
Killer whales (*Orcinus orca*) southern resident distinct population segment (DPS)	Endangered	
Guadalupe fur seal (*Arctocephalus townsendi*)	Threatened	X

[23] Blue Rockfish STAR Panel Report, National Marine Fisheries Service, Alaska Fisheries Science Center, October 1-5, 2007

Table 3-1A continued. Endangered Species Act (ESA) listed endangered and threatened species under the jurisdiction of the National Marine Fisheries Service that may occur off the Oregon coast. This list is current as of July 2015.

Species	**Status**	**May occur 40 miles offshore**
Sea Turtles		
Leatherback turtle (*Dermochelys coriacea*)*	Endangered	X
Loggerhead turtle (*Caretta caretta*) North Pacific Ocean DPS	Endangered	X
Olive ridley (*Lepidochelys olivacea*)	Endangered/ Threatened	X
Green turtle (*Chelonia mydas*)**	Endangered/ Threatened	X
Marine invertebrates		
White abalone (*Haliotis sorenseni*)	Endangered	
Black abalone (*Haliotis cracherodii*)*	Endangered	
Marine and anadromous fish		
Green sturgeon (*Acipenser medirostris*) southern DPS*	Threatened	
Pacific eulachon (*Thaleichthys pacificus*) southern DPS	Threatened	
Chinook (*Oncorhynchus tshawytscha*) Sacramento River winter, evolutionarily significant unit (ESU)	Endangered	
Chinook, Central Valley Spring ESU	Threatened	
Chinook, California Coastal ESU	Threatened	
Chinook, Puget Sound	Threatened	
Chinook, Snake River Fall	Threatened	
Chinook, Snake River Spring/Summer	Threatened	
Chinook, Lower Columbia River	Threatened	

Table 3-1A continued. Endangered Species Act (ESA) listed endangered and threatened species under the jurisdiction of the National Marine Fisheries Service that may occur off the Oregon coast. This list is current as of July 2015.

Species	**Status**	**May occur 40 miles offshore**
Marine and anadromous fish		
Chinook, Upper Willamette River	Threatened	
Chinook, Upper Columbia River Spring	Endangered	
Coho (*Oncorhynchus kistuch*) Central California Coastal ESU	Endangered	
Coho, S. Oregon/N. CA Coastal ESU	Threatened	
Coho, Lower Columbia River	Threatened	
Coho, Oregon Coast natural	Threatened	
Steelhead (*Oncorhynchus mykiss*), Southern California DPS	Endangered	
Steelhead, South-Central California DPS	Threatened	
Steelhead, Central California Coast DPS	Threatened	
Steelhead, California Central Valley DPS	Threatened	
Steelhead, Northern California DPS	Threatened	
Steelhead, Upper Columbia River DPS	Endangered	
Steelhead, Snake River Basin DPS	Threatened	
Steelhead, Lower Columbia River DPS	Threatened	
Steelhead, Upper Willamette River DPS	Threatened	
Steelhead, Middle Columbia River DPS	Threatened	
Sockeye (*Oncorhynchus nerka*)	Snake River	
Scalloped hammerhead (*Sphyrna lewini*) eastern Pacific DPS	Endangered	

*Species with designated critical habitat within marine waters. ** Species with proposed DPS designations

Approximately thirty species of marine mammals, including seals and sea lions, sea otters, and whales, dolphins, and porpoise, occur within the west coast EEZ. A detailed discussion of marine mammals that occur within the west coast EEZ can be found in the EIS for Amendment 24 (Harvest Specifications and Management Measures for 2015-2016) of the Groundfish FMP (PFMC, 2015). The EIS covers the current biological opinions for the groundfish fishery and includes information on marine mammals and seabirds that have been taken in groundfish fisheries. A detailed list of the various strategic and non-strategic marine mammals stocks found along the west coast EEZ can be found in the most recent Marine Mammal Stock Assessment Report[24]. The fishery described in the alternatives is very similar to, and uses similar gear types, as fisheries listed as Category III under the Marine Mammal Protection Act, indicating a remote likelihood of, or no known, serious injuries or mortalities to marine mammals. In addition, the midwater long-leader EFP trials that tested the fishery described in the alternatives had no interactions with marine mammals. The alternatives do not propose to change overall groundfish harvest levels from those previously considered in previous NEPA analyses, nor does it shift effort to fishing gears and activities that impact marine mammals. Therefore, marine mammal impacts are not considered further in the EA analysis.

The California Current System supports more than two million breeding seabirds and at least twice that number of migrant visitors. Seabird species listed as endangered under the ESA include short-tail albatross (*Phoebastria albatrus*) and the California least tern (*Sterna antillarum browni*). The only species listed as threatened under the ESA is the marbled murrelet (*Brachyramphs marmoratus*). These species of seabirds have been sighted off the west coast, however, no takes of these species have been documented in the recreational groundfish fishery or during the Oregon midwater long-leader EFP trials (pers. comms Lynn Mattes, ODFW). The alternatives do not propose to change overall groundfish harvest levels from those previously considered in previous NEPA analyses, nor does it shift effort to fishing gears and activities that impact seabirds. Therefore, seabird impacts are not considered further in the EA analysis.

Four sea turtle species have been sighted off the U.S. West Coast: loggerhead (*Caretta caretta*), green (*Chelonia mydas*), leatherback (*Dermochelys coriacea*), and olive ridley (*Lepidochelys olivacea*). Under the Endangered Species Act (ESA), green, leatherback, and olive ridley sea turtles are listed as endangered; loggerheads are listed as threatened. Although sea turtles have been sighted off the west coast, no takes of these species have been documented in the groundfish fishery or during the midwater long-leader EFP trials. The alternatives do not propose to change overall harvest levels from those previously considered in previous NEPA analyses, nor does it shift effort to fishing gears and activities that impact sea turtles. Therefore, sea turtle impacts are not considered further in the EA analysis.

Green sturgeon occurs along the coastal waters of North America, ranging from northern Baja California to the Bering Sea (Mecklenberg et al. 2002). Depending on spawning locations and genetic distinctions, populations are classified into the Northern Distinct Population Segment (DPS) and the Southern DPS. The Southern DPS of green sturgeon was listed as threatened under the ESA in 2006 (71 Fed. Reg. 17757), and critical habitat was designated in 2009 (74 Fed. Reg. 52300). A Biological Opinion on the Continuing Operation of the Pacific Coast Groundfish Fishery was completed in 2015 to provide an analysis of observed bycatch and

[24] http://www.nmfs.noaa.gov/pr/sars/region.htm

commercial fleet-wide take estimates of green sturgeon encountered in the federally-managed U.S. west coast groundfish fisheries (NMFS 2015). The Opinion did not, however, include bycatch of green sturgeon in tribal fisheries (except at-sea hake tribal), unobserved fisheries, recreational fisheries, research fisheries, or vessels fishing under an EFP. The ORBS program recorded no encounters with green sturgeon on bottomfish trips from 2001 to present (pers. comms Lynn Mattes, ODFW). Similarly, there have been no recorded interactions with green sturgeon to date by observers monitoring the Oregon groundfish hook and line recreational fishery. The alternatives do not propose to change overall harvest levels from those previously considered in previous NEPA analyses, nor does it shift effort to fishing gears and activities that impact green sturgeon. Therefore, green sturgeon impacts are not considered further in the EA analysis.

3.6 Salmon

During their life cycle, salmon caught in west coast fisheries utilize coastal streams and river systems from central California to Alaska and marine waters along the U.S. and Canada seaward into the north central Pacific Ocean, including Canadian territorial waters and the high seas. Salmon bycatch occurs in the recreational groundfish fisheries of Oregon[25] predominantly on trips targeting bottomfish and combo trips (i.e., targeting salmon and a secondary non-salmon target species) (Table 3-2). State and Federal managers estimate the bycatch of salmon from observer and catch monitor data. The availability of data to monitor salmon bycatch varies between sectors. The greatest amount of data is available for trawl fisheries and the least amount of data is available in the incidental open access and recreational fisheries. Other than the Pacific whiting tribal fishery, observer-collected salmon bycatch data are not available for either of these fisheries. However, the Oregon midwater long-leader EFP was monitored by at-sea observers on 100 percent of the trips. A total of 7 salmon were recorded captured using the midwater gear.

Table 3-2. Chinook Salmon Landed in Oregon Recreational Ocean Trips.

Year	2011	2012	2013	2014	2015	5-year avg.
Bottomfish	36	90	131	84	48	78
Combo	312	1,810	2,489	1,611	629	1,370
Halibut	15	6	7	3	5	7
Salmon	4,794	16,857	27,606	16,746	8,739	14,948
Tuna	0	0	0	0	0	0
Total	5,157	18,763	30,233	18,444	9,421	16,404

Source: ODFW ORBS program

To retain salmon under Oregon state regulations, they must be caught on legal salmon sport gear for ocean salmon, which is no more than two single point barbless hooks. Legal gear for groundfish/bottomfish is a single line with no more than three hooks. Salmon incidentally caught with bottomfish (or halibut) gear must be returned unharmed. Additionally, once legally caught salmon are retained onboard the vessel, only legal salmon gear is allowed to be used. Some

[25] http://www.pcouncil.org/wp-content/uploads/2015/05/D3a_NMFS_Rpt1_SalmonBycatch_JUN2015BB.pdf

anglers may use "salmon gear" when fishing for bottomfish, and, on the off chance catch a salmon, they could keep it. Or they were intending to target bottomfish, however either caught their bottomfish quickly, or were having trouble and decided to try their luck at catching salmon, using salmon gear.

Section 7 of the ESA requires Federal agencies, in consultation with and with the assistance of the U.S. Secretary of Commerce, to ensure that their actions are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat that has been designated for those species. 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[26]. These biological opinions indicate that Chinook[27] is the salmon species most likely to be affected by the groundfish fishery, while other salmon species are rarely encountered in groundfish fisheries. The following "evolutionarily significant units" (ESUs) of ESA-listed Chinook are most likely to be affected by the groundfish fisheries found within the range of the action area under consideration: Snake River fall Chinook (threatened), Upper Willamette River Chinook (threatened), Lower Columbia River Chinook (threatened), Puget Sound Chinook (threatened), California coastal Chinook (threatened), and Central Valley spring-run Chinook (threatened). Sacramento River winter-run Chinook (endangered) are rarely reported in the action area (pers. comm. Peter Lawson, NMFS).

The most relevant factor in terms of stock composition in general is latitude and, to a lesser extent, the time of year. There is some effect of depth and distance offshore for a few stocks, but in general, latitude appears to be the far greater determinant in regards to Chinook bycatch and harvest. In 2013, when catch rates were highest in genetic sampling index sampling, the commercial boats caught about 4 percent Snake River, 22 percent Tules (of all kinds), and 60 percent Central Valley. (Tables 3-3, 3-4)

There is a small likelihood of catching any of the Columbia and Snake River listed ESUs as most of the Chinook in the management area under consideration are usually from the Sacramento River Fall run (non-listed stock). The Oregon Coast and the Lower Columbia Natural ESUs are the most likely ESA-listed Coho ESUs to be affected by the groundfish fisheries found within the range of the management area under consideration (Table 3-5, 3-6). As with Chinook, there is a small likelihood of catching any of the Coho ESUs in the action area under consideration.

[26] On January 22, 2013 the NMFS West Coast Region's Sustainable Fisheries Division requested reinitiation of the current salmon biological opinion for the groundfish fisheries. The updated biological opinion was expected to be completed prior to implementation of the 2015-2016 harvest specifications and management measures.

[27] http://www.fisheries.noaa.gov/pr/species/fish/chinook-salmon.html

Table 3-3. Chinook Landed on Oregon Recreational Ocean Bottomfish Trips.

Year	2011	2012	2013	2014	2015	5-year avg
Jan	0	0	0	0	0	0
Feb	0	0	0	0	0	0
Mar	0	15	21	7	0	9
Apr	7	9	4	16	3	8
May	5	14	5	19	14	11
Jun	9	8	29	6	0	10
Jul	10	16	30	13	0	14
Aug	3	10	21	7	14	11
Sept	2	14	11	6	10	9
Oct	0	4	10	1	7	4
Nov	0	0	0	0		0
Dec	0	0	0			0
Total	36	90	131	75	48	76

Source: ODFW ORBS program

Table 3-4. Chinook Released on Oregon Recreational Ocean Bottomfish Trips

Year	2011	2012	2013	2014	2015	5-year avg
Jan	0	0	0	2	8	2
Feb	0	0	11	0	0	2
Mar	0	0	55	0	3	12
Apr	0	2	5	0	10	3
May	2	4	5	2	0	3
Jun	2	14	5	2	0	5
Jul	0	4	0	7	0	2
Aug	0	0	7	8	6	4
Sept	6	22	2	16	16	12
Oct	10	0	2	0	2	3
Nov	5	5	2	1		3
Dec	5	0	2			2
Total	30	51	96	38	45	52

Source: ODFW ORBS program

Table 3-5. Coho Landed on Oregon Recreational Ocean Bottomfish Trips.

Year	2011	2012	2013	2014	2015	5-year avg
Jan	0	0	0	0	0	0
Feb	0	0	0	0	0	0
Mar	0	0	0	0	0	0
Apr	0	0	0	0	0	0
May	0	0	0	0	0	0
Jun	0	0	2	3	4	2
Jul	12	24	8	121	63	46
Aug	3	4	10	46	12	15
Sept	0	17	4	96	33	30
Oct	0	0	2	0	3	1
Nov	0	0	0	0		0
Dec	0	0	0			0
Total	15	45	26	266	115	93

Source: ODFW ORBS program

Table 3-6. Coho Released on Oregon Recreational Ocean Bottomfish Trips

Year	2011	2012	2013	2014	2015	5-year avg
Jan	0	0	0	0	0	0
Feb	4	0	0	0	11	3
Mar	0	0	7	0	4	2
Apr	0	0	0	0	0	0
May	0	1	0	22	4	5
Jun	10	8	16	70	18	24
Jul	35	39	6	41	63	37
Aug	13	76	85	179	36	78
Sept	36	15	8	49	22	26
Oct	59	2	9	98	14	36
Nov	25	2	0	1		7
Dec	1	3	0			1
Total	183	146	131	460	172	218

Source: ODFW ORBS program

3.7 Socioeconomic Environment

Since 2000, west coast groundfish management has been heavily centered on the need to rebuild overfished stocks. The resulting need to constrain some harvest of healthy stocks has economic implications for recreational anglers, businesses, and communities due to the loss of landings and revenue that could have been derived from both overfished species and many target species that co-occur with those overfished species.

The recreational fishery primarily consists of charter vessels, party boat businesses, and private or privately-operated rented vessels, although some fishing occurs off beaches and piers. Coast-wide, the number of recreational marine angler trips peaks in the July through August period, but seasonal concentration is more pronounced in Oregon and Washington where weather is more variable.

Oregon recreational groundfish fisheries are an important part of fishery-related economic activity with 106,504 angler trips completed in 2015 (Table 3-7). Using multipliers from the IO-PAC model developed for the 2015-2015 DEIS, recreational fishing for groundfish (i.e., bottomfish and halibut) accounted for $14,225,329 in trip-related expenses (excludes durable goods) and 327 jobs in the state of Oregon. Tables 3-8 and 3-9 present a snap shot of the distribution of bottomfish angler trips by month and port relative to depth restrictions.

The ODFW's ORBS program monitors recreational catch as it is landed in port, with sampling data compiled and archived through the PSMFC in the Recreational Fisheries Information Network (RecFIN) database. The types of data compiled in RecFIN include sampled biological data, estimates of landed catch plus discards, type of trip (party/charter, private/rental), estimates of total numbers of anglers and total number of trips, and economic data. Data are generally available within 3 months. Descriptions of the RecFIN program, state recreational fishery sampling programs, and the most recent data available to managers, assessment scientists, and the general public can be found on the PSMFC web site[28].

Table 3-7. Oregon Charter and Private Boat Angler Trips, 2011-2015.

Year	2011	2012	2013	2014	2015	5-year avg.
Bottomfish	71,230	72,526	91,848	79,917	106,504	84,405
Combo	6,008	9,941	13,918	18,776	11,549	12,038
Halibut	16,528	18,055	19,409	14,193	17,551	17,147
Salmon	42,663	57,359	71,705	102,793	54,465	65,797
Tuna	10,784	16,011	9,435	12,045	11,930	12,041
Total	147,213	173,892	206,315	227,724	201,999	191,429

Source: ODFW ORBS program

[28] http://www.psmfc.org/program/prog-3

Table 3-8. Average bottomfish angler trips per month by port and boat type for months without depth restrictions (all-depth), 2010 to 2012.

	Charter						Private						Total					
Port	Jan	Feb	Mar	Oct	Nov	Dec	Jan	Feb	Mar	Oct	Nov	Dec	Jan	Feb	Mar	Oct	Nov	Dec
Astoria	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Garibaldi	24	82	77	112	7	20	23	50	30	88	4	35	47	132	107	200	11	55
Pacific City	2	7	15	25	3	2	21	69	78	172	14	28	23	77	93	197	17	30
Depoe Bay	44	178	395	402	42	37	26	70	41	98	12	46	70	248	436	501	54	83
Newport	142	337	738	537	170	139	83	173	172	159	33	99	225	510	910	696	203	239
Winchester	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Charleston	17	59	109	153	5	10	78	139	162	298	19	116	95	198	271	451	24	127
Bandon	0	0	13	40	6	3	2	11	17	65	2	7	2	11	30	105	8	11
Port Orford	0	0	0	4	0	0	6	7	9	28	4	8	6	7	9	32	4	8
Gold Beach	0	3	8	26	4	2	6	22	35	100	6	14	6	25	43	126	9	16
Brookings	10	48	62	77	0	6	168	370	263	495	109	205	178	418	325	573	109	211
Total	240	714	1,417	1,376	237	220	412	912	806	1,504	203	558	652	1,626	2,223	2,880	440	779

Source: ODFW ORBS program

Table 3-9. Average bottomfish angler trips per month by port and boat type for months with 40-fm depth restrictions, 2010 to 2012.

	Charter						Private						Total					
Port	Apr	May	Jun	Jul	Aug	Sep	Apr	May	Jun	Jul	Aug	Sep	Apr	May	Jun	Jul	Aug	Sep
Astoria	0	10	35	6	6	5	2	92	133	60	24	10	2	102	168	66	30	15
Garibaldi	147	340	837	1,167	858	389	121	359	661	491	519	223	267	699	1,498	1,658	1,377	613
Pacific City	25	47	77	168	170	37	202	464	552	893	626	191	227	510	629	1,061	797	228
Depoe Bay	782	1,446	1,870	2,659	2,437	808	251	418	545	312	259	171	1,033	1,864	2,415	2,971	2,696	978
Newport	964	1,106	1,896	2,289	2,322	1,219	624	1,111	1,051	1,176	1,163	493	1,588	2,217	2,948	3,465	3,485	1,712
Winchester	0	0	0	0	0	0	0	6	13	2	0	3	0	6	13	2	0	3
Charleston	299	449	669	694	664	451	380	878	1,231	789	1,345	825	679	1,327	1,900	1,484	2,009	1,276
Bandon	31	66	216	256	426	161	68	165	185	144	279	93	99	231	401	400	706	254
Port Orford	0	28	32	0	0	7	30	100	59	188	63	49	30	129	91	188	63	56
Gold Beach	45	88	133	194	238	119	69	283	184	389	667	135	114	371	318	583	905	254
Brookings	149	280	541	580	556	274	633	1,906	2,386	2,923	2,587	1,407	782	2,186	2,927	3,502	3,143	1,681
Total	2,443	3,859	6,306	8,014	7,678	3,471	2,379	5,782	7,000	7,367	7,533	3,599	4,822	9,641	13,306	15,381	15,211	7,070

Source: ODFW ORBS program

Because recreational catch is not sold, the economic value of these fisheries must be indirectly calculated; a measure of the relative economic importance is provided by estimating the engagement and dependence of groundfish-directed angler trips by port (Table 3-10). Engagement is measured by dividing the number of groundfish-directed angler trips in the port by the coast-wide number of groundfish angler trips during the baseline period. Dependence is measured by dividing the number of groundfish-directed angler trips in the port by the total number of angler trips in the port during the baseline period.

Table 3-10. Oregon recreational fishery engagement and dependence scores and rank for the 2003 to 2012 baseline period.

Region	Engagement	Engagement Rank	Dependence	Dependence Rank
Astoria	0 percent	14	7 percent	13
Tillamook	2 percent	11	39 percent	9
Newport	6 percent	5	62 percent	2
Coos Bay	2 percent	10	35 percent	11
Brookings	3 percent	6	62 percent	3

Source: PFMC (2014)

4 Environmental Consequences

The alternatives and associated impacts of the proposed action are analyzed below based on best available data. The proposed action is related to ongoing decisions regarding biennial groundfish harvest specifications in that the action alternatives will require compliance with the resulting allocations and management measures. At their April 2016 meeting, the Council will select its final preferred alternatives for the 2017 and 2018 ACLs for all FMP stocks and complexes. The Council will then take final action for the 2017 and 2018 ACLs in June 2016. NMFS will then publish a proposed rule for comment, consider public comment, and make a final decision prior to implementation for 2017.

4.1 Target and Non-target Species of Groundfish and the Physical Environment

4.1.1 No Action Alternative

Under the No Action alternative, the status quo management measures for the recreational groundfish fishery would remain in place, including seasonal depth closures to protect overfished groundfish species, namely yelloweye rockfish. Given the predicted impacts of reductions in recreational fishing effort for salmon with the forecasted El Nino event[29], there is potential for a shift in fishing effort to target nearshore rockfish stocks as a substitute, which could put additional pressure on those stocks and the the physical environment. However, this potential shift in effort is unlikely to significantly impact the status of nearshore species given conservative management measures in place under the Groundfish FMP. Hook and line fishing is generally recognized as a low-impact gear in regards to physical manipulation of reef structure and bottom habitat, any additional nearshore fishing pressure is not expected to result in significant impacts to the physical environment.

4.1.2 Action Alternatives: 1) Full season option, April-September; 2) Reduced season option, July-September, 3) One month season option, August.

While it is not possible to quantitatively evaluate the impacts of the different action alternatives on the target and non-target species and physical environment due to uncertainty about the number of trips that may fish the gear, the level of potential impacts to EFH and the marine ecosystem from the proposed action alternatives are anticipated to be low and to have either no expected differential impact or less impact than the No Action Alternative. Because all of the action alternatives will be utilizing midwater long-leader gear without any direct contact with reef structure and bottom habitat, the effects of these alternatives on EFH or the marine ecosystem will not be not significant. The action alternatives all require compliance with biennial harvest specifications and management measures; therefore, the alternatives for the proposed action are not expected to result in impacts to stock status above or beyond those considered for the accompanying harvest specification and management measures.

[29] http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.html

4.1.3 Alternative 1 – Full season option, April-September

ODFW modeled the potential bycatch of the three constraining stocks[30] (i.e., yelloweye, canary, and blue rockfishes) under a proposed full season (April-September) scenario to assist in determining the potential viability of the midwater long-leader fishery. Estimates of potential impacts to individual constraining species are based, in part, on results from the midwater long-leader EFP test fishery. To project total catch of individual constraining species for the midwater long-leader fishery, the respective ratio of individual constraining species to total catch of healthy target stocks (e.g., ~0.13 mt of blue rockfish for 10 mt of target healthy stocks combined) is applied to possible total catch of target healthy species for the midwater long-leader fishery as a whole. To frame uncertainity, variances in the ratios from individual trips were used to determine a 95 percent confidence interval, which can provide some information on the potential for greater takes of constraining species.

Precise total catch of target healthy species is uncertain because potential participation in the midwater long-leader fishery is dependent on multiple factors. Therefore, a range of 0-500 mt of catch of target healthy species was used to calculate potential catches of the three constraining stocks (i.e., yelloweye, canary, and blue rockfish). The quota for each of these limiting species is plotted with projected catches in the figure below (Figure 4-1) to provide a visual demonstration of how much take of target healthy species may be possible before reaching the quotas of the constraining species.

In Figure 4-1, two different types of quotas are shown: maximum and effective. Maximum quota is the total Oregon sport quota (based on Federal and/or state allocations) for all fisheries. However, maximum quota is not a good measure of potential quota for the midwater long-leader fishery because it does not account for removals by other Oregon sport fisheries, particularily the traditional recreational groundfish fishery. To account for take in other sport fisheries, an "effective quota" concept was developed as a better measure of the potential amount available for the midwater long-leader fishery.

An effective quota is essentially a measure of the amount of quota from other fisheries that could be available to the midwater long-leader fishery. It is important to note that effective quota is not based on current regulations (e.g., bag limits) for constraining species. Instead, it is based on the maximum projected amount of quota that could be available if take of constraining species in other fisheries was restricted to free up as much quota as possible for the midwater long-leader fishery. For example, the effective quotas of blue and canary rockfish were based on a daily bag limit of zero for each of these species (rather than the 2015 bag limits of three blue rockfish and one canary rockfish). Without these restrictions, there would be no effective quota of canary rockfish or blue rockfish for the midwater long-leader fishery (and thus no potential for a midwater long-leader fishery). The potential effects of such restrictions on other fisheries may have similar limiting consequences. However, these regulatory and quota allocation decisions may be considered as part of the Pacific Council's biennial groundfish harvest management measures specifications process.

[30] Quotas are calendar-year based and by sector. The Oregon recreational groundfish fishery has a distinct allotment of quota (mt) for the species in question.

Yelloweye Rockfish

The midwater long-leader EFPs were successful in targeting healthy semi-pelagic rockfish stocks without significantly impacting yelloweye rockfish (Table 1-1), which are the most constraining species to Oregon recreational fisheries. Only two yelloweye rockfish were caught during two years of the Oregon midwater long-leader EFP test fishery. Although the yelloweye rockfish bycatch in the midwater long-leader fishery is projected to be minor, even with substantial effort and catch of target healthy stocks (full season yelloweye = 0.6 mt (1.4 mt 95 percent), partial season = 0.6 mt (1.4 mt 95 percent), and August only = .26 mt (.65 mt 95 percent)), there is not much margin for error. Under the status quo or No Action Alternative, the other sport fisheries currently take most of the yelloweye rockfish quota (thus the effective quota is small). Accordingly, stricter regulations in the other sport fisheries may be prudent to provide more effective quota of yelloweye rockfish for the midwater long-leader fishery. However, these regulatory and quota allocation decisions may be considered as part of the Pacific Council's biennial groundfish harvest management measures specifications process.

Oregon could also restrict the traditional groundfish fishery to provide relief if bycatch of yelloweye rockfish in the midwater long-leader fishery became problematic. Although the ACL for yelloweye rockfish is going to increase 1 mt for 2017-2018 from the current 19mt to 20 mt, bycatch of yelloweye rockfish is a primary constraint to both of the Oregon sport fisheries (i.e., traditional groundfish and Pacific halibut). And if bycatch in the longleader fishery becomes problematic, Oregon could either close the midwater long-leader fishery via state rule or adopt more conservative regulations in the other sport fisheries (namely depth closures).

In addition, it would be vital for midwater long-leader fishery participants to correctly identify canary rockfish and yelloweye yockfish, which are similar in appearance. Since angler-reported data (not observer data) is used to estimate discards in fisheries, a misreporting rate could impact the estimates of yelloweye rockfish mortality in the long-leader fishery. Effective training in fish indentification may be prudent for anglers who desire to participate in the midwater long-leader fishery.

Canary Rockfish

The canary rockfish quota used in this analysis is based on the 2015 stock assessment, which declares the stock to have rebuilt from overfished status. The quota for canary rockfish for the Oregon sport fisheries could potentially increase from 12mt (current ACL) to 119mt (assuming the MSY of 1,165mt that was calculated in the 2015 assessment is allocated in the same manner as in recent years). Because MSY is the maximum potential quota, 119mt represents an upper limit from which management buffers could be added to result in a smaller fishery quota.

With canary rockfish now rebuilt and a nearly ten-fold quota increase expected (e.g., upper limit of 119mt), the midwater long-leader fishery could yield 440mt of healthy target stocks before reaching the canary rockfish quota (Figure 4-1). This level of catch is estimated to to support as many as 50,000 angler trips. However,when considering the lower range of the 95 percent confidence interval for catches (e.g., 230mt), fewer trips are expected (e.g., approximatly 25,000 trips). If the canary rockfish stock had not been rebuilt, then bycatch of canary rockfsh would have severely limited the viability of a future midwater long-leader fishery as the quota level of

recent years (i.e., 5mt) is estimated to likely yield less than 1,000 angler trips and 10mt of healthy target stocks before the quota is reached.

Blue Rockfish

Although blue rockfish are not overfished, they are co-managed with a group of other nearshore rockfish (i.e., Minor Nearshore Rockfish), for which the Oregon sport fisheries are allocated a relatively small collective quota (~26mt). The blue rockfish quota used in this analysis is based on the Oregon state allocation of 26mt from within the informal Federal allocation of 36mt to Oregon, which is part of the current ACL of 69mt. While blue rockfish could restrain the midwater long-leader fishery at the current ACL of 69mt, the Oregon sport allocation of blue rockfish and the other Minor Nearshore Rockfish complex is expected to increase in the future; thereby reducing the possibility that blue rockfish could restrain the midwater long-leader fishery. Specifically, the ACL for 2017-2018 may increase from the current 69mt to approximately 104 mt in 2017-2018. The amount that will be allocated to Oregon has not been decided (i.e., there are three different sharing options to each of the states being considered), but two of the three options increase the allocation for Oregon. Even if the allocation to the Oregon sport fishery is not increased, the potential that blue rockfish could restrain the midwater long-leader fishery could be considered low. Oregon could reduce the blue rockfish bag limit (currently three) in the traditional sport groundfish fishery to provide relief in the event that bycatch of blue rockfish in the midwater long-leader fishery became problematic.

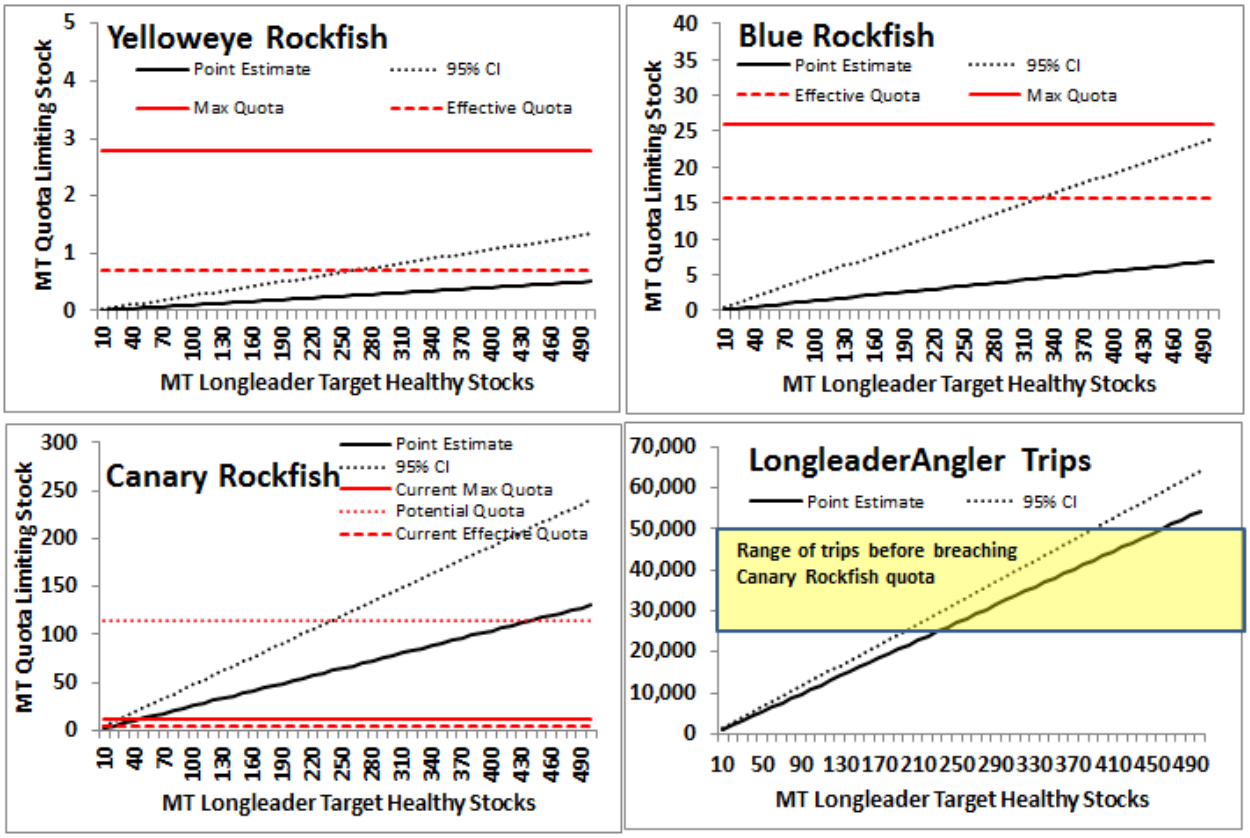

Figure 4-1. Projected mortality of constraining stocks (Yelloweye, Blue, and Canary rockfishes) and angler trips in the midwaer long-leader fishery depending on the theoretical takes of healthy target stocks (e.g., Yellowtail and Widow rockfishes). ***Note:*** *The intersections of the black catch lines and the red quota quota lines represent the amount of yield of target healthy stocks that could be taken before reaching the quota of a constraining stock. Corresponding maximum potential midwaer long-leader angler trips can then be determined based on that amount of yield of target healthy stocks. "Maximum quota" and "effective quota" are defined in the text.*

Sources of Uncertainty in Catch of Constraining Non-target Species

Projections of mortalities of constraining species (Figure 4-1) assume that bycatch ratios in a midwater long-leader fishery will be similar to those observed on charter boats in the midwater long-leader EFP test fishery. There may be differences, however. For example, private boats may have greater bycatch ratios than charter anglers. While there is a possibility that non-observed midwater long-leader bycatch rates may be greater than those observed during the test fishery, actions can be taken to ensure that bycatch stays within acceptable limits. To avoid exceeding established quota allocations and bycatch limits, catch and discard mortality is monitored closely through the ORBS program and reported weekly (one week time lag). If catch is projected to approach an established quota, mechanisms are in place to close the fishery (e.g., within 24 to 48 hours via emergency actions by the state of Oregon).

Quota set-asides for constraining species could be used depending on how much bycatch is desired for the fishery. For instance, of the ~26mt quota for blue rockfish, 10mt could be set aside for the midwater long-leader fishery, and the other 16mt could be set aside for the traditional groundfish fishery. That way, if the bycatch rates of blue rockfish are unexpectedly

high in the midwater long-leader fishery, then that fishery would close earlier than projected and not threaten the overall Oregon sport quota for blue rockfish. Prohibiting retention of lingcod during participation in the midwater long-leader fishery would eliminate incentive for anglers to fish the gear in a way that allows them to catch this benthic dwelling species. If targeting of lingcod were to occur, then the take of yelloweye rockfish, an overfished benthic species for which the midwater long-leader gear was designed to avoid, could be greater than projected and could threaten opportunities in the traditional groundfish fishery and Pacific Halibut fishery. Take of pelagic species, such as tuna and salmon, is not expected to be significant within the guidelines and seasons set forth for these fisheries (gear, area, season, and other salmon-specific restrictions would limit potential retention of salmon).

Spatial closures of "hot-spots" of constraining species do not seem to be a viable option for limiting take of these species. As shown in Figure 4-2, co-occurrence of limiting species and healthy target stocks is prevalent in all habitat types, which reduces the potential of spatial closures to limit take of limiting stocks. Further, during two years of study, only two yelloweye rockfish were caught (not shown) despite sampling occurring within a known hotspot, the Stonewall Bank Yelloweye Rockfish Conservation Area.

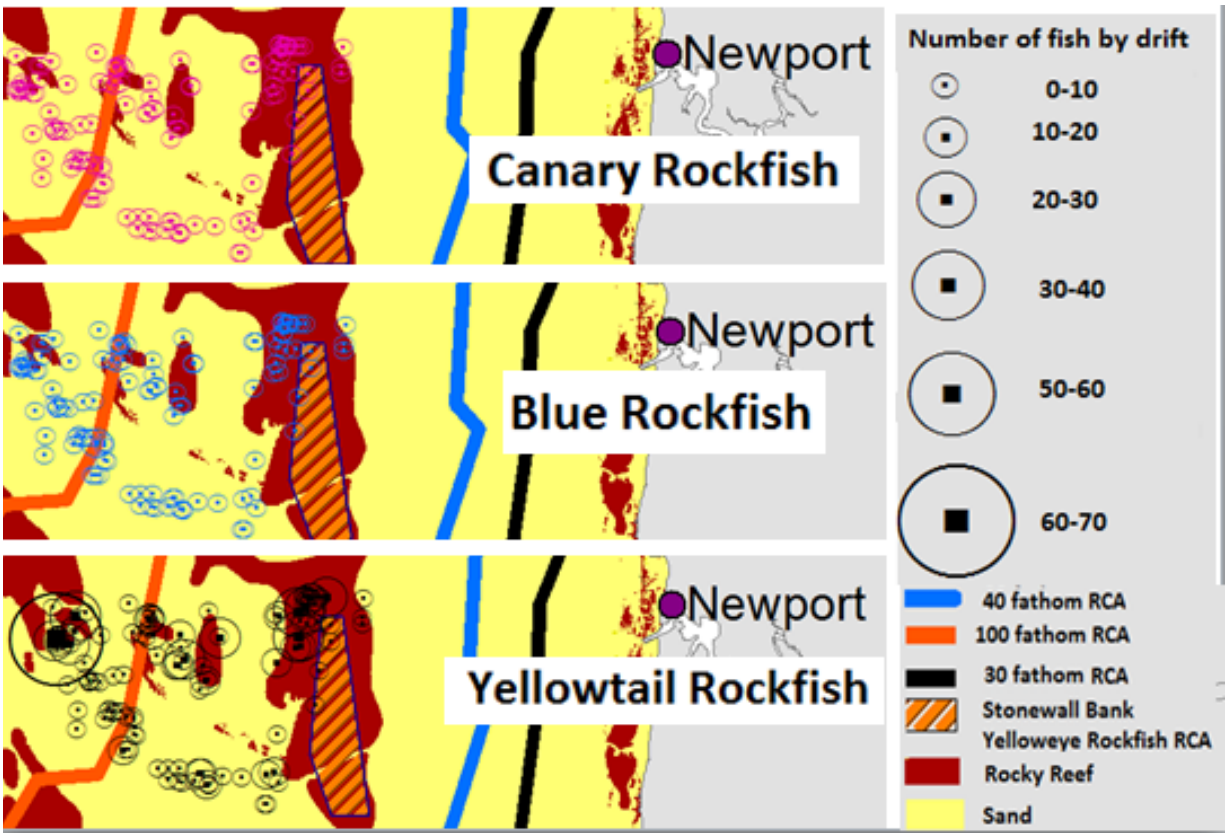

Figure 4-2. Catch of constraining stocks (i.e., canary rockfish and blue rockfish) and the main target healthy stock (i.e., yellowtail rockfish) for individual drifts in the midwater long-leader test fishery. ***Note:*** *The black line (30fm) is the current depth restriction for the traditional groundfish fishery, and the blue line (40fm) is the proposed shoreward boundary of the midwater long-leader fishery (which would extend out to unlimited depths).*

In summary, the actual bycatch of constraining species will depend on the potential participation in the midwater long-leader fishery. The range of potential effort was modeled to show what the target catch of yellowtail rockfish could be before constraining species would restrict the fishery. The existing ORBS monitoring program would track the catch totals for these constraining species as takes place now in the traditional groundfish fishery. There is the possibility that the bycatch rates for constraining species may be higher in a less than fully observed fishery than they were during the fully observed midwater long-leader EFP test fishery. However, observation of a fully-observed fishery is not feasible (i.e., there is only partial observer coverage in the recreational charter fleet and no observer coverage in the private groundfish fleet), therefore this potential source of uncertainty must be considered in fishery design (e.g., increased observer coverage in the recreational charter fleet). With quota set-asides and a prohibition of take of benthic species, take of constraining species in a midwater long-leader fishery could be carefully managed to meet specified objectives for all fisheries.

4.1.4 Alternative 2) Reduced season option, July-September, and Alternative 3) One month season option, August.

The purpose for shortened seasons in Alternatives 2 and 3 for the midwater long-leader fishery, versus Alternative 1, is to prevent bycatch of constraining species from reaching levels that could jeopardize opportunity in the other sport fisheries that would share in those quotas. However, participation in the midwater long-leader fishery is expected to remain below levels that would cause bycatch concerns for the other sport fisheries. Based on bycatch levels observed during the Oregon midwater long-leader EFP, the potential fishery is projected to support a maximum of 25,000-50,000 angler trips before bycatch levels of constraining species would start to constrain the all the sport fisheries. To create a situation that would propel anglers to switch to the midwater long-leader fishery at the maximum levels, which could be problematic to overall quotas (and thus triggering the need for a shortened season), it is expected that significant collapses would have to occur in the traditional groundfish or salmon fisheries. During public meetings, anglers reported to ODFW that they will only participate in the midwater long-leader fishery barring lack of other sport fishing opportunity. These anecdotal reports appear consistent with behaviors in the traditional fishery. That is, anglers are currently allowed to fish the long-leader gear in the proposed depths during the winter months (October-March), but none are believed to do so based on ORBS monitoring reports. Significant collapses are not expected to occur in the traditional groundfish fishery, as quotas for key species such as black rockfish, nearshore rockfish, yelloweye rockfish, and canary rockfish are expected to be set at similar or increased levels in the future. As such, the traditional groundfish fishery is expected to continue to remain open year-round.

The entire sport salmon fishery would likely have to be closed to create a situation where the midwater long-leader fishery could grow to levels that could threaten the other fisheries, namely the traditional groundfish fishery. However, a complete collapse of the salmon fishery is unlikely, as hatchery coho salmon from regions without major water issues (e.g., the Columbia River) are the primary species landed, not the more concerning Chinook salmon runs afflicted by drought conditions in California.

In the worst-case scenario of a complete closure of the salmon fisheries, it is expected that anglers would shift their effort to the traditional groundfish fishery since the halibut fishery is

already at full capacity and the tuna fishery is only available to a subset of anglers with large boats capable of traversing the 60-80 miles round trip to the fishing grounds. A shift in effort from salmon trips to traditional groundfish trips is only likely to breach the capacity of the traditional groundfish fishery (estimated at 110,000 trips under status quo conditions) if most or all of the salmon anglers made this switch (another unlikely event). Only then, in this worst-case scenario, would there be a situation where the midwater long-leader fishery would be expected to grow to levels that could be problematic in terms of bycatch (as both the salmon and traditional groundfish fisheries would be closed; the hypothesized stimuli needed for substantial growth in the midwater long-leader fishery) and necessitate consideration of shortened seasons (Figures 4-3 and 4-4).

A closer look at fishery dynamics reveals that salmon trips are variable by year and predominately occur from June to September (Figure 4.3). So, as can be seen in Figure 4.3, the traditional groundfish fishery does not typically reach full capacity (110,000 angler trips). Thus, if the salmon fishery collapsed, the traditional groundfish fishery would likely be able to absorb a large portion of the displaced salmon trips. Figure 4-4 shows what could happen under a worst-case scenario of a complete closure of the salmon fisheries followed by a shift of all the displaced effort to the traditional groundfish fishery. As can be seen in Figure 4-4, it would have taken until July or August each year for the combined traditional groundfish (normal) and salmon crossover groundfish trips to breach the capacity of the traditional groundfish fishery (dotted black line). At the point when the traditional groundfish fishery would be expected to close (dotted black line), effort would then presumably convert to midwater long-leader trips until the maximum capacity of the midwater long-leader fishery were breached (dotted red line). Accordingly, under the worst case scenario, the midwater long-leader fishery would have only become maxed out during 2013-2015 and would have been very beneficial for absorbing lost effort in all years.

Other than in a worst-case scenario, there is no anticipated need for a reduced midwater long-leader season. Nonetheless, if the worst-case scenario were to occur, only Alternative 3 (i.e., the one-month option; August) would yield relief to anglers because Alternative 2 (i.e., the three-month option; July-September) would not effectively limit crossover of salmon trips to traditional groundfish trips. Being able to reliably project the actual number of angler trips that will occur for each of the midwater fishery alternatives is not possible because this fishery has not occurred before, and because participation will likely be dependent on a combination of factors that are difficult to project. Since there does not appear to be a need for a reduced midwater long-leader season, Alternative 1 would be most favorable because it would allow those in greatest need of the fishery (i.e., Winchester Bay and Florence) the greatest opportunity to benefit from the fishery (by allowing them to fish their deep water reefs year-round).

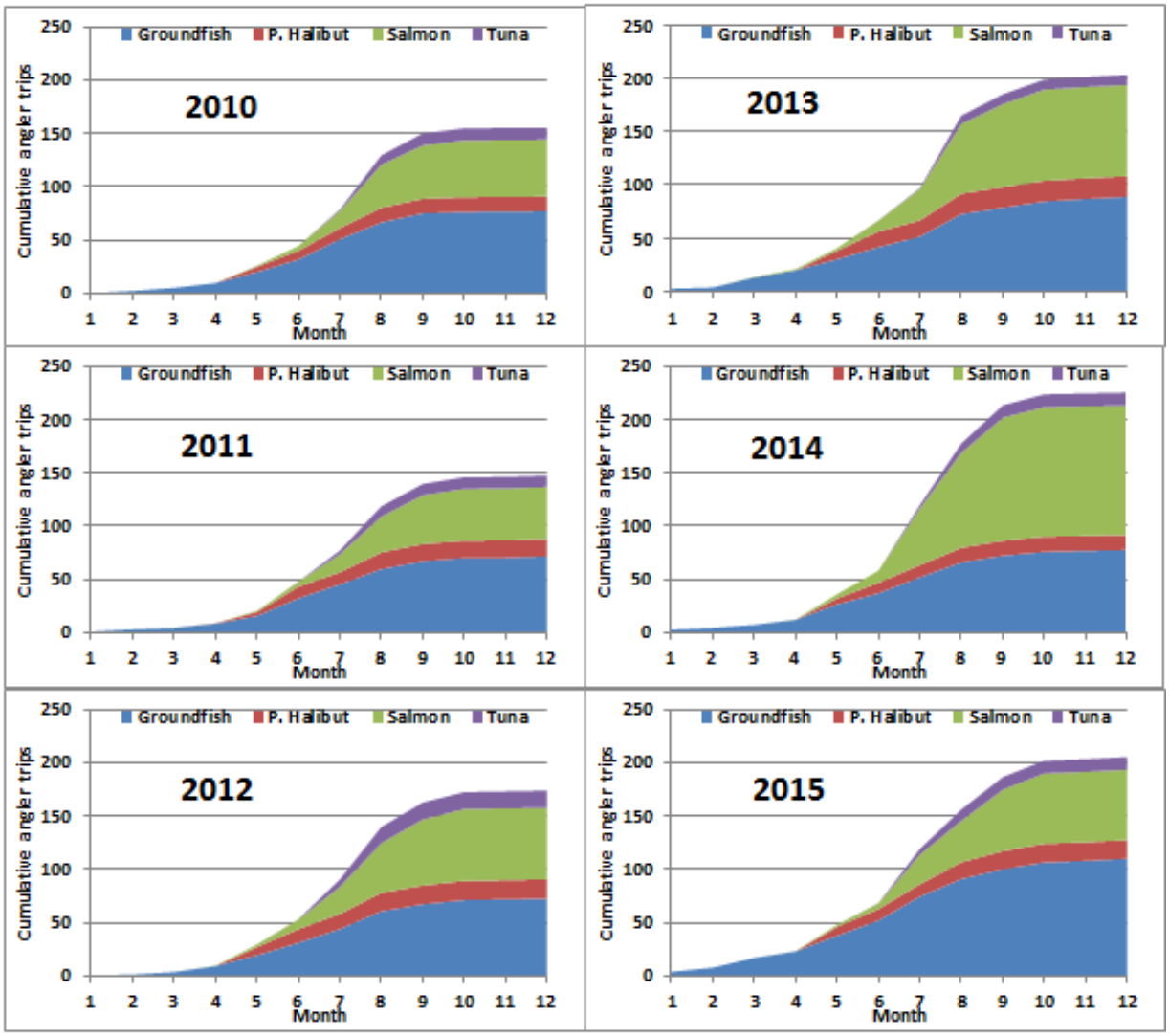

Figure 4-3. Cumulative (and total) angler trips for the Oregon sport fisheries from 2010-2015.

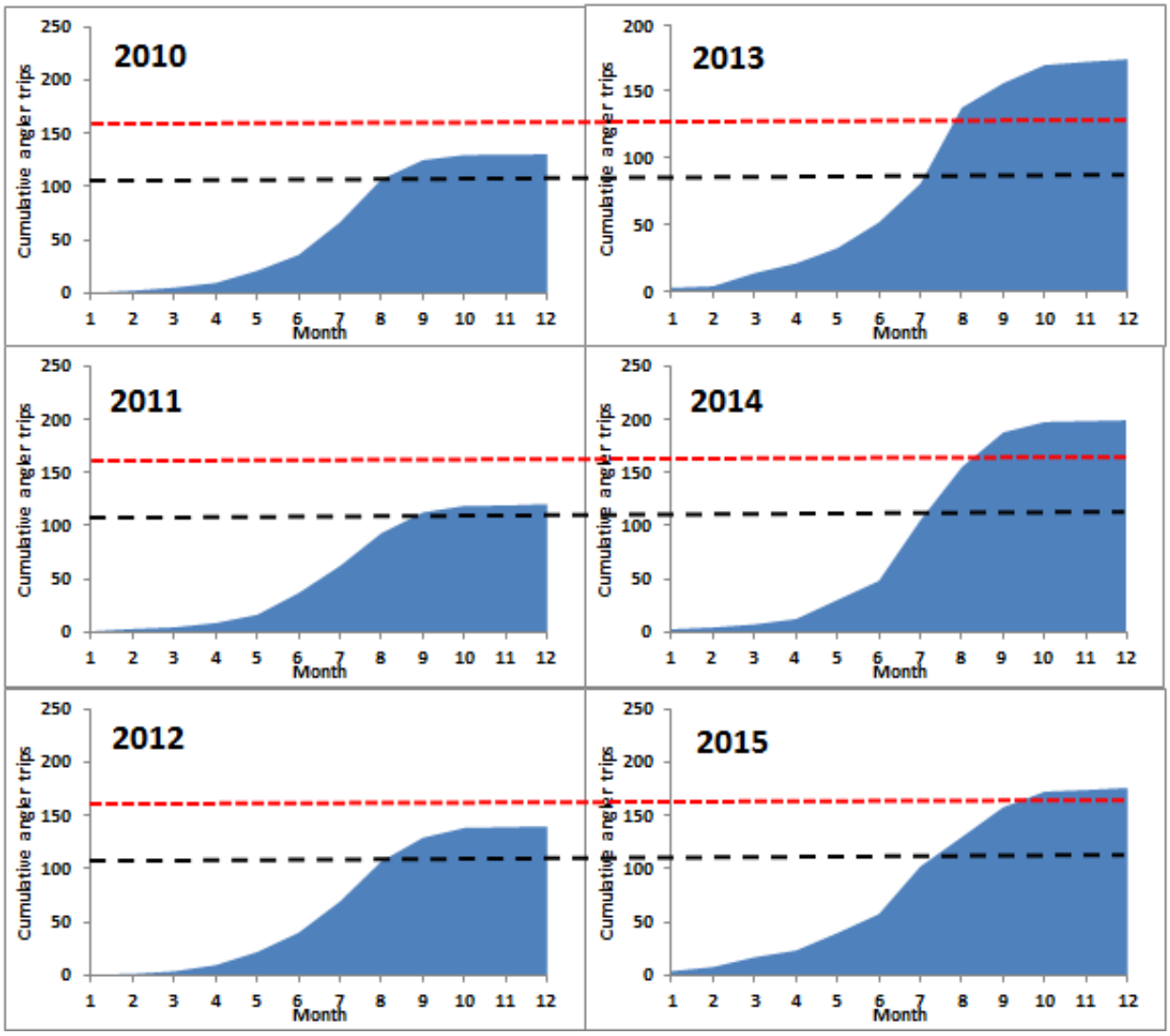

Figure 4-4. Maximum effort levels (trips) for midwater long-leader fishery given effort shift from salmon fishery. ***Note:*** In the worst case scenario (very unlikely to occur), the entire salmon fishery closes and all salmon trips switch to traditional groundfish. The blue is the combined traditional groundfish trips that occurred plus the salmon crossover trips. The worst case scenario shows that the combined trips would not breach the capacity of the traditional groundfish fishery until July or August (110,000 trips; dotted black line), and at that point, switch to the midwater long-leader fishery (portion of blue above the dotted black line). And if that were to occur, the midwater long-leader fishery (dotted red line) would be able to absorb much of that effort, and only reach capacity from 2013-2015.

4.2 Protected Species

As referenced in Chapter 3, salmon are the only protected species likely to have interactions with the midwater long-leader fishery being proposed. A description of the potential impacts follows below.

4.2.1 No Action Alternative

Under the No Action alternative, the status quo management of the recreational groundfish fishery would remain in place, including seasonal depth closures to protect overfished groundfish species. While the midwater long-leader gear is an allowable gear in waters shoreward of 40fm during the April-September recreational groundfish fishing season in Oregon, most anglers prefer to target near shore rockfish species using traditional bottom fishing gear. Given the prediction of decreased recreational salmon fishing effort due to the impacts of the forecasted El Niño event, the potential for a shift in fishing effort to target nearshore rockfish stocks as a substitute could put additional pressure on those stocks and the associated bycatch of salmon encountered in the nearshore fishery. However, any additional salmon bycatch resulting from an effort shift to nearshore stocks would be more than offset by a total reduction in salmon targeting efforts. In relation to the action alternatives, the No Action alternative could potentially provide a small positive impact for salmon as the status quo of prohibiting use of midwater long-leader gear in waters seaward of 40fm depth where salmon stocks are found co-mingled to some degree with target rockfish stock would be continued.

4.2.2 Action Alternatives: 1) Full season option, April-September; 2) Reduced season option, July-September, 3) One month season option, August.

The change in fishing effort under the action alternatives, as compared to the No Action alternative, could be substantial. Generally, it is expected that fishing effort would be shifted from nearhore to midwater areas. However, given the uncertainties involved in predicting salmon-fishing behavior responses to changing ocean conditions (i.e., a strong El Niño in recent years) under the No Action alternative, it is also plausible to expect a combination of effort shifts from both nearshore and salmon trips towards midwater trips.

When compared to the No Action Alternative, no significant adverse differential impacts on salmonids (ESA-listed and non-listed) are anticipated with any of the action alternatives. Although the proposed action could potentially generate a risk of increased interactions with salmonids given their occurrence in midwater habitat, the EFP test fishing results suggest that the likelihood of these types of interactions occuring in a future authorized fishery is low. During the EFP fishing, only 7 salmon were taken out of 4,951 total fish caught (i.e., salmon made up 0.14 percent of the catch). In addition, it is expected that most of the salmon would come from nearshore Central Valley fall run chinook stocks, which are non-ESA listed. Under any of the action alternatives, west coast groundfish fishing activities would continue to adhere to measures included in biological opinions for listed salmonids taken incidentally in this fishery.

4.3 Social and Economic Environment

Angler participation in the midwater long-leader fishery could be an important economic benefit to coastal businesses and economies as a whole. During the course of their fishing trips, anglers

spend money on lodging, food, tackle, entertainment, etc. The money anglers spend at these businesses is cycled through other local businesses multiple times, until all of it eventually moves out of the local economy from import purchases (e.g., fuel purchased from outside state). Accordingly, the primary spending of anglers and associated "multiplier" effects generate income and jobs in Oregon coastal economies, which are small and heavily dependent on tourism, such as sport fishing, and natural resource extraction (e.g., logging and commercial fishing).

For the midwater long-leader fishery to benefit Oregon coastal communities it must increase net angler trips, meaning it must generate trips that would have not occurred otherwise (for any marine species). This could occur either as a result of an increase in trips compared to No Action, or by preventing a loss of trips that might otherwise occur in an existing fishery (e.g., avoiding a salmon fishery collapse).

Not all participation in the midwater long-leader fishery will result in a net increase in trips. Some of the midwater long-leader trips would have fished for another species had the midwater long-leader fishery been closed; these types of trips are referred to as substitution trips. Some midwater long-leader fishing can be expected to occur as an additional activity on trips primarily targeting other species; these are referred to as combination trips. While substitution and combination midwater long-leader trips may have value to individual anglers due to extra opportunity and catch, they do not add value to coastal economies because they do not affect net total effort.

Estimation of economic impacts resulting from changes in angler trips can be can be accomplished using the Input-Output Model for Pacific Coast Fisheries (Leonard, 2015). However, there are inherent challenges in estimating changes in angler trips likely to result from the proposed action. As described earlier in this section, such changes are likely more dependent on indirect than direct factors. Due to this ambiguity involved in estimating the number of new angler trips generated by the proposed action, economic impacts are not estimated herein. Rather, expected economic effects and impacts are described in qualitative terms and approximations.

4.3.1 No Action Alternative

The impacts of the No Action Alternative are expected to stay the same as the current conditions due to the continued lack of recreational groundfish fishing opportunities for southern ports in Oregon that are not located adjacent to near-shore reef habitat. In addition, there would remain the potential for lost groundfish sport fishing opportunity should restrictions in other fisheries (e.g., salmon) occur without viable options for shifting that lost effort other fisheries, including the proposed midwater long-leader fishery.

4.3.2 Action Alternatives: 1) Full season option, April-September; 2) Reduced season option, July-September, 3) One month season option, August.

All of the action alternatives are expected to result in minor beneficial economic impacts. As described earlier in this section, the economic impact of the proposed action increases with the likelihood of a salmon or black rockfish fishery collapse. Additionally, the economic impacts will likely be the greatest near ports that lack shallow water reefs (i.e., ports that would otherwise

have little to no groundfish fishing opportunity during summer months). For instance, the ports of Florence and Winchester Bay in southern Oregon do not have shallow reefs, but they do have deep reefs. When depth restrictions were implemented, the groundfish fishery effectively closed in these areas, and eliminated many trips. When coupled with salmon downturns, these ports suffered greater negative impacts. For example, the Winchester Bay charter industry, which once thrived with as many as 8-10 boats, completely collapsed (currently no charter boats are based there).

The number of anglers who will participate in the midwater long-leader fishery is uncertain since the fishery has not occurred in Oregon (or in any other state) before. The number of participants in the fishery will likely vary from year to year as incentives to participate in the fishery may change. For example, some may choose to fish the first year out of novelty, or in years when opportunities are more limited in other fisheries.

The maximum allowable effort was modeled in the bycatch section based on the number of trips and yield of healthy target stocks that could be attained before surpassing the quota of any of the constraining stocks (Figure 4-1). Canary Rockfish is the most constraining of the constraining stocks. Given this, it is still projected that the midwater long-leader fishery could support as many as 25,000 to 50,000 angler trips (i.e., the lower end of the range is based on a 95 percent confidence interval). To put this range of trips in context, the traditional sport groundfish fishery has typically ranged between 70,000-80,000 trips per year.

Under current (2015) conditions, the opportunity to participate in a midwater long-leader fishery is not expected to be enough of an incentive for the fishery to significantly increase net effort for most ports (i.e., to result in new trips that would have not otherwise fished for other marine species). First, anglers would have to travel much further to the offshore grounds (depths > 40fm) than they do for the traditional nearshore shallow water groundfish fishery (which are highly productive fisheries). Second, in a midwater long-leader fishery, anglers have to reel up fish from several hundred feet below, and anglers typically prefer to fish shallow waters when possible, as it requires less reeling and allows for lighter, more sporting tackle. There is evidence in the traditional recreational groundfish fishery that anglers prefer to fish shallow because during months when they may fish any depth, only a small proportion choose to fish deep (> 40fm).

Although the midwater long-leader fishery may not significantly change net effort under current conditions, there is a strong possibility that anglers will participate in the fishery, not as new trips but as trips that would have occurred regardless. Some of these non-new trips may be part of combination trips for other far offshore species (i.e., Pacific Halibut and Albacore Tuna), which drew the angler to fish in the same areas open to the midwater long-leader fishery. Some of the midwater long-leader trips may be from substitutes to trips that otherwise would have fished the traditional recreational groundfish fishery had there not been midwater long-leader opportunity.

The amount of non-new effort that will occur in the midwater long-leader fishery is difficult to model since the fishery has never occurred before. To account for the uncertainty, an upper range of potential catch was modeled by assuming that all far-offshore trips (i.e., halibut and tuna) would fish combination midwater long-leader trips (Table 4-1). In addition, the upper range also included substitute trips from the traditional groundfish fishery, modeled as the proportion of

trips that fish beyond 40 fm (the proposed shoreward limit) during months when allowed to fish any depth, multiplied by the total trips per year (as these trips that fish deep may be more inclined to participate in the midwater long-leader fishery when the traditional recreational fishery is depth restricted).

While non-new effort does not benefit communities, it is important to project since non-new angler trips could exceed the projected maximum number of trips the midwater long-leader fishery could support before reaching the canary rockfish quota (Figure 4-4). In times of excess, there would be no issues with non-new effort participating in the midwater long-leader fishery, as these fish would otherwise go underutilized. However, there could be situations where other fisheries collapse and the midwater long-leader fishery could be used to offset losses from these fisheries. In this case, the midwater long-leader fishery would change net trips (by preventing loss), and would therefore be of great value to coastal communities. If that were the case, then it would be prudent to prohibit non-new effort from participating in the midwater long-leader fishery, such as prohibiting halibut and tuna anglers from participating.

Table 4-1. Potential combination and groundfish substitution trips by port area.

	Potential combination trips (Longleader + other deep fishery)		Potential GF substitution trips (switch from traditional GF gear to longleader)				
Port	Halibut + LL	Tuna + LL	Traditional GF		Proportion fish deep		Longleader
Astoria	241	491	326	x	0.03	=	10
Garibaldi	2,325	1,971	7,090	x	0.69	=	4,880
Pacific City	574	214	2,640	x	0.14	=	370
Depoe Bay	950	2,054	14,831	x	0.17	=	2,580
Newport	10,013	3,811	19,152	x	0.05	=	874
Florence	138	18	5	x	1.00	=	5
Winchester Bay	187	380	19	x	1.00	=	19
Charleston	440	2,593	9,923	x	0.18	=	1,805
Bandon	378	191	1,998	x	0.05	=	100
Port Orford	192	28	533	x	0.01	=	7
Gold Beach	35	23	2,184	x	0.01	=	22
Brookings	993	159	15,331	x	0.00	=	56
Coastwide	16,465	11,933					10,728

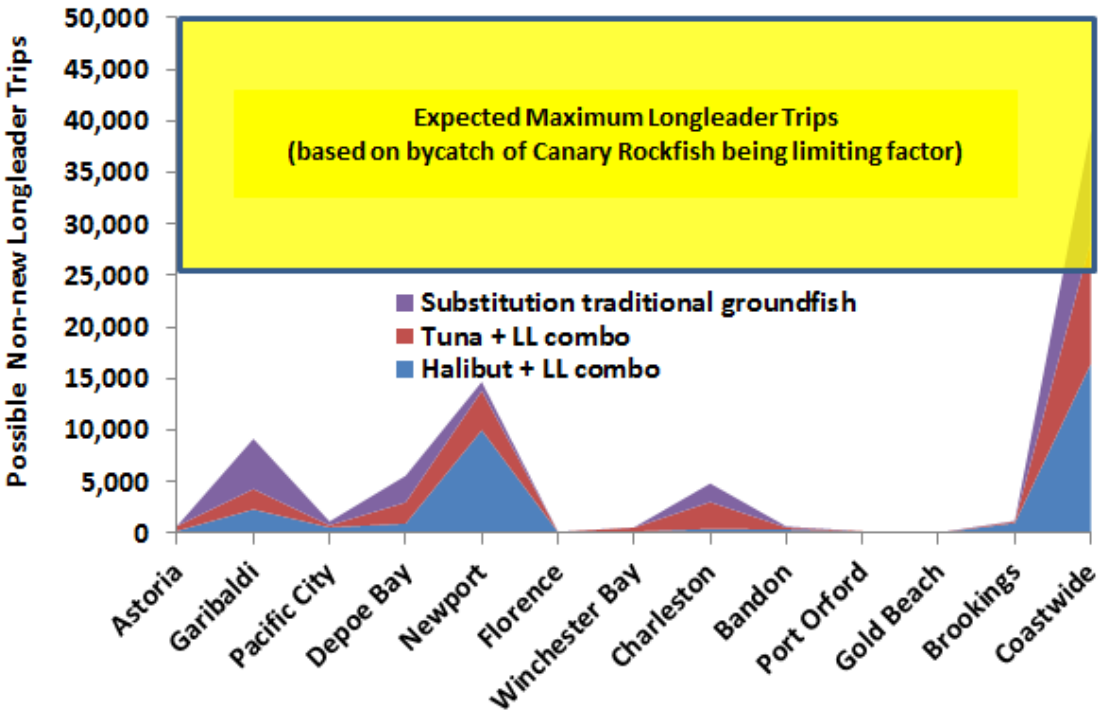

Figure 4-5. Upper range of potential non-new angler participation (no change to net trips) in the midwater long-leader fishery from combination trips with other far offshore fisheries and as substitute trips from the traditional groundfish fishery, by port and coastwide. ***Note:*** The upper and lower bounds of the yellow shaded area show the maximum and minimum number of projected trips, with 95 percent confidence, that the midwater long-leader fishery can sustain before the reaching the quota of canary rockfish.

While the midwater long-leader fishery is not expected to increase net effort for most ports in Oregon under current conditions, it could be of great value to ports without shallow reefs. As seen in Table 4-1, there is essentially no traditional recreational groundfish fishery in the ports of Winchester Bay and Florence (less than 30 trips per year for both ports combined), since neither of these ports has reef within the shallow water depth restrictions (Figure 4-6).

However, both Winchester Bay and Florence have deep water reef in close proximity. The midwater long-leader fishery could provide new opportunities for these ports, which would substantially benefit those communities. Further, establishment of a midwater long-leader fishery could provide a stable base to support the return of a charter fishery in Winchester Bay. Once a thriving charter community with 8-10 active vessels, Winchester Bay saw its entire charter businesses close in large part due to not having substitute fisheries following the collapses of the salmon fisheries in the 1980s and 1990s. Although it is unknown whether charters would return if provided midwater long-leader opportunity, in addition to current salmon and tuna opportunity, the fishery would provide a much more stable base for charter businesses than those fisheries, which can be highly variable from year to year.

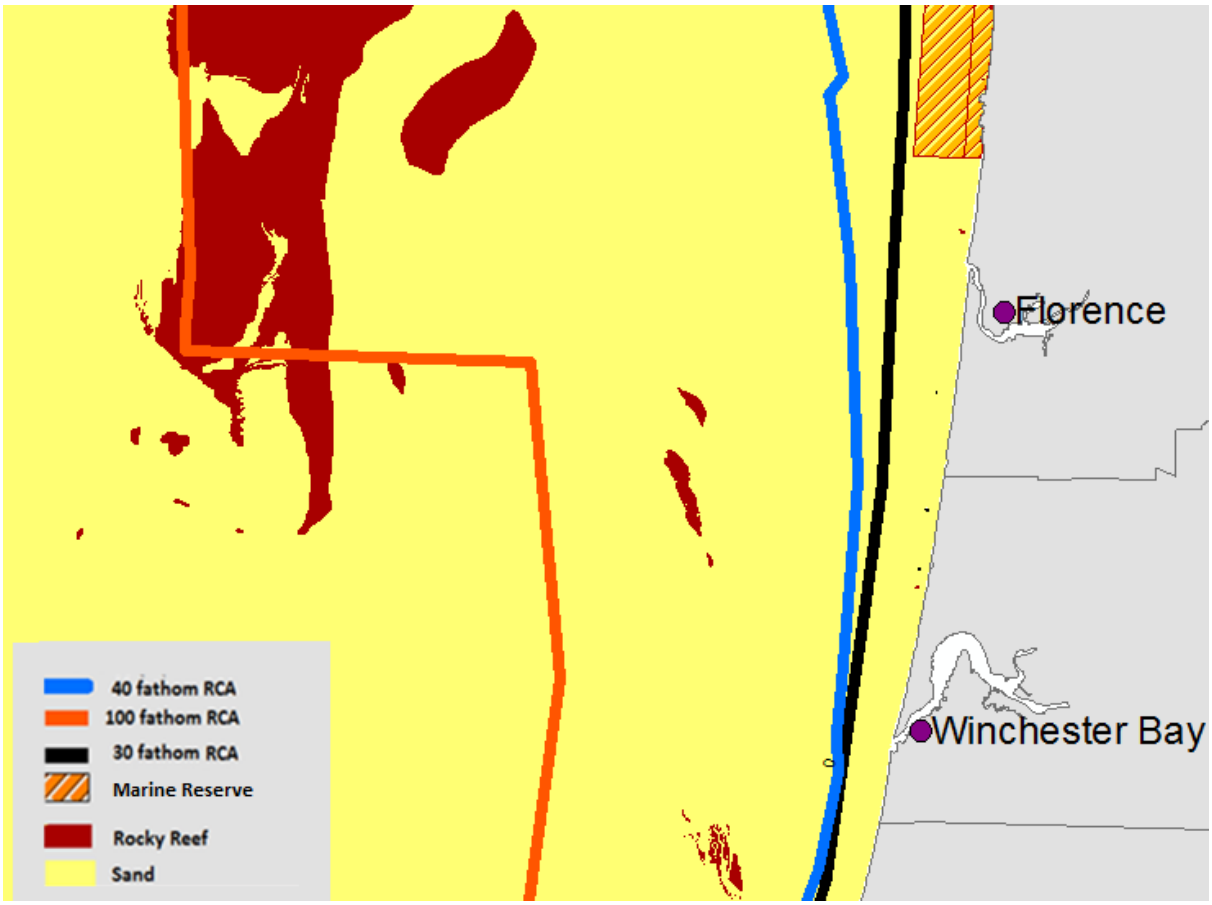

Figure 4-6. Reef habitat as a function of depth near Winchester Bay and Florence.

While the midwater long-leader fishery may not offer much additional economic benefit under current conditions, it could help fishing communities be more resilient by offering other fishing and economic opportunities if other existing Oregon sport fisheries opportunities became limited. Most of the other sport fisheries are at full capacity (quotas of Pacific halibut, Chinook salmon, Coho salmon, and traditional recreational groundfish fisheries are fully-utilized), and reduction or collapse of any of these fisheries could result in substantial decreases in net sport fishing trips in Oregon. If that were to occur, the midwater long-leader fishery could be used to absorb some of the effort that otherwise would be lost.

Currently, only the albacore tuna fishery would be able to absorb additional effort to offset potential losses associated with declines in any of the other fisheries. However, the albacore tuna fishery is not a dependable substitute, as the strength of the fishery varies substantially from year-to-year due to oceanographic and environmental conditions. The albacore tuna fishery is not always a viable target species for all angler and all ports as participation requires boats capable of traveling the typical 40-60 miles to the fishing grounds.

4.4 Climate Change

The EIS to Amendment 24 of the Groundfish FMP (PFMC, 2015) provides a qualitative overview of potential climate change impacts to West Coast groundfish fisheries. Section 3.4.5 (System Forcing and Climate Change), Section 3.4.6 (Implications of Climate Change for Groundfish Fisheries), and Section 3.4.7 (Baseline Status of the California Current Ecosystem) of the EIS describe the effects of climate on ecosystem components. The introduction to Section 4.5 in the Council's Fishery Ecosystem Plan (FEP)[31] also discusses the effects of climate change in the CCE. Warm-water phases in cyclical climate phenomena decrease the productivity of many groundfish stocks. Climate change may lead to range shifts decreasing local abundance of groundfish. As noted in the FEP, climate change is expected to lead to substantial changes in physical characteristics and dynamics within the marine environment, with complex and interacting impacts on marine populations, fisheries, and other ecosystem services (Doney et al. 2012; Harley et al. 2006; Scavia et al. 2002). Three major aspects of future climate change that will have direct effects on the CCE are ocean temperature, pH of ocean surface waters, and deepwater oxygen.

Elevated water temperature, whether due to climate change or shorter term fluctuations, could make benthic and midwater groundfish species habitat in the west coast EEZ less habitable, resulting in less availability to recreational anglers. The analyses conducted in this EA are a function both of availability (or abundance) and total recreational fishing effort. Decreased abundance could result in lower recreational catch in the management area than recorded historically. However, a permanent change in the distribution and abundance of groundfish species in the management area is likely on a longer time scale. The management framework in the Groundfish FMP allows biennial adjustment in harvest allocations and regulations; if there is a substantial and ongoing change in recreational catch, the management framework would ensure that adjustments are made to ensure sustainable fisheries and stock status. For these reasons, none of the alternatives are expected to significantly impact, or contribute to, climate change over the short-term compared to baseline conditions.

4.5 Cumulative Impacts

Cumulative impacts are the impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions; cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7). This Section of the EA addresses the significance of the expected cumulative impacts as they relate to the federally managed groundfish fishery and the affected resources described in Chapter 3 (Description of the Affected Environment).

4.5.1 Geographic Boundaries

The analysis of impacts focuses on actions related to the harvest of yellowtail rockfish and other midwater groundfish species in a proposed midwater long-leader recreational sport fishery. The core geographic scope for each of the affected resources listed above is focused in State and

[31] http://www.pcouncil.org/wp-content/uploads/FEP_FINAL.pdf

Federal waters off the coast of Oregon (Figure 1-2). The core geographic scope for endangered and protected resources can be considered the overall range of these resources in the Eastern Pacific Ocean. For human communities, the core geographic boundaries are defined as those U.S. fishing communities directly involved in fishing for the target species, which were found to occur in the ports and communities of Oregon.

4.5.2 Temporal Boundaries

The temporal scope of past and present actions for the affected resources is primarily focused on actions that have occurred after FMP implementation (1982) up to the present, and more specifically during the 2009-2011 baseline period when the Oregon midwater long-leader EFP test fishing was conducted, which is the temporal context within which affected resources are described in Chapter 3. For endangered species and other protected resources, the scope of past and present actions is determined by analysis pursuant to the ESA and MMPA, including biological opinions and marine mammal stock assessment reports. The temporal scope of future actions for all affected resources extends about 4 years into the future. This period was chosen based on the biennial harvest specifications process that is the main framework this proposed action and fishery would be regulated under. Four years covers approximately two biennial harvest specification cycles. The dynamic nature of resource management for this species and lack of information on projects that may occur in the future make it very difficult to predict impacts beyond this timeframe with any certainty.

4.5.3 Past, Present, and Reasonably Foreseeable Future Actions Other than the Proposed Action

Past and present actions and their effects are described in Chapter 3. This forms the environmental baseline. The cumulative effect results from the combination of the effects of these past and present actions, reasonably foreseeable future actions, and the proposed action. Ongoing and reasonably foreseeable actions with detectable effects are summarized below.

4.5.3.1 Fishery-related Actions

The historical management practices of the Council have resulted in positive impacts on the health of target and non-target federally-managed groundfish species. Numerous actions have been taken to manage the fisheries for these species through amendment and specifications actions. In addition, the nature of the fishery management process is intended to provide the opportunity for the Council and NMFS to regularly assess the status of the fisheries and to make necessary adjustments to ensure that there is a reasonable expectation of meeting the objectives of the FMP and the targets associated with any rebuilding programs under the FMP. The statutory basis for Federal fisheries management is the Magnuson-Stevens Act. To the degree with which this regulatory regime is complied, the cumulative impacts of past, present, and reasonably foreseeable future Federal fishery management actions on the affected resources should generally be associated with positive long-term outcomes. Constraining fishing effort through regulatory actions can often have negative short-term socioeconomic impacts. These impacts are usually necessary to bring about long-term sustainability of a given resource, which should, in the long term, promote positive effects on human communities, especially those that are economically dependent upon midwater rockfish as target species.

Groundfish Harvest Specifications and Salmon Fishery Management

NMFS has approved harvest specifications for 2015 and 2016 for groundfish stocks and the Council has begun developing harvest specifications for 2017 and 2018. In 2015 and 2016, ACLs for some pelagic rockfish species (yellowtail and canary rockfish) increased, in particular for canary rockfish, since it has been declared recovered from overfishing. NMFS approved a 33 percent increase in the ACLs for yellowtail rockfish for 2015-2016, the primary midwater species targeted with the proposed midwater long-leader gear.

The ACL levels recommended by the Council in the 2015-2016 harvest specifications are expected to bring an increase in benefits for the recreational fishing industry. Additional actions are outlined in the following section. Together, they are expected to have a synergistic effect, contributing further to the original goals and objectives envisioned for this proposed midwater long-leader fishery.

Adjustments to future harvest levels of groundfish and salmon have the potential to precipitate changes in the traditional groundfish and salmon fisheries that could have impacts on the proposed action. Given the ongoing drought conditions in California, salmon fishery managers are predicting potential collapse of upcoming Chinook Salmon fisheries. In Oregon, the majority of Chinook landings are from California stocks (i.e., from the Sacramento and Klamath Rivers). To predict potential effort reductions associated with collapse of the Chinook Salmon fishery, linear regression was used to model the relationship between catch of Chinook Salmon and effort for Oregon sport salmon fisheries (i.e., all species since salmon effort estimates are not stratified by species). Although highly uncertain due to unknown future abundances of salmon, collapse of the Chinook fishery is projected to result in a loss of 14,000 salmon trips on average per year.

The Council's Fishery Ecosystem Plan

The FEP is a living document, which means that the Council plans to regularly amend and update it. The current FEP was adopted by the Council in April 2013. The FEP is meant to be an informational document. It is not meant to be prescriptive relative to Council fisheries management. Information in the FEP, results of the Integrated Ecosystem Assessment, and the Annual State of the California Ecosystem Report may be available for consideration during the routine management processes for fisheries managed in each FMP. How exactly these items will affect fishery management decisions is at the discretion of the Council. The Council is also developing measures to protect unfished and unmanaged forage fish species pursuant to an initiative identified in the FEP. This action involves amending all current FMPs to prohibit targeted harvest of specified forage species. These protections could benefit both currently unmanaged fish stocks and managed stocks that depend on forage fish.

4.5.3.2 Non-Fishery Related Actions

Non-fishing activities that introduce chemical pollutants, sewage, changes in water temperature, salinity, dissolved oxygen, and suspended sediment into the marine environment pose a risk to all of the identified affected resources. Human-induced non-fishing activities tend to be localized in nearshore areas and marine project areas where they occur. Examples of these activities

include, but are not limited to, agriculture, port maintenance, coastal development, marine transportation, marine mining, dredging, and the disposal of dredged material. Wherever these activities co-occur, they are likely to work additively or synergistically to decrease habitat quality, and may indirectly constrain the sustainability of the managed resources, non-target species, and protected resources. Decreased habitat suitability would tend to reduce the tolerance of these species to the impacts of fishing effort. Mitigation of this outcome through regulations that would reduce fishing effort could then negatively impact human communities. The overall impact to the affected species and their habitats on a population level is unknown, but likely neutral to low negative, since a large portion of these species have a limited or minor exposure to these local non-fishing perturbations.

The 2014 Annual State of the California Ecosystem Report[32] states that non-fisheries human activities in the CCE that may negatively impact the ecosystem are generally low with stable or declining trends. Nutrient input is an exception: it is elevated, although it shows a declining trend at the coast-wide scale. Impacts of nutrient input are concentrated in estuarine and nearshore areas and unlikely to substantially affect pelagic resources that occur farther offshore.

For many of the proposed non-fishing activities to be permitted under other Federal agencies (such as offshore energy facilities, etc.), those agencies would conduct examinations of potential impacts on the affected resources. The Magnuson-Stevens Act (50 CFR 600.930) imposes an obligation on other Federal agencies to consult with the Secretary of Commerce on actions that may adversely affect EFH. The eight regional fishery management councils are engaged in this review process by making comments and recommendations on any Federal or state action that may affect habitat, including EFH, for their managed species, and by commenting on actions likely to substantially affect habitat, including EFH. In addition, under the Fish and Wildlife Coordination Act (Section 662), *"whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatever, including navigation and drainage, by any department or agency of the U.S., or by any public or private agency under Federal permit or license, such department or agency first shall consult with the U.S. Fish and Wildlife Service (USFWS), Department of the Interior, and with the head of the agency exercising administration over the wildlife resources of the particular state wherein the"* activity is taking place. This act provides another avenue for review of actions by other Federal and state agencies that may impact resources that NMFS manages in the reasonably foreseeable future. In addition, NMFS and the USFWS share responsibility for implementing the ESA. ESA requires NMFS to designate "critical habitat" for any species it lists under the ESA (i.e., areas that contain physical or biological features essential to conservation, which may require special management considerations or protection) and to develop and implement recovery plans for threatened and endangered species. The ESA provides another avenue for NMFS to review actions by other entities that may impact endangered and protected resources whose management units are under NMFS' jurisdiction.

The following section discusses the effects of these past, present, and reasonably foreseeable future actions on the environmental components evaluated in this EA.

[32] http://www.noaa.gov/iea/Assets/iea/california/Report/pdf/IEA%20State%20of%20the%20California%20Current%20Report%202015.pdf

4.5.4 Effects of Past, Present, and Reasonably Foreseeable Future Actions, the Proposed Action, and Net Cumulative Effects

This section summarizes effects to determine cumulative impacts with respect to the environmental components evaluated in this EA. Table 4-2 is included for reference.

4.5.4.1 Target and Non-target Species and the Physical Environment

Past, Present, and Reasonably Foreseeable Future Actions. Past fishing has caused the yelloweye rockfish stock to be overfished. However, present and reasonably foreseeable future actions are part of an MSA-mandate rebuilding plan that will allow for yelloweye recovery and return the stock to sustainable levels. The Oregon midwater long-leader EFP test fishery results demonstrated that the proposed gear functioned as hypothesized in maximizing healthy midwater target stocks while minimizing protected benthic non-target stocks, specifically yelloweye rockfish.

Cumulative Effects.

- The no action alternative would result in continued restraints on the sport fishing communities' access to healthy midwater stocks, due to area management measures intended to limit catches of overfished species. These constraints may lead to access pressure on other weak stocks and nearshore species.
- Alternative 1 (Full season option, April-September) would most likely have a neutral cumulative effect with a possible increase in target species catch although limited by management measures to prevent overfishing and other measures associated with rebuilding plans. Alternative 1 would diversify fishing opportunities and help alleviate pressure on other weak stocks and nearshore species.
- Action Alternatives 2 (Reduced season option, July-September) and 3 (One month season option, August) would offer many of the same benefits as Alternative 1. However, the reduced seasons in these alternatives compared with Alternative 1 would further constrain fishing opportunities. Therefore, these action alternatives may do little more to reduce or alleviate pressure on nearshore species than the no action alternative.

4.5.4.2 Social and Economic Environment: Oregon Recreational Fisheries and Communities

Future changes in harvest specifications for key groundfish stocks could have implications for the expected net cumulative effects of these changes in combination with the proposed action. As discussed earlier, the midwater long-leader fishery is projected to provide 25,000-50,000 angler trips, based on canary rockfish being the most limiting stock. If the Oregon sport fisheries were provided a greater allocation of canary rockfish than No Action (e.g., compared to commercial and other state sport fisheries), then the midwater long-leader fishery could potentially support more trips. An increased allocation of blue rockfish would also be necessary to grow the potential of the midwater long-leader fishery, as bycatch of blue rockfish could also start to constrain the fishery at ~30,000 trips. Prohibiting the retention of blue rockfish would not help, as the discard mortality rate used in management for blue rockfish assumes 100 percent of

the fish die after being released in the depths potentially open to the midwater long-leader fishery (>40 fm).

The traditional groundfish fishery is heavily dependent on black rockfish, which typically comprises 60-70 percent of total catch by numbers of fish. Quotas of most other species targeted by the traditional groundfish fishery are fully utilized. Restrictions in opportunity in the traditional fishery due to declines in black rockfish or other target or bycatch species could significantly reduce sport groundfish opportunity for charter and private anglers. Some, but not all, of the decreased traditional groundfish trips associated with a reduction in traditional groundfish opportunity could be absorbed by the midwater long-leader fishery.

The midwater long-leader fishery may offer some resilience to the recreational fishing community in the event that forecasted losses in recreational salmon fishing opportunities (as described in Section 4.5.4.1) come to fruition. The projected number of reductions in trips associated with a potential collapse of the Chinook Salmon fishery (i.e., 14,000 fewer trips per year) is within the lower range of the maximum potential trips the midwater long-leader fishery is expected to yield (i.e., 25,000 to 50,000 trips per year). Therefore, it is expected that the midwater long-leader fishery would offer enough capacity to offset anticipated losses in the Chinook salmon fishery. These conclusions, however, are sensitive to the assumption that anglers wanting to target Chinook Salmon would show the same or similar avidity for fishing for groundfish with midwater long-leader gear.

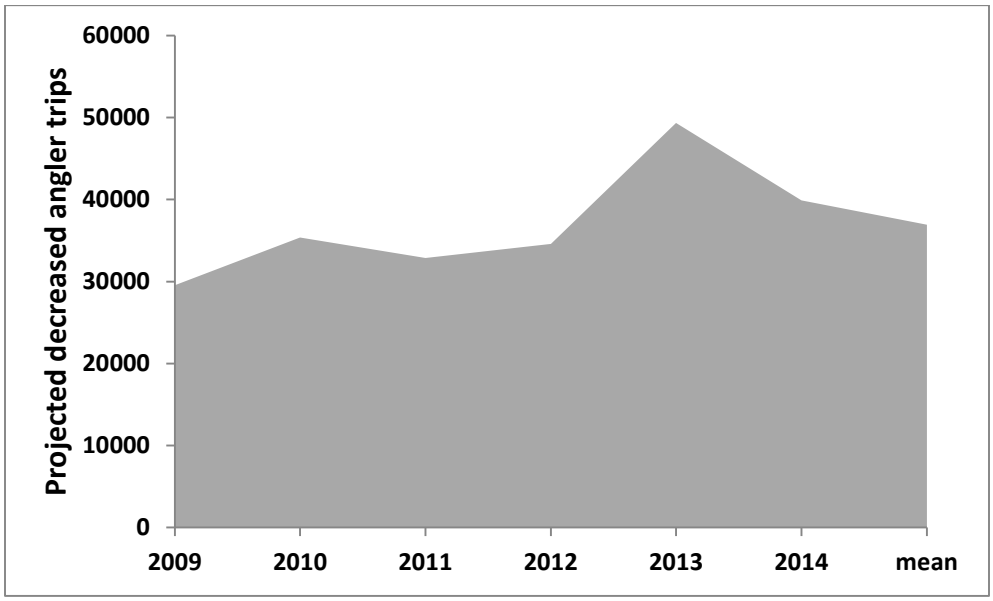

Figure 4-7. Projected decreased angler trips in the traditional groundfish fishery per year if the black rockfish fishery effort was to decline in line with proposed ACLs and recreational harvest guidelines in 2017-18.

Past, Present, and Reasonably Foreseeable Future Actions. Macroeconomic factors affecting household disposable income appear to have a much greater effect on participation in recreational fisheries compared to the availability of any one species. Disposal income and cost

of participation (fixed and variable dollar costs, opportunity cost) and the perceived value of the recreational experience are the likely factors affecting participation.

Cumulative Effects. The cumulative effects of the action alternatives could be either moderately beneficial or adverse depending on external macroeconomic conditions. A recovering economy may have beneficial effects if anglers have more disposable income and are more willing to devote that income to recreational fishing. A declining economy could dampen demand for recreational fishing, reducing recreational fishing. The action alternatives could help meet any demand increase.

- The no action alternative would result in continued restraints on the sport fishing communities' access to healthy midwater stocks, due to area management measures intended to limit catches of overfished species. These constraints could significantly reduce sport groundfish opportunity for charter and private anglers which may lead to reduced economic benefits.
- Alternative 1 (Full season option, April-September) would most likely have a neutral cumulative effect with a possible increase in target species catch although limited by management measures to prevent overfishing and other measures associated with rebuilding plans. Alternative 1 would diversify fishing opportunities and provide increased economic benefits for charter and private anglers and communities dependent on sportfishing business.
- Action Alternatives 2 (Reduced season option, July-September) and 3 (One month season option, August) would offer many of the same benefits as Alternative 1. However, the reduced seasons in these alternatives compared with Alternative 1 would further constrain fishing opportunities. Therefore, these action alternatives may do little more to reduce or alleviate pressure on nearshore species than the no action alternative while further reducing the potential economic benefit provided by the full season option.

4.5.4.3 The California Current Ecosystem

- Past, Present, and Reasonably Foreseeable Future Actions. Fishery removals and other human activities affecting productivity of biological components of the ecosystem have affected trophic structure. Climate change and associated ocean acidification is likely to affect both overall system forcing and productivity, and the relative abundance of biological components, affecting trophic structure. The Council's FEP provides a mechanism to consider how management decisions may affect the ecosystem.
- Proposed Action. The action alternatives will not have a discernable effect on the CCE for groundfish or other species managed under the MSA.
- Cumulative Effects. Actions other than the action alternatives are likely to have mixed effects, while the action alternatives are not expected to have discernable effects.

Table 4-2. Summary of the cumulative effects of the proposed actions.

Affected Resources	Past, Present, and Reasonably Foreseeable Future Actions	Proposed Action	Cumulative Effects
Groundfish species	Positive	Neutral	Positive
Non-groundfish species	Neutral	Neutral	Neutral
Protected Species	Positive	Neutral	Positive
Oregon Recreational Fisheries and Communities	Neutral/mixed	Positive	Positive
California Current Ecosystem	Mixed	Neutral	Mixed

The proposed action is not likely to result in significant cumulative impacts to the affected resources evaluated in this EA when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions; cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7). Related actions to this proposed action include the biennial harvest specifications, with decision-making for the 2017 and beyond fishing seasons scheduled to begin later this year. The first harvest specifications decisions for fisheries in 2017 and beyond are scheduled for Council consideration in September 2015, final Council action is scheduled for June 2016, and resulting regulatory changes are expected to be effective January 1, 2017.

5 NEPA and Other Applicable Laws

5.1 National Environmental Policy Act

The CEQ has issued regulations specifying the requirements for NEPA documents (40 CFR 1500 – 1508), and NOAA's agency policy and procedures for NEPA can be found in NOAA Administrative Order 216-6 (NAO 216-6).

The required elements of an EA are as follows (as per NAO 216-6 5.03b):

- A brief discussion of the purpose and need for the action;
- Alternatives, as required by Sections 102(2)(C)(iii) and 102(2)(E) of NEPA;
- A brief discussion of the environmental impacts of the proposed action and alternatives;
- A listing of agencies and persons consulted;
- A finding of no significant impact, if appropriate;
- An index and appendices, as appropriate.

This EA will be provided to support Council final action at its March 2016 meeting. A finding of no significant impact must be signed before the Final Rule implementing the proposed action may be published.

5.2 Administrative Procedure Act

The Administrative Procedures Act, or APA, governs the Federal regulatory process and establishes standards for judicial review of Federal regulatory activities. Most Federal rulemaking, including regulations promulgated pursuant to the MSA, are considered "informal," which is determined by the controlling legislation. Provisions at 5 U.S.C. 553 establish rulemaking procedures applicable to the proposed action. The rulemaking associated with this proposed action will be conducted in accordance with the APA and procedures identified in section 304 of the MSA.

5.3 Additional Laws and Executive Orders Applicable to the Proposed Action

In addition to the MSA (see Chapter 5), NEPA, and the APA, there are other laws and Federal Executive Orders that may impose substantive and procedural requirements on the proposed action. These other laws and executive orders are described below.

5.3.1 Coastal Zone Management Act:

Section 307(c)(1) of the Federal CZMA of 1972 requires all Federal activities that directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. A determination as to whether the proposed action would be implemented in a manner that is consistent to the maximum extent practicable with the enforceable policies of the approved coastal zone management programs of Washington, Oregon, and California will be submitted to the responsible state agencies for review under Section 307(c)(1) of the CZMA. The Groundfish FMP has been found to be consistent with the Washington, Oregon, and California coastal zone management programs.

5.3.2 Endangered Species Act

The ESA of 1973 was signed on December 28, 1973, and provides for the conservation of species that are endangered or threatened throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend. The ESA replaced the Endangered Species Conservation Act of 1969; it has been amended several times.

A "species" is considered endangered if it is in danger of extinction throughout all or a significant portion of its range. A species is considered threatened if it is likely to become an endangered species within the foreseeable future.

Federal agencies are directed, under section 7(a)(1) of the ESA, to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Federal agencies must also consult with NMFS or USFWS, under section 7(a)(2) of the ESA, on activities that may affect a listed species. These interagency consultations, or section 7 consultations, are designed to assist Federal agencies in fulfilling their duty to ensure Federal actions do not jeopardize the continued existence of a species or destroy or adversely modify critical habitat. Should an action be determined to jeopardize a species or result in the destruction or adverse modification of critical habitat, NMFS or USFWS will suggest Reasonable and Prudent Alternatives (RPAs) that would not violate section 7(a)(2).

Biological opinions document whether the Federal action is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. Where appropriate, biological opinions provide an exemption for the "take" of listed species while specifying the extent of take allowed, the Reasonable and Prudent Measures (RPMs) necessary to minimize impacts from the Federal action, and the Terms and Conditions with which the action agency must comply. A Biological Opinion on the Continuing Operation of the Pacific Coast Groundfish Fishery was completed in 2015.

5.3.3 Marine Mammal Protection Act

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

Off the coast of Oregon, the Steller sea lion (*Eumetopias jubatus*) eastern stock and Guadalupe fur seal (*Arctocephalus townsendi*), are listed as threatened under the ESA. The sperm whale (*Physeter macrocephalus*) Washington, Oregon, and California stock, humpback whale (*Megaptera novaeangliae*) Washington, Oregon, and California - Mexico Stock, blue whale (*Balaenoptera musculus*) eastern north Pacific stock, and Fin whale (*Balaenoptera physalus*) Washington, Oregon, and California stock are listed as depleted under the MMPA. Any species listed as endangered or threatened under the ESA is automatically considered depleted under the MMPA.

Pursuant to the MMPA, the List of Fisheries (LOF) classifies U.S. commercial fisheries into one of three categories according to the level of incidental mortality or serious injury of marine mammals:

I. frequent incidental mortality or serious injury of marine mammals
II. occasional incidental mortality or serious injury of marine mammals
III. remote likelihood of/no known incidental mortality or serious injury of marine mammals

The MMPA mandates that each fishery be classified by the level of serious injury and mortality of marine mammals that occurs incidental to each fishery and reported in the annual Marine Mammal Stock Assessment Reports for each stock. The Alaska/Washington/Oregon/California commercial passenger fishing vessel fishery is identified as category III in the draft 2015 List of Fisheries (79 FR 50589).

5.3.4 Migratory Bird Treaty Act

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

5.3.5 Paperwork Reduction Act

The Paperwork Reduction Act requires that agency information collections minimize duplication and burden on the public, have practical utility, and support the proper performance of the agency's mission. The proposed action does not have Paperwork Reduction Act implications.

5.3.6 Regulatory Flexibility Act

The Regulatory Flexibility Act 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. A fish-harvesting business is considered a “small” business by the Small Business Administration if it has annual receipts not in excess of $4.0 million. For related fish-processing businesses, a small business is one that employs 500 or fewer persons. For wholesale businesses, a small business is one that employs not more than 100 people. For marinas and charter/party boats, a small business is one with annual receipts not in excess of $6.5 million. If the projected impact of the regulation exceeds $100 million, it may be subject to additional scrutiny by the Office of Management and Budget.

5.3.7 Executive Order12866 (Regulatory Impact Review)

EO 12866, Regulatory Planning and Review, covers a variety of regulatory policy considerations and establishes procedural requirements for analysis of the benefits and costs of regulatory actions. It directs agencies to choose those approaches that maximize net benefits to society, unless a statute requires another regulatory approach. The agency must assess both the costs and the benefits of the intended regulation and, recognizing that some costs and benefits are difficult

to quantify, propose or adopt a regulation only after reasoned determination that the benefits of the intended regulation justify the costs. In reaching its decision, the agency must use the best reasonably obtainable information, including scientific, technical, and economic data, about the need for and consequences of the intended regulation. NMFS requires the preparation of a regulatory impact review (RIR) for all regulatory actions of public interest. The purpose of the analysis is to ensure the regulatory agency systematically and comprehensively considers all available alternatives, so the 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.

5.3.8 Executive Order 12898 (Environmental Justice)

EO 12898 obligates Federal agencies to identify and address "disproportionately high adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations in the United States" as part of any overall environmental impact analysis associated with an action. NOAA guidance, NAO 216-6, at Section 7.02, states that "consideration of EO 12898 should be specifically included in the NEPA documentation for decision-making purposes." Agencies should also encourage public participation, especially by affected communities during scoping, as part of a broader strategy to address environmental justice issues.

5.3.9 Executive Order 13132 (Federalism)

EO 13132, which revoked EO 12612, an earlier federalism EO, enumerates eight "fundamental federalism principles." The first of these principles states "Federalism is rooted in the belief that issues that are not national in scope or significance are most appropriately addressed by the level of government closest to the people." In this spirit, the EO directs agencies to consider the implications of policies that may limit the scope of, or preempt, states' legal authority. Preemptive action having such "federalism implications" is subject to a consultation process with the states; such actions should not create unfunded mandates for the states; and any final rule published must be accompanied by a "federalism summary impact statement."

5.3.10 Executive Order 13175 (Consultation and Coordination with Indian Tribal Government)

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

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

5.3.11 Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds)

EO 13186 supplements the MBTA (above) by requiring Federal agencies to work with the USFWS to develop memoranda of agreement to conserve migratory birds. NMFS is in the process of implementing a memorandum of understanding. The protocols developed by this consultation will guide agency regulatory actions and policy decisions in order to address this conservation goal. The EO also directs agencies to evaluate the effects of their actions on migratory birds in environmental documents prepared pursuant to the NEPA.

5.4 Findings

The Council process and this EA are intended, where possible, to meet the public involvement requirements and provide the information and analysis necessary to address the mandates described above. To be completed following further discussion and analysis of the proposed action and Council-selected final preferred alternative…

Coastal Zone Management Act:

ESA:

Marine Mammal Protection Act:

Migratory Bird Treaty Act:

Paperwork Reduction Act:

Executive Order 12898 (Environmental Justice):

Executive Order 13132 (Federalism):

Executive Order 13175 (Consultation and Coordination with Indian Tribal Government):

Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds):

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