



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

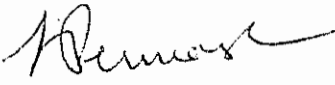
National Marine Fisheries Service

P.O. Box 21668

Juneau, Alaska 99802-1668

November 1, 1999

MEMORANDUM FOR: Penelope D. Dalton
Assistant Administrator
for Fisheries

FROM: Steven Pennoyer 
Administrator, Alaska Region

SUBJECT: Approval of a Final Rule to Establish a Separate
Maximum Retainable Bycatch (MRB) Percentage for
Shortraker and Rougheye (SR/RE) Rockfish in the
Eastern Regulatory Area (ERA) of the Gulf of
Alaska (GOA) --DECISION MEMORANDUM

I request that you approve and make determinations about the final rule and transmit the final rule to the Department of Commerce for clearance to publish in the Federal Register.

BACKGROUND

In April 1999, the North Pacific Fishery Management Council (Council) adopted measures to reduce incidental catch of SR/RE rockfish in the GOA. NMFS published a proposed rule in the Federal Register on August 3, 1999 (64 FR 42080). No comments were received on the proposed rule. This NON-CONTROVERSIAL regulatory amendment will separate SR/RE rockfish from the aggregated rockfish species group and reduce the MRB percentage for SR/RE in the ERA of the GOA.

The MRB percentages serve as a management tool to slow the rate of harvest of a species closed to directed fishing and to reduce the incentive to target on the species. If MRBs are set significantly higher than natural incidental catch rates, vessels may "top off" their retained catch of species closed to directed fishing by targeting that species in a manner similar to directed fishing for that species.

The SR/RE rockfish are highly valued species with a low natural mortality rate. Amounts available to the commercial fisheries are limited by a relatively small total allowable catch (TAC) amount, all of which is needed as incidental catch in other groundfish fisheries. As a result, NMFS typically prohibits directed fishing for SR/RE at the beginning of the fishing year



Despite the prohibition on directed fishing, incidental catch amounts of SR/RE in other fisheries can exceed the TAC for SR/RE and approach the overfishing level. In 1998, incidental catch of SR/RE in ERA trawl and hook-and-line fisheries (181 mt and 554 mt, respectively) exceeded the acceptable biological catch and raised potential overfishing concerns.

To address this problem, the Council recommended removing SR/RE from the "aggregate rockfish" complex in the ERA of the GOA for purposes of calculating MRB amounts and establishing a reduced MRB percentage for SR/RE. This action will reduce the MRB percentage for SR/RE rockfish to 7 percent from the current 15 percent relative to the deep-water complex (sablefish, rockfish, rex sole, and deep-water flatfish). The current 5 percent MRB percentage for SR/RE rockfish relative to the shallow-water complex (pollock, Pacific cod, shallow-water flatfish, flathead sole, Atka mackerel, and "other species") will not be affected by this action. The reduction in the SR/RE MRB percentage for the deep-water complex will limit the amounts of SR/RE that may be retained against target catch, and is expected to slow the harvest of SR/RE rockfish. Given natural incidental catch rates of about 4 percent, this action is not expected to increase regulatory discards of SR/RE.

CERTIFICATION

I have determined that the final rule is consistent with the national standards and other provisions of the Magnuson-Stevens Fishery Conservation and Management Act and other applicable laws. Determinations supporting this finding are attached.

RECOMMENDATION

I recommend that you (1) approve the final rule, (2) sign the attached decision memorandum to the Assistant Secretary, and (3) sign the attached information memorandum to the Assistant General Counsel for Legislation and Regulation, Department of Commerce, which forwards the final rule.

1. I concur. Penelope D Dalton NOV 16 1999
Date

2. I do not concur. _____
Date

Attachment

Attachment

DETERMINATIONS

NATIONAL ENVIRONMENTAL POLICY ACT

An environmental assessment (EA) was prepared that describes the impact on the human environment that will result from the implementation of this proposed rule.

EXECUTIVE ORDER 12866

Pursuant to the procedures established to implement section 6 of E.O. 12866, the Office of Management and Budget has determined that this final rule is not significant.

REGULATORY FLEXIBILITY ACT

A final regulatory flexibility analysis has been prepared as part of the regulatory impact review, which describes the impact this final rule will have on small entities.

COASTAL ZONE MANAGEMENT ACT

The NMFS determined that this action is consistent to the maximum extent practicable with the approved coastal management program of Alaska. This determination was submitted for review by the responsible state agency on June 29, 1999, under section 307 of the Coastal Zone Management Act. Because no response was received, State concurrence is inferred.

PAPERWORK REDUCTION ACT

This action does not contain a collection-of-information requirement for purposes of the Paperwork Reduction Act.

ENDANGERED SPECIES ACT

I have determined that fishing activities pursuant to this rule will not affect endangered and threatened species or critical habitat in any manner not considered in prior consultations on this fishery.

MARINE MAMMAL PROTECTION ACT

I have determined that fishing actions conducted under this action will have no adverse impacts on marine mammals.

ESSENTIAL FISH HABITAT

All managed species under each of the Council's three Gulf of Alaska FMPs and their identified EFH are located within the area affected by this action. The action in the context of the fishery as a whole will not have an adverse impact on EFH; therefore, and EFH consultation is not required. The basis for this determination is described in the EA/RIR/FRFA prepared for this action at section 2.5.

EXECUTIVE ORDERS 12612 AND 13132

Under E.O. 12612, this rule does not contain policies with federalism implications sufficient to warrant preparation of a federalism assessment. Because no federalism issues are implicated with this action, the mandatory requirements contained in E.O. 13132 for consultation on federalism issues between Federal, State and local governments are not triggered.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1315 East-West Highway
Silver Spring, MD 20910

THE DIRECTOR

NOV 16 1999

MEMORANDUM FOR: Susan B. Fruchter
NEPA Coordinator
Office of Policy and Strategic Planning

FROM: Penelope D. Dalton *Penelope D Dalton*

SUBJECT: Transmittal of an Environmental Assessment for
the Final Rule to Revise Maximum Retainable
Bycatch Percentages for Shortraker/Rougheye and
Thornyhead Rockfish in the Gulf of
Alaska-DECISION MEMORANDUM

Based on the subject environmental assessment, I have determined that no significant environmental impacts will result for the proposed action. I request your concurrence in this determination by signing below. Please return this memorandum for our files.

1. I concur. SUSAN FRUCHTER 11/22/99
Date
2. I do not concur. _____
Date

Attachments

THE ASSISTANT ADMINISTRATOR
FOR FISHERIES





UNITED STATES DEPARTMENT OF COMMERCE
Office of the Under Secretary for
Oceans and Atmosphere
Washington, D.C. 20230

NOV 22 1999

To All Interested Government Agencies and Public Groups:

Under the National Environmental Policy Act, an environmental review has been performed on the following action.

TITLE: Environmental Assessment of a Final Rule to Implement a Regulatory Amendment to Revise Maximum Retainable Bycatch Percentages for Shortraker/Rougheye and Thornyhead Rockfish in the Gulf of Alaska

LOCATION: The Exclusive Economic Zone of the Gulf of Alaska

SUMMARY: This action separates shortraker and rougheye rockfish from the aggregated rockfish species group for purposes of calculating maximum retainable bycatch percentages and reduces the percentages for shortraker and rougheye rockfish in the Eastern Regulatory Area of the Gulf of Alaska. This action is necessary to slow the harvest rate of shortraker and rougheye rockfish to reduce the potential for overfishing.

RESPONSIBLE OFFICIAL: Steven Pennoyer
Regional Administrator
National Marine Fisheries Service
P.O. Box 21668
Juneau, AK 99892
Telephone: 907-586-7221

The environmental review process led us to conclude that this action will not have a significant impact on the environment. Therefore, an environmental impact statement was not prepared. A copy of the finding of no significant impact, including the environmental assessment, is enclosed for your information. Also, please send one copy of your comment to me in Room 5805, PSP, U.S. Department of Commerce, Washington, D.C. 20230.

Sincerely,

Susan B. Fruchter
NEPA Coordinator

Enclosure



Environmental Assessment/Regulatory Impact Review/Final Regulatory Flexibility Analysis

for

Final Rule to Implement a Regulatory Amendment to Revise Maximum Retainable Bycatch Percentages
for Shortraker/Rougheye and Thornyhead Rockfish in the Gulf of Alaska

Date: November 1999

Lead Agency: National Marine Fisheries Service
Alaska Regional Office
Juneau, Alaska
and the
Alaska Fisheries Science Center
Seattle, Washington

Responsible Official: Steven Pennoyer
Regional Administrator
Alaska Regional Office

**For Further Information
Contact:** Alaska Regional Office
P.O. Box 21668
Juneau, Alaska 99802

Abstract: The preferred alternative (Alternative 4) would establish maximum retainable bycatch(MRB) percentages for shortraker and rougheye rockfish (SR/RE) by removing them from the "aggregated rockfish" complex in the Eastern Gulf of Alaska. The MRB percentage for SR/RE rockfish would be 7 percent relative to the deep-water complex (sablefish, rockfish, rex sole, and deep-water flatfish), and remain at 5 percent relative to the shallow water complex (pollock, Pacific cod, shallow water flatfish, flathead sole, Atka mackerel, and "other species"). These MRB percentages would reduce the incentive to "top off" target catch with SR/RE rockfish while minimizing the potential for regulatory discards during a fishing trip. The preferred alternative takes no action to reduce the MRB for thornyhead rockfish due to the fact that the ABC has not been exceeded and is unlikely to be exceeded in the next few years. Also, the natural incidental catch rate for thornyhead rockfish is significantly higher than SR/RE, therefore a reduction in the thornyhead MRB could cause regulatory discards.

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Executive Summary

Regulations at 50 CFR part 679.20(e) establish maximum retainable bycatch (MRB) percentages for groundfish species or species groups. These MRB percentages establish the amount of a species that may be retained on board a vessel relative to amounts of other retained species open to directed fishing. MRB percentages serve as a management tool to slow down the rate of harvest of a species placed on "bycatch only" status and to reduce the incentive to fishing vessels to target on the species. Nonetheless, vessels may "top off" their retained catch of species open to directed fishing with a species on "bycatch only" status up to the MRB amount. MRB percentages do not necessarily reflect an "intrinsic" incidental catch rate, but rather reflect a balance between the recognized need to slow harvest rates, minimize the potential for undesirable discard, and, in some cases, provide an increased opportunity to harvest available total allowable catch (TAC) through limited "topping off" activity.

At its October 1998 meeting, the North Pacific Fishery Management Council (Council) requested that NMFS explore options for reducing MRB percentages for shortraker/rougheye (SR/RE) and thornyhead rockfish in the Gulf of Alaska (GOA). This was in response to a number of factors: (1) high rates of SR/RE and thornyhead incidental catch in other groundfish fisheries, (2) concerns that the existing MRB percentages are higher than intrinsic incidental catch levels, which has allowed for undesirable levels of "topping off", and (3) in 3 out of the last 4 years total removals of SR/RE rockfish have exceeded the ABC amount. As a result, the following alternatives were developed for analysis.

Alternative 1: Status Quo - Do not revise existing MRB percentages.

Alternative 2: Revise MRB percentages for SR/RE and thornyhead rockfish in the GOA as follows (options for a reduced MRB percentage relative to the deep water species complex and shallow water species complex).

	MRB percentage for SR/RE and thornyhead rockfish relative to the deep water complex <small>(sablefish, rockfish, rex sole, arrowtooth flounder¹, deep-water flatfish)</small>	MRB percentage for SR/RE and thornyhead rockfish relative to the shallow water complex <small>(pollock, Pacific cod, shallow water flatfish, flathead sole, Atka mackerel, "other species", non-groundfish species)</small>
Current MRB (Alternative 1)	15	5
Alternative 2 options	10	3
	7	2
	5	1

¹ The MRB percentage relative to arrowtooth flounder would remain at 0 percent.

Alternative 3: Prohibit the use of non-pelagic trawl gear in the POP fishery.

Alternative 4: (Preferred) Alternative 2 would be modified such that only SR/RE rockfish would be separated from the aggregated rockfish complex in the Eastern Regulatory Area of the GOA for the deep water complex only. The MRB rate would be 7 percent in the deep water complex and would remain at 5

percent in the shallow water complex for the aggregated rockfish species group.

The preferred alternative (Alternative 4) would establish MRB percentages for SR/RE rockfish by removing them from the "aggregated rockfish" complex in the Eastern GOA. The MRB percentage for SR/RE rockfish would be 7 percent relative to the deep-water complex (sablefish, rockfish, rex sole, and deep-water flatfish), and remain at 5 percent relative to the shallow water complex (pollock, Pacific cod, shallow water flatfish, flathead sole, Atka mackerel, and "other species"). These MRB percentages would reduce the incentive to "top off" target catch with SR/RE rockfish while minimizing the potential for regulatory discards during a fishing trip. No action is being taken at this time for thornyhead rockfish due to the fact that the ABC has not been exceeded and is unlikely to be exceeded in the next few years. Also, the natural incidental catch rate for thornyhead rockfish is significantly higher than SR/RE, therefore a reduction in the thornyhead MRB could cause regulatory discards.

It is difficult to discern unintended incidental catch from "topping off" activity. Survey data and haul by haul observer data have been used to estimate "natural" incidental catch rates for SR/RE and thornyhead rockfish. In all cases the fishery was more selective and encountered less incidental catch than the survey. However, fishing behavior varies and the reduction of the MRB rates could result in some regulatory discards, although there will be new incentive to avoid these species. NMFS' recommendation is the result of a number of management needs: (1) significantly reduce the amount of SR/RE rockfish taken incidentally, (2) minimize the likelihood of regulatory discards, and (3) allow for the harvest of the TAC amount. Under alternative 2, lower SR/RE MRBs will enable management ability to restrain harvest amounts within specified TACs, and reduce the potential of exceeding the ABC and reaching overfishing levels.

Alternative 3 specifically targets the Pacific ocean perch (POP) trawl fishery by prohibiting directed fishing for POP with non-pelagic trawl gear. This would effectively reduce the amount of SR/RE and thornyhead rockfish that could be taken through "topping off" activity in the POP fishery. SR/RE and thornyhead rockfish are primarily caught on the bottom with non-pelagic trawl gear. A vessel fishing for POP that wished to "top off" with SR/RE would be unable to use retained catch of POP as ballast against which SR/RE and thornyhead rockfish could be retained, because switching gear types would trigger a new fishing trip. Given that the POP fishery accounts for approximately 45% of all SR/RE harvested, this single action would result in an appreciable reduction in the amount of SR/RE and thornyhead rockfish harvested, and would also reduce any impacts which may occur on the benthic environment.

A significant negative economic impact on vessels that retain SR/RE and thornyhead rockfish is possible as a result of the proposed alternatives. Some vessels have been observed to retain significant amounts of SR/RE and thornyhead rockfish as a source of revenue in addition to their intended target fishery and would lose a significant portion of the added revenue from SR/RE. Conversely, the proposed action is likely to have a positive impact to the extent that the reduced MRB percentages for SR/RE and thornyhead rockfish would reduce the potential of reaching the specified overfishing level, which would trigger immediate closure of any fishery with the potential to intercept these species.

1.0 INTRODUCTION

The groundfish fisheries in the Exclusive Economic Zone (EEZ) (3 to 200 miles offshore) off Alaska are managed under the Fishery Management Plan for Groundfish of the GOA and the Fishery Management Plan for the Groundfish Fisheries of the Bering Sea and Aleutian Islands Area. Both fishery management plans (FMPs) were prepared by the North Pacific Fishery Management Council (Council) under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). The GOA FMP was approved by the Secretary of Commerce and become effective in 1978 and the Bering Sea and Aleutian Islands Area (BSAI) FMP become effective in 1982.

Actions taken to amend the FMPs or implement other regulations governing the groundfish fisheries must meet the requirements of Federal laws and regulations. In addition to the Magnuson-Stevens Act, the most important of these are the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), Executive Order (E.O.) 12866, and the Regulatory Flexibility Act (RFA).

NEPA, E.O. 12866 and the RFA require a description of the purpose and need for the proposed action as well as a description of alternative actions, which may address the problem. This information is included in Section 1 of this document. Section 2 contains information on the biological and environmental impacts of the alternatives as required by NEPA. Impacts on endangered species and marine mammals are also addressed in this section. Section 3 contains a Regulatory Impact Review (RIR), which addresses the requirements of both E.O. 12866 and the RFA that economic impacts of the alternatives be considered.

This Environmental Assessment/Regulatory Impact Review/Final Regulatory Flexibility Analysis (EA/RIR/FRFA) addresses alternatives for changes to MRB percentages that are used to determine retainable amounts of SR/RE and thornyhead rockfish in the GOA when these species are closed to directed fishing.

NMFS has traditionally used the term "maximum retainable bycatch" (MRB) to refer to the incidental catch of species that are closed to directed fishing. However, under the Magnuson-Stevens Act, the term "bycatch" specifically refers to species that are prohibited from being harvested and cannot be retained (e.g., prohibited species, such as halibut, crabs, and herring). Therefore, NMFS has initiated the use of the term "incidental catch" to refer to species that are on "bycatch only" status, but can be retained while fishing for species that are open for directed fishing. In this analysis, incidental catch will be used to describe the harvest of species that are closed to directed fishing, but are not listed as "prohibited species." NMFS has traditionally announced species to be on "bycatch only" status when they are closed to directed fishing and the MRB rates apply. The term "MRB" will still be used to express the allowable rates of retention of these incidentally caught species. In the future, NMFS plans to update the regulatory language to reflect this change in the use of the term "bycatch".

1.1 Purpose of and Need for the Action

1.1.1 General

Description of MRB amounts.

NMFS annually assesses each groundfish total allowable catch (TAC) amount to determine how much of a species' TAC is needed as incidental catch in other groundfish fisheries. The remainder of the species TAC is made available as a directed fishing allowance. Directed fishing is defined in regulations as "any fishing activity that results in the retention of an amount of a species or species group on board a vessel that is greater than the MRB amount for that species or species group." The MRB amount of an incidental catch

species is calculated as a percentage of all the other species open for directed fishing that are retained on board a vessel (see Table 1). The MRB percentage of an incidental catch species that may be retained is established in regulations governing the groundfish fisheries. Current regulations prohibit the retention of a species closed to directed fishing in amounts that exceed the MRB percentage, therefore any catch in excess of the MRB must be discarded.

The MRB percentages established in regulations serve as a management tool to slow down the rate of harvest of a species placed on "bycatch only" status and to reduce the incentive for fishing vessels to target on the species. Nonetheless, vessel operators may "top off" their retained catch of species open to directed fishing with a species on "bycatch only" status up to the MRB amount. Generally, a default of 20 percent is established to serve as a management tool to slow the harvest rate of a species, yet avoid significant discard amounts of these species to the extent they are taken as incidental catch in other groundfish fisheries. However, for certain species such as sablefish, rockfish, and forage fish, MRB percentages are set at lower levels for conservation or allocation purposes.

During the course of a fishing year, NMFS routinely closes "directed fishing" for specified groundfish species. Directed fishing closures occur because a fishery has reached a prohibited species bycatch allowance, the directed fishing allowance for a target groundfish species has been reached, or because of overfishing concerns for another groundfish species taken as incidental catch. When directed fishing for a species is closed for any of these purposes, incidental catch amounts of the species may still be retained on board a vessel up to the specified MRB percentage of other groundfish catch open to directed fishing. NMFS attempts to manage groundfish TACs so that directed fishing closures are implemented in a timely manner, thereby providing sufficient portions of the TAC to allow for incidental catch in other fisheries. When the harvest amount approaches the TAC, NMFS may place the species on "prohibited" status, and any catch of that species must be discarded. If the harvest amount approaches the overfishing level (OFL), then NMFS may close those directed fisheries which harvest that species incidentally, in order to prevent overfishing.

Derivation of existing MRB percentages

Current MRB percentages for the GOA groundfish fisheries are listed in Table 1. These percentages first were established in 1990 (55 FR 9887, March 16, 1990) and subsequently revised several times. The MRB percentages first established in 1990 were an attempt to reflect "intrinsic" incidental catch rates in gear-specific fisheries for certain high valued species of lower relative abundance, such as sablefish and rockfish species. Other percentages were set at a general default value of 20 percent to dissuade target operations on species on "bycatch only" status, yet avoid the discard of these species in the event their incidental catch comprised an unanticipated high proportion of the catch.

The species-gear-area approach to allowable incidental catch amounts gave rise to unnecessary complexity and confusion. In 1995, changes to MRB percentages were implemented (60 FR 40304, August 8, 1995) that attempted to make these percentages less complex by establishing greater consistency between areas and eliminating gear distinctions. In 1997, the MRB percentages for GOA sablefish were reduced to respond to industry and management problems that resulted from "topping off" activity (62 FR 11109, March 11, 1997). In 1998, the MRB percentages were reduced for SR/RE rockfish in the Aleutian Islands Subarea due to "topping off" activity that resulted in the fishery exceeding the annual TAC and routinely approached the overfishing level so that NMFS was required to close all other fisheries in which SR/RE were taken as incidental catch (63 FR 15334, March 31, 1998).

"Topping off" is a recognized and generally accepted activity associated with species on "bycatch only" status. The incentive for fishermen to engage in this activity is directly related to the value of, and available

market for, the incidental catch species relative to the associated operation costs of fishing first for and retaining one species and subsequently topping off the retained catch with an incidental catch species up to the allowable MRB percentage. From a management perspective, MRB percentages are a tool used to slow down the harvest rate of a species. These rates do not necessarily reflect an "intrinsic" incidental catch rate, but rather reflect a balance between the recognized need to slow harvest rates, minimize the potential for undesirable discard, and, in some cases, provide an increased opportunity to harvest available TAC through limited "topping off" activity.

1.1.2 Why changes to GOA SR/RE and thornyhead rockfish MRBs have been proposed

In the GOA, the TAC and acceptable biological catch (ABC) for SR/RE rockfish have been exceeded in 3 of the last 4 years (1995, 1997, and 1998) (see Table 2). Note that in all years, the TAC and ABC specified for SR/RE rockfish in the Eastern Regulatory Area have been exceeded, in 1998 by 60 percent. In 1995, TAC, ABC, and the overfishing level (OFL) were exceeded. This required NMFS to prohibit retention of sablefish for vessels using trawl gear, and prohibit retention of POP, so that these fisheries would no longer catch SR/RE rockfish as incidental catch. NMFS, by in-season management actions, has been unable to effectively restrain harvest amounts below the ABC level due to "topping off" activity within the MRB for SR/RE rockfish. Anecdotal information from fisherman indicates that "topping off" for these valuable rockfish species does in fact occur.

For thornyhead rockfish, the TAC has not yet been exceeded in the GOA. The maximum recorded harvest rate was 91 percent in 1996. However, due to the high incidental catch rate of thornyhead rockfish (especially when SR/RE is targeted), and their high market value, NMFS expects management of this species to become more challenging in the future. For these reasons, it is prudent to examine management options that may curtail future harvest amounts of thornyhead rockfish in excess of ABC levels.

Since 1995, in each year, NMFS has placed SR/RE on prohibited species status in the Eastern Regulatory Area to avoid reaching the ABC and overfishing level (Table 3). SR/RE were also placed on prohibited status in the Central GOA in 1995, and directed fishing for POP in the Eastern Regulatory Area was prohibited to prevent further incidental catch of SR/RE. In 1996, NMFS also placed thornyhead rockfish on prohibited status when harvest of that species approached the TAC.

Table 2—SR/RE and thornyhead rockfish overfishing, ABC, TAC, harvest amount, and percent of TAC harvested from 1995 through 1998.

Species/category by year	Area	OFL	ABC	TAC	Harvest	Percent of TAC
SR/RE rockfish						
1995	W		170	170	216	127%
	C		1,210	1,210	1,222	101%
	E		530	530	812	153%
	Total	1,910	1,910	1,910	2,250	118%
1996	W		170	170	127	75%
	C		1,210	1,210	941	78%
	E		530	530	593	112%
	Total	2,925	1,910	1,910	1,661	87%
1997	W		160	160	137	86%
	C		970	970	931	96%
	E		460	460	541	118%
	Total	2,740	1,590	1,590	1,609	101%
1998	W		160	160	129	81%
	C		970	970	870	90%
	E		460	460	735	160%
	Total	2,740	1,590	1,590	1,704	107%
Thornyhead rockfish						
1995	All	2,660	1,900	1,900	1,113	59%
1996	All	2,200	1,560	1,248	1,132	91%
1997	All	2,400	1,700	1,700	1,240	73%
1998	W		250	250	202	81%
	C		710	710	572	81%
	E		1,040	1,040	362	35%
	Total	2,840	2,000	2,000	1,136	57%

Table 3—SR/RE and thornyhead rockfish status of fisheries from 1995 through 1998.

Species/Year	Western GOA	Central GOA	Eastern GOA	Entire GOA
SR/RE				
1995	Bycatch (01/01/95)	PSC (10/01/95)	PSC (07/09/95)	
1996	Bycatch (01/01/96)	Bycatch (01/01/96)	PSC (07/14/96)	
1997	Bycatch (01/01/97)	Bycatch (01/01/97)	PSC (09/23/97)	
1998	Bycatch (01/01/98)	Bycatch (01/01/98)	PSC (10/01/98)	
Thornyhead				
1995				Bycatch (01/01/95)
1996		PSC (7/22/96)		Bycatch (01/01/96)
1997				Bycatch (01/01/97)
1998	Bycatch (01/01/98)	Bycatch (01/01/98)	Bycatch (01/01/98)	

Although SR/RE and thornyhead rockfish are highly valued species, amounts available to the commercial

fisheries are limited by relatively small ABC and TAC amounts that are fully needed to provide incidental catch amounts in other groundfish fisheries. As a result, the directed fishery for SR/RE and thornyhead rockfish typically are closed at the beginning of the fishing year.

Currently, MRBs are established for aggregated rockfish species that are closed to directed fishing. These species were aggregated for purposes of calculating MRB amounts because of concerns that separate MRBs for each rockfish TAC category would increase the overall amount of rockfish that could be retained and increase harvest rates through "topping off" activity.

As part of the aggregate rockfish MRB, the combined amounts of SR/RE, thornyhead, and other rockfish species closed to directed fishing must not exceed the established MRB percentage of 15 percent relative to the deep water complex (other rockfish species, sablefish, Rex sole, and deep water flatfish) and 5 percent relative to the shallow water species complex (Atka mackerel, flathead sole, pollock, Pacific cod, shallow flatfish, and "other species"). As with all other species in the GOA, the MRB percentage of aggregated rockfish relative to arrowtooth flounder is 0 percent.

Harvest of SR/RE rockfish has been taken primarily in the trawl rockfish fishery and the sablefish hook-and-line fishery (Table 4). In 1998, these two fisheries accounted for over 85 percent of the total catch of SR/RE rockfish. Retained catch varies, but tends to be higher in the trawl rockfish fishery (91% in 1998) than in the sablefish hook-and-line fishery (only 51% in 1998).

Table 4—Catch amounts in mt and percent retained of SR/RE rockfish in various hook-and-line and trawl fisheries by target category from 1995 through 1998.

GEAR	TARGET	1995		1996		1997		1998	
		Total Catch	Percent Retained	Total Catch	Percent Retained	Total Catch	Percent Retained	Total Catch	Percent Retained
H-&-L	Pacific cod	9	99%	12	99%	13	99%	23	86%
H-&-L	Rockfish	17	97%	57	100%	44	100%	83	100%
H-&-L	Sablefish	673	54%	467	66%	476	69%	710	51%
Trawl	Pacific cod	11	77%	4	81%	28	38%	12	8%
Trawl	Deep water flats	38	51%	16	92%	204	12%	64	29%
Trawl	Shallow water flats	21	24%	17	64%	6	85%	5	87%
Trawl	Rockfish	1,299	78%	901	86%	755	94%	772	91%
Trawl	Flathead sole	15	64%	9	88%	13	71%	9	96%
Trawl	Pollock	1	96%	0	0%	14	42%	10	100%
Trawl	Arrowtooth flounder	15	55%	13	20%	11	46%	5	0%
Trawl	Rex sole	145	68%	125	50%	39	62%	37	91%
Total		2,245	69%	1,620	78%	1,602	73%	1,729	72%

* source: NMFS blend catch database

Thornyhead rockfish also have been harvested primarily by the sablefish hook-and-line fishery and the trawl rockfish fishery (Table 5). In 1998, these two fisheries accounted for about 73 percent of the total harvest of thornyhead rockfish. However, the incidental catch rates were more evenly distributed among fisheries for thornyheads than for SR/RE. For example, 16% was harvested by the deep water flatfish fishery compared to 4% for SR/RE (Table 4). Retained catch values were generally higher for thornyheads than for SR/RE. In 1998, retained percentages of thornyheads were over 90% in the sablefish, shallow water flatfish, rockfish, and Rex sole fisheries.

Table 5–Catch amounts in mt and percent retained of thornyhead rockfish in various hook-and-line and trawl fisheries by target category.

GEAR	TARGET	1995		1996		1997		1998	
		Total Catch	Percent Retained	Total Catch	Percent Retained	Total Catch	Percent Retained	Total Catch	Percent Retained
H-&-L	Pacific cod	2	99%	2	94%	2	87%	2	99%
H-&-L	Rockfish	4	98%	8	99%	16	99%	17	100%
H-&-L	Sablefish	464	81%	507	80%	426	86%	534 ⁺	91%
Trawl	Pacific cod	21	95%	19	97%	36	72%	7	59%
Trawl	Deep water flats	84	71%	126	57%	339	62%	187	64%
Trawl	Shallow water flats	15	71%	26	79 %	40	62%	5	97%
Trawl	Rockfish	364	74%	249	70 %	224	81%	299	90%
Trawl	Flathead sole	5	93%	27	94%	42	99%	14	83%
Trawl	Arrowtooth flounder	47	51%	28	46%	31	71%	23	75%
Trawl	Rex sole	94	84%	113	88%	70	83%	47	90%
Total		1,100	77%	1,106	76%	1,227	77%	1,135	86%

* source: NMFS blend catch database

Average ex-vessel values for rockfish species

Average Gulf-wide 1997 ex-vessel prices for POP, roughey, shortraker, and thornyhead rockfish are presented in Figure 1. Prices do not include the value added by at-sea processing. In 1997, thornyhead rockfish were the most valuable of these species, nearly 3 times as valuable as shortraker, roughey, and POP. Trawl harvested shortraker were worth twice as much as POP, and roughey were worth nearly twice as much again as shortraker. Hook-and-line harvested species were higher in value than trawl for all species.

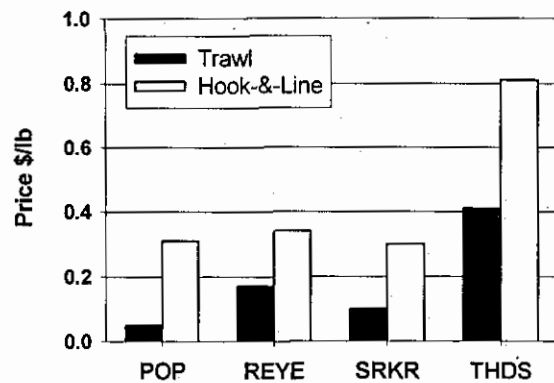


Figure 1–Average ex-vessel value of various rockfish species in the GOA for 1997.

1.1.3 Species profile

Shortraker and roughey rockfish

As with most rockfish, shortraker (*Sebastes borealis*) and roughey (*S. aleutianus*) rockfish are slow growing and long-lived. They inhabit waters of the outer continental shelf and continental slope. Shortraker rockfish are consistently most abundant in the Yakutat area. Roughey rockfish, except during 1992-95, are most abundant in the Southeastern area. Estimates of maximum age of shortraker rockfish is 120 years. Estimates for maximum age of roughey rockfish are 95 to 140 years. SR/RE are found from California to the Bering Sea, at depths from 100 to 800 meters. In 1991, shortraker and roughey rockfish were separated from the other slope rockfish complex to prevent overfishing of SR/RE. Due to their low abundance and relatively high incidental catch rates in other directed trawl and longline fisheries, a directed fishery for shortraker and roughey rockfish has not been possible. Due to the limited amount of new survey data, the 1999 ABC was set equal to the 1998 amount. The 1999 ABC and TAC is 1,590 mt.

Thornyhead rockfish

The thornyhead rockfish assemblage consists of two species: shortspine (*Sebastolobus alascanus*) and longspine (*Sebastolobus altivelis*) thornyheads. They inhabit the outer shelf and slope region throughout the northeastern Pacific and Bering Sea. Thornyheads are a deep water demersal fish, inhabiting the continental shelf edge and slope and seldom swim far off the bottom. Unlike rockfish of the genus *Sebastes*, they do not generally form large schools. Shortspine thornyheads inhabit depths of 90-1,460 m and the longspine thornyheads inhabit depths of 370-1,600 m. Shortspine thornyheads are the most abundant of the two species. Longspine thornyheads have rarely occurred in resource assessment survey catches. Female thornyheads release a mass of eggs that are held together by a gelatinous material. This gelatinous mass rises to the surface where it becomes free-floating. It is not known if fertilization occurs internally or at the time the eggs are released. Shortspine thornyheads account for about 90% of the other rockfish complex biomass. Little is known about this species in the GOA. Females reach 50% maturity at about 22 cm. Maximum life span is thought to be about 60 years, but some individuals may be 100 years or older. Annual natural mortality of adults has been estimated to be about 5% ($M = 0.07$). Recruitment to longline fisheries starts at age 15, and are fully recruited at age 30. Recruitment to trawl fisheries occurs at smaller sizes reflecting the shallower depths where these fisheries typically occur. The population structure of shortspine thornyheads is not well defined. Thornyheads in the GOA have been managed as a single stock since 1980. Beginning in 1998, the Gulf-wide thornyhead ABC was divided between the Western, Central, and Eastern Regulatory Areas. The 1999 ABC and TAC are 1,990 mt, down 10 mt from the 1998 ABC amount.

1.2 Alternatives Considered

1.2.1 Alternative 1: Status Quo (No Action)

Existing MRB percentages set out in Table 1 of this EA/RIR/FRFA would remain unchanged. Fishery operation or management concerns described in Section 1.1 of this document would not be addressed. The TAC and ABC for SR/RE would likely continue to be exceeded and management of the thornyhead rockfish TAC could become increasingly more difficult.

1.2.2 Alternative 2

Establish SR/RE and thornyhead rockfish MRB percentages separate from those established for other aggregate rockfish and reduce the MRBs for this species category from the current 15 percent. Options for a reduced MRB percentage relative to deep water and shallow water species complexes are as follows.

	MRB percentage for SR/RE and thornyhead rockfish relative to the deep water complex (sablefish, rockfish, rex sole, arrowtooth flounder ¹ , deep-water flatfish)	MRB percentage for SR/RE and thornyhead rockfish relative to the shallow water complex (pollock, Pacific cod, shallow water flatfish, flathead sole, Atka mackerel, "other species", non-groundfish species)
Current MRB (Alternative 1)	15	5
Alternative 2 options	10	3
	7	2
	5	1

¹ The MRB percentage relative to arrowtooth flounder would remain at 0 percent.

1.2.3 Alternative 3

Establish a gear limitation for the POP rockfish fishery. Prohibit directed fishing for POP with non-pelagic trawl gear.

1.2.4 Alternative 4: (Preferred)

Alternative 2 would be modified such that only SR/RE rockfish would be separated from the aggregated rockfish complex in the Eastern Regulatory Area of the GOA for the deep water complex only. The MRB rate would be 7 percent in the deep water complex and would remain at 5 percent in the shallow water complex for the aggregated rockfish.

1.3 Analysis of SR/RE and Thornyhead Rockfish Incidental Catch in the GOA

Comparisons of historical data with proposed MRB rates

Historical data are useful in describing incidental catch rates, and patterns in incidental catch in the GOA fisheries. However, there are several limitations in using historical observer data to predict or describe the effects of changes in MRB levels. The first caveat in using historical data is that the data are collected on a haul-by-haul basis, and it is difficult to use the data to describe or characterize an entire trip or fishing week. MRBs are used to cap the retainable incidental catch in a fishing week, so an examination of individual hauls has limited utility. Second, the observer database can only quantify observed hauls and there is no information available for unobserved hauls, further confounding the utility of observer data in describing a full fishing week. The third major caveat in using historical data is that the fisheries were prosecuted under an existing MRB level. Given that it is not possible to know if a haul was made in an effort to constrain incidental catch or at the opposite extreme to "top off" up to the allowable MRB level, the data have limitations in describing either avoidance or "topping off" behavior. The POP fishery, for instance, which operated under an MRB of 15% in 1996 may have provided an incentive to "top off" on other more valuable rockfish species, such as SR/RE, however it is very difficult to distinguish the "top off" hauls from hauls that would normally encounter SR/RE. It is impossible to know whether the few hauls that fell into the SR/RE target (for which there is no directed fishery) were the result of intentional catch for "topping off" purposes, or whether the SR/RE were encountered as unexpected, or unintentional catch. This is why the survey data are useful, because they offer a fishery independent estimate, with the caveat that the fishery is likely to be more selective than random hauls.

Data and assumptions

Two sources of data were used to estimate theoretical incidental catch rates of SR/RE and thornyhead rockfish in the GOA; data from the NMFS Observer Program for 1996-1998 and data from the NMFS GOA triennial trawl surveys in 1990, 1993, and 1996. While the data generated from the surveys does not necessarily represent normal fleet operations because of possible gear, geographic, and seasonal differences between the survey and the fishery, survey data can supply a fishery-independent estimate of incidental catch rates that can be compared to rates determined from the fishery. For both the survey and observer data, each haul was assigned to the management category with the highest catch weight. The categories were pollock, Pacific cod, deep water flatfish, rex sole, flathead sole, shallow water flatfish, sablefish, Atka mackerel, and aggregated rockfish (all *Sebastes* and *Sebastolobus* rockfish). Note that arrowtooth flounder was not included as a category because it is rarely targeted on by the commercial fishery, though arrowtooth flounder often dominates the catch of many survey hauls.

The incidental catch rates of SR/RE and thornyhead rockfish were estimated for each of these target species. In the observer and survey data, the aggregated rockfish complex was broken down further into SR/RE, POP, northern, thornyhead, dusky, and "other" rockfish targets. All of the gear types (non-pelagic trawl, pelagic trawl, pot and hook-and-line) were included in the analysis. Because the MRB categories apply across all gear types, distinctions in gear were not included in this analysis except that incidental catch rates were calculated for the sablefish hook-and-line fishery. Confidence limits for the estimated incidental catch rates are provided as the coefficient of variation (cv) (Heifetz and Ackley, 1997).

Observed catch and incidental catch

The dominant fisheries in the GOA are the pollock, sablefish, POP, and the Pacific cod fisheries. In 1998, these four fisheries accounted for about 81% of the total groundfish harvested (198,610 mt/245,115 mt total).

SR/RE was primarily taken in the rockfish fishery (47% of the catch in 1997 and 45% in 1998), and in the hook-and-line sablefish fishery (30% of the catch in 1997 and 41% in 1998)(Table 4). SR/RE rockfish were also caught in hauls classified as SR/RE rockfish targets, and these hauls comprised 50% of the observed SR/RE taken in 1998 (Table 6). Thornyhead rockfish were also primarily taken in the rockfish fishery (18% of the catch in 1997 and 26% in 1998), and in the hook-and-line sablefish fishery (35% of the catch in 1997 and 47% in 1998). Thornyhead rockfish were also caught in hauls classified as thornyhead rockfish targets, however, these hauls only comprised 8% of the observed thornyhead taken in 1998 (Table 6). There has not been a directed fishery for SR/RE or thornyhead rockfish, however, hauls assigned this target had SR/RE or thornyhead as the dominant rockfish catch. In 1998, 51 observed hauls were classified in the analysis as being a SR/RE target. This could indicate that a significant number of hauls were specifically targeting SR/RE or conversely, that these hauls occurred unintentionally while targeting on another species. It is likely that both of these possibilities occurred, and that combinations of them also occurred during a single fishing trip. For thornyhead rockfish, 25 observed hauls fell into a thornyhead target in 1998, indicating that fewer hauls were actually targeting thornyhead rockfish. Thornyhead rockfish incidental catch was observed to be more evenly distributed across all fisheries than was SR/RE, which was caught primarily in SR/RE targeted hauls (Table 6).

Table 6—Percent of total incidental catch of SR/RE and thornyhead rockfish by target category (from 1998 observer data).

1998 Target Fishery	SR/RE Incidental Catch	Thornyhead Incidental Catch
POP	23%	25%
Rockfish (less POP; and less SR/RE or thornyhead)	2%	17%
Sablefish	7%	3%
Deep water flatfish	1%	6%
SR/RE or thornyhead target	50%	8%
Total	83%	59%

Due to the dominance of SR/RE and thornyhead rockfish incidental catch in the rockfish and sablefish fisheries, this analysis focuses on these two fisheries. Currently the MRB allowances for an incidentally caught species is similar across the shallow water complex and across the deep water complex. The rockfish and sablefish fisheries are representative of the deep water fisheries.

In 1996 the SR/RE TAC was 1,910 mt, which resulted in a total catch of 1,661 mt, with observer reports accounting for 732 mt, or roughly 44% of the total SR/RE catch (Table 2). In 1996, the TAC for thornyhead rockfish was set at 1,248 mt with a catch of 1,132 mt, of which approximately 31% or 350 mt was in observed hauls. The SR/RE TAC has been met or exceeded in the last 4 years (1995 through 1998).

SR/RE rockfish incidental catch rates

Average estimated incidental catch rates for SR/RE rockfish are presented in Figure 2. The horizontal line represents the 7% MRB rate option, proposed under alternative 2. For both the observer data and the survey data, incidental catch rates are generally higher in the deep water complex (aggregated rockfish, sablefish, rex sole, deep water flatfish) than in the shallow water complex (Atka mackerel, flathead sole, pollock, and shallow flatfish). None of the observed incidental catch rates for any target fishery exceeds the 7% proposed limit. However, the survey estimated incidental catch rate for aggregated rockfish exceeds the 7% proposed limit, and the deep water flatfish complex is nearly 7%, although the estimate from the observer data is only about 2%. It is important to note here that all of the incidental catch estimates based on observer data are lower than the survey incidental catch estimates. This can be expected due to the selective nature of the fishery, however, we would predict that "topping off" behavior increases these rates to an amount higher than what could be attained in a completely selective fishery.

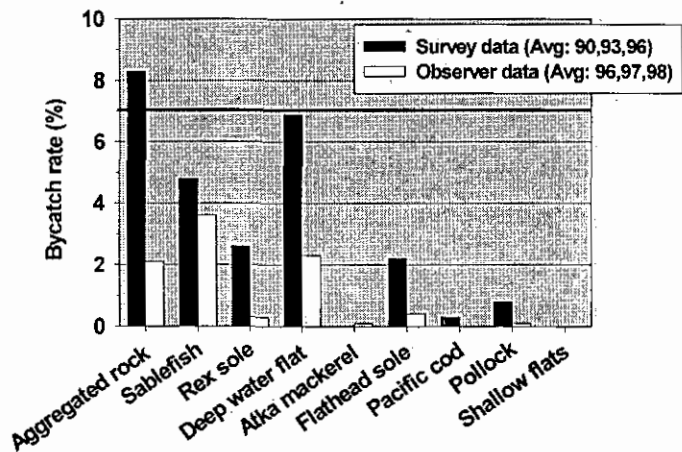


Figure 2—SR/RE rockfish incidental catch rates in selected fisheries based on trawl survey data and fishery observer data for the years shown.

Table 7 and 8 list the calculated average incidental catch rates for SR/RE based on trawl survey data and observer data. In the aggregated rockfish target, SR/RE has been omitted as a target. However, thornyhead rockfish has not been omitted. In Table 8, the incidental catch rate of SR/RE in thornyhead rockfish targeted

hauls is 23.5% on average. For the POP fishery (Table 8), the incidental catch rate is only 3.3% on average. There has not been a directed fishery for SR/RE or thornyhead rockfish in this time period, and therefore, any SR/RE targeted hauls are likely to be either "top off" hauls or hauls associated with unusually high incidental catch. From Table 4, we see that the majority of the SR/RE incidental catch occurred in the sablefish and rockfish (primarily POP) fisheries.

Table 7—Estimated natural incidental catch rates, confidence values, and number of hauls for SR/RE rockfish in the GOA based on trawl survey data (years 1990, 93, 96).

Target species/complex	1990	1993	1996	Avg Rate	1990	1993	1996	1990	1993	1996
	Rate	Rate	Rate		CV %	CV %	CV %	# hauls	# hauls	# hauls
Aggregated rockfish	8.8	10.3	5.8	8.3	31.2	29.8	26.4	188	207	233
Sablefish	3.5	4.0	6.9	4.8	30.6	32.0	24.6	55	70	56
Rex sole	0.7	6.7	0.5	2.6	49.9	53.8	58.3	27	42	33
Deep water flatfish	7.6	4.7	8.5	6.9	37.4	25.7	38.7	29	41	32
Atka mackerel	0.0	0.0	0.0	0.0	0.0	102.8	0.0	3	3	3
Flathead sole	1.8	2.9	2.0	2.2	33.4	41.7	33.7	55	64	80
Pacific cod	0.3	0.4	0.1	0.3	43.6	53.4	51.0	122	142	135
Pollock	1.4	0.5	0.5	0.8	36.6	36.3	35.2	178	117	137
Shallow water flatfish	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	132	80

Table 8—Estimated natural incidental catch rates, confidence values, and number of hauls for SR/RE rockfish in the GOA based on fishery observer data from 1996 through 1998.

Target species/complex	1996	1997	1998	Avg Rate	1996	1997	1998	1996	1997	1998
	Rate	Rate	Rate		CV %	CV %	CV %	# hauls	# hauls	# hauls
All gear Aggregated rockfish	1.4	2.3	2.5	2.1	21.2	19.2	19.3	489	452	489
Sablefish	2.9	3.9	3.9	3.6	11.0	20.2	13.7	911	628	598
Rex sole	0.3	0.6	0.1	0.3	17.9	26.0	32.3	531	269	190
Deep water flatfish	1.7	3.1	2.0	2.3	26.2	22.3	31.6	120	186	86
Atka mackerel	0.0	0.1	0.0	0.1	64.8	84.2	0.0	36	8	2
Flathead sole	0.2	0.8	0.3	0.4	35.6	26.1	33.5	152	141	125
Pacific cod	0.0	0.0	0.0	0.0	38.5	56.3	34.5	1763	564	1461
Pollock	0.0	0.0	0.1	0.1	68.2	40.4	41.8	706	857	1246
Shallow water flatfish	0.0	0.0	0.0	0.0	100.2	79.2	0.0	396	364	136
Rockfish-pop	2.1	3.9	3.9	3.3	21.4	20.8	20.7	330	229	257
Rockfish-SR/RE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	97	51	51
Rockfish-northern	0.2	0.8	0.1	0.3	57.3	78.2	54.5	156	78	91
Rockfish-thornyhead	22.5	17.3	30.7	23.5	26.5	17.3	28.6	25	45	25
Rockfish-dusky	0.7	0.5	0.9	0.7	71.9	44.4	79.9	73	86	116
H-&-L Sablefish	2.8	2.9	3.7	3.1	11.9	11.9	12.7	774	590	535

In Figure 3, plots of incidental catch rates are displayed for both observed and survey hauls in 1996. A histogram analysis was used to generate a diagram of the frequency of hauls and incidental catch rates. A graph showing cumulative catch was plotted over the histogram (denoted by circles with the y-axis on the right hand side). Theoretical MRB rates of 7% and 15% are displayed as vertical lines. This assists in determining what quantity of catch occurred at any particular rate. For example, looking at survey hauls in 1996 with rockfish targets, the bulk of the hauls were below the 15% theoretical MRB rate. However, this accounted for only about 30% of the SR/RE incidental catch. There were in fact a number of hauls with high

incidental catch rates (20% - 80%) that accounted for a large volume of the harvested amount. In the observer hauls, we see that the pattern is very similar to the survey data, except that there appears to be fewer hauls (smaller vertical bars) above a 20% incidental catch rate in the observer data.

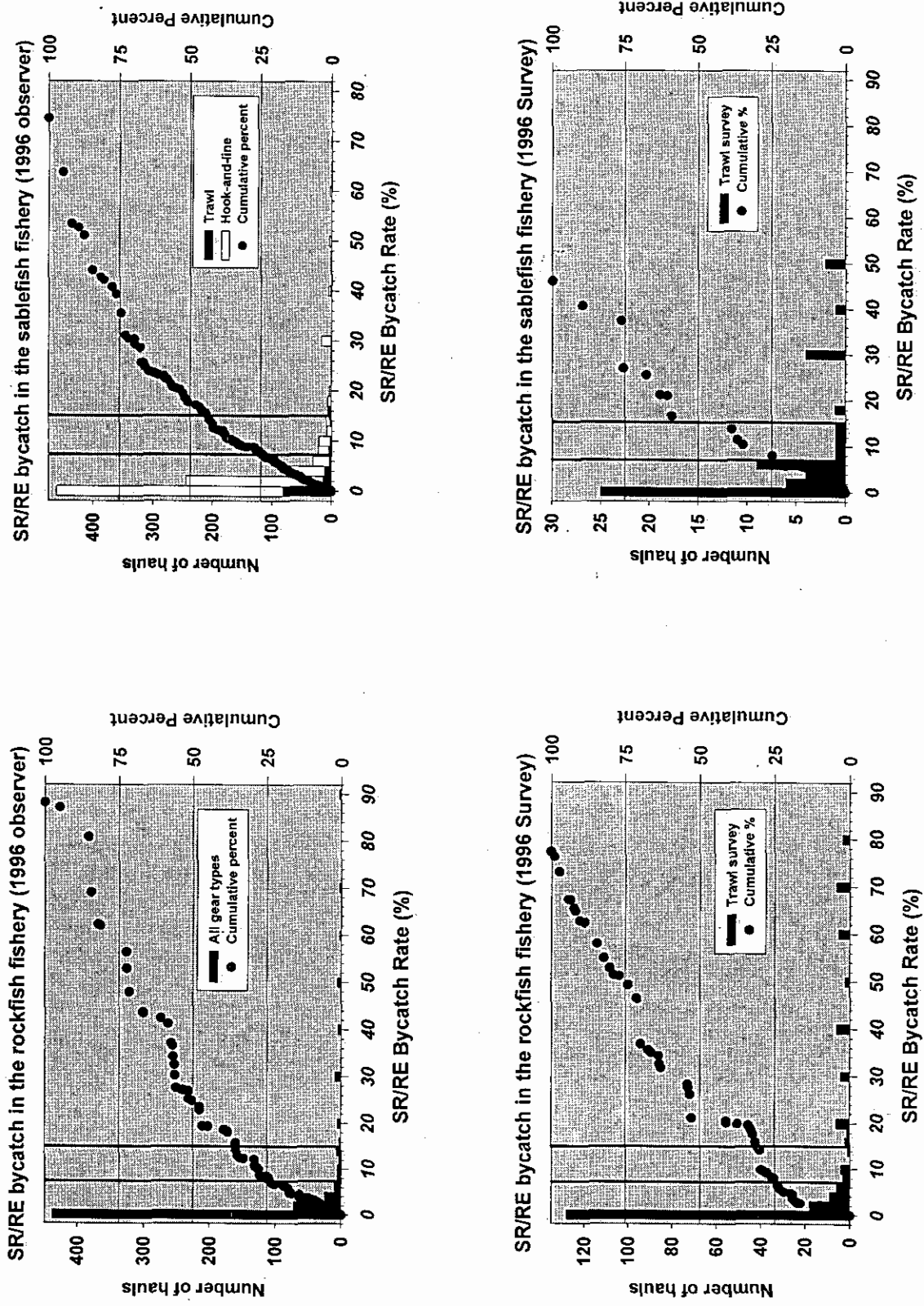
In sablefish targeted hauls, a theoretical MRB rate of 15% accounts for about 50% of the entire catch of SR/RE in the survey data and equally about 50% in the observer data. The characteristics of the observer and survey plots are very similar, however, the observer hauls are much more closely grouped around 0%. In sablefish targeted hauls, about 50 of the hauls resulted in incidental catch percentages of SR/RE between 7% and 15%. About 50% of the hauls resulted in an incidental catch percentage of 15% or lower, while only about 25% of the hauls resulted in rates lower than 7%.

Will the proposed MRB cause SR/RE regulatory discards?

To answer this question we would need to know if the hauls harvested above the MRB for thornyhead rockfish were associated with intentional or unintentional catch, and whether the hauls occurred during the early part of a fishing trip or at the end. In order to minimize the likelihood of regulatory discards, the number of hauls that fall below the selected MRB rate should be maximized. For observed sablefish targeted hauls, a reduction of the MRB from 15% to 7% would result in 75 hauls being above the allowable MRB rate, but would reduce the cumulative amount of thornyhead rockfish accounted for under the MRB, from 50% to 25% (i.e., 75% of the observed SR/RE caught incidentally in the sablefish fishery would have been caught at a rate higher than 7%). On average, the incidental catch rate for SR/RE in the sablefish fishery has been about 3.6%. Because the average incidental catch rate is well below the proposed limit of 7%, situations that could cause regulatory discards should not increase significantly.

For observed rockfish targeted hauls, a reduction of the MRB from 15% to 7% would result in about 20 hauls being above the 7% rate, and would reduce the cumulative amount of thornyhead rockfish accounted for, from 35% to 25% (i.e. 75% of the observed SR/RE rockfish caught incidentally in the rockfish fishery would have been caught at a rate higher than 7%). On average, the incidental catch rate for SR/RE rockfish in the rockfish fishery has been about 7.3%. This is above 7%, but this high value can largely be attributed to SR/RE incidental catch in thornyhead rockfish targeted hauls (a 23.5% rate). In the POP fishery, the SR/RE incidental catch rate has only been about 3.3% on average. However, the thornyhead rockfish targeted hauls, must have been associated to another target fishery for purposes of MRB accounting, and it is likely that a large portion of those hauls were either in the rockfish (POP) fishery or the sablefish fishery. From anecdotal information from fishermen, it is most likely that these "top off" hauls are in fact intentional, and therefore a reduction in the MRB rate to 7% would not significantly increase the amount of regulatory discards.

Figure 3—Incidental catch rates of SR/RE rockfish in sablefish and rockfish targeted hauls.



Thornyhead rockfish incidental catch rates

The estimated incidental catch rate for thornyhead rockfish is presented in Figure 4. The horizontal line represents the proposed MRB rate (7%). For both the observer data and the survey data, incidental catch rates are higher in the deep water complex (aggregated rockfish, sablefish, rex sole, deep water flatfish) than in the shallow water complex (Atka mackerel, flathead sole, pollock, and shallow flatfish), which is similar to the pattern seen for SR/RE in Figure 2. The estimated incidental catch rate for the deep water flatfish complex from the observer and the survey data is the only target category that on average exceeds the 7% proposed limit. However, the survey estimated incidental catch rate for thornyhead rockfish in sablefish targeted hauls is nearly 7%, although the estimate from the observer data is only about 4%. The estimates of thornyhead incidental catch rates, based on observer data, are lower than the survey incidental catch estimates.

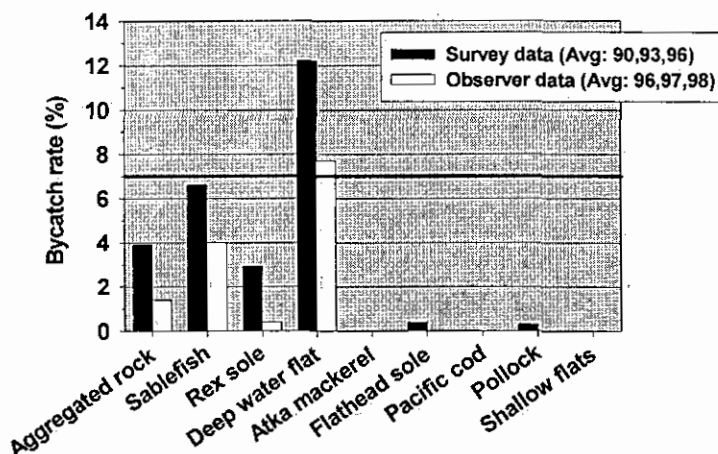


Figure 4–Thornyhead rockfish incidental catch rates in selected fisheries based on trawl survey data and fishery observer data for the years shown.

Tables 9 and 10 list the calculated average incidental catch rates for thornyhead rockfish based on trawl survey data and observer data. In the aggregated rockfish target, thornyhead rockfish has been omitted as a target. However, SR/RE has not been omitted. In Table 10, the incidental catch rate of thornyhead rockfish in SR/RE targeted hauls is 12.1% on average. For thornyhead rockfish targeted hauls the incidental catch rate for SR/RE was 23.5% (Table 8). In POP targeted hauls (Table 10), the incidental catch rate of thornyhead rockfish is only about 1.4%. This is appreciably lower than the incidental catch rate for SR/RE in POP targeted hauls (3.3%). The incidental catch rate in the deep water flatfish complex is higher, 7.7% on average. However, this fishery only accounts for about 80 mt of thornyhead rockfish catch per year (about 5% of the total amount of incidental catch)(Table 4). Discard rates of thornyhead rockfish have also been higher than average for this fishery, indicating that regulatory discards may be occurring. An MRB rate of 7% could increase the amount of regulatory discards in this fishery, however, due to the relatively small amount of thornyhead rockfish harvested as incidental catch, the increase in the amount discarded is likely to be low.

Table 9—Estimated natural incidental catch rates of thornyhead rockfish in the GOA based on trawl survey data (1990, 93, 96).

Target species/complex	1990	1993	1996	Avg	1990	1993	1996	1990	1993	1996
	Rate	Rate	Rate	Rate	CV %	CV %	CV %	# hauls	# hauls	# hauls
Aggregated rockfish	4.2	3.5	3.9	3.9	21.8	18.0	19.5	188	207	233
Sablefish	2.2	4.1	13.4	6.6	30.7	29.9	20.5	55	70	56
Rex sole	4.4	1.7	2.6	2.9	75.1	56.8	81.2	27	42	33
Deep water flatfish	4.9	14.1	17.4	12.2	40.6	23.3	25.6	29	41	32
Atka mackerel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3	3	3
Flathead sole	0.9	0.0	0.2	0.4	72.5	56.3	89.6	55	64	80
Pacific cod	0.0	0.0	0.0	0.0	66.6	102.8	66.9	122	142	135
Pollock	0.3	0.1	0.4	0.3	35.6	46.3	49.9	178	117	137
Shallow water flatfish	0.0	0.0	0.0	0.0	0.0	100.5	0.0	0	132	80

Table 10—Estimated natural incidental catch rates of thornyhead rockfish in the GOA based on fishery observer data from 1996 through 1998.

Target species/complex	1996	1997	1998	Avg	1996	1997	1998	1996	1997	1998
	Rate	Rate	Rate	Rate	CV %	CV %	CV %	# hauls	# hauls	# hauls
All gear Aggregated rockfish	1.4	1.0	1.8	1.4	11.3	11.3	12.1	489	458	525
Sablefish	3.7	3.9	4.4	4.0	6.0	6.4	7.1	911	628	598
Rex sole	0.6	0.5	0.1	0.4	34.4	53.1	43.3	531	269	190
Deep water flatfish	8.0	6.3	8.7	7.7	12.9	10.4	14.4	120	186	86
Atka mackerel	0.0	0.0	0.0	0.0	75.5	105.7	0.0	36	8	2
Flathead sole	0.0	0.0	0.0	0.0	0.0	52.8	92.2	152	141	125
Pacific cod	0.0	0.0	0.0	0.0	60.7	95.9	48.0	1763	564	1461
Pollock	0.0	0.0	0.0	0.0	57.5	84.3	100.1	706	857	1246
Shallow water flatfish	0.0	0.1	0.0	0.0	0.0	84.5	0.0	396	364	136
Rockfish-pop	1.2	1.0	2.0	1.4	14.0	13.8	15.2	330	229	257
Rockfish-SR/RE	11.8	9.6	14.9	12.1	9.9	17.8	21.0	97	51	51
Rockfish-northern	0.0	0.8	0.1	0.3	59.9	40.9	70.1	156	78	91
Rockfish-thornyhead	N/A	N/A	N/A	N/A	N/A	N/A	N/A	25	45	25
Rockfish-dusky	0.1	0.1	0.0	0.1	57.7	46.1	62.7	73	86	116
H-&-L Sablefish	3.1	3.2	3.8	3.3	5.6	4.3	4.7	774	590	535

In Figure 5, histograms of incidental catch rates of thornyhead rockfish are displayed for both observed and survey hauls in 1996. Theoretical MRB rates of 7% and 15% are displayed as vertical lines. For example, in observed hauls for 1996 with rockfish targets, the vast majority of the hauls had a theoretical MRB rate below the 15% line, and accounted for about 50% of the thornyhead rockfish incidental catch. By about the 30% rate, over 80% of the observed thornyhead catch in the rockfish fishery is accounted for. This is different from the SR/RE scenario, where much of the fish are caught at higher theoretical MRB rates (Figure 3). By moving the rate line to 7%, 25% less catch is accounted for (only 25% of the total thornyhead rockfish catch fell below an MRB of 7%).

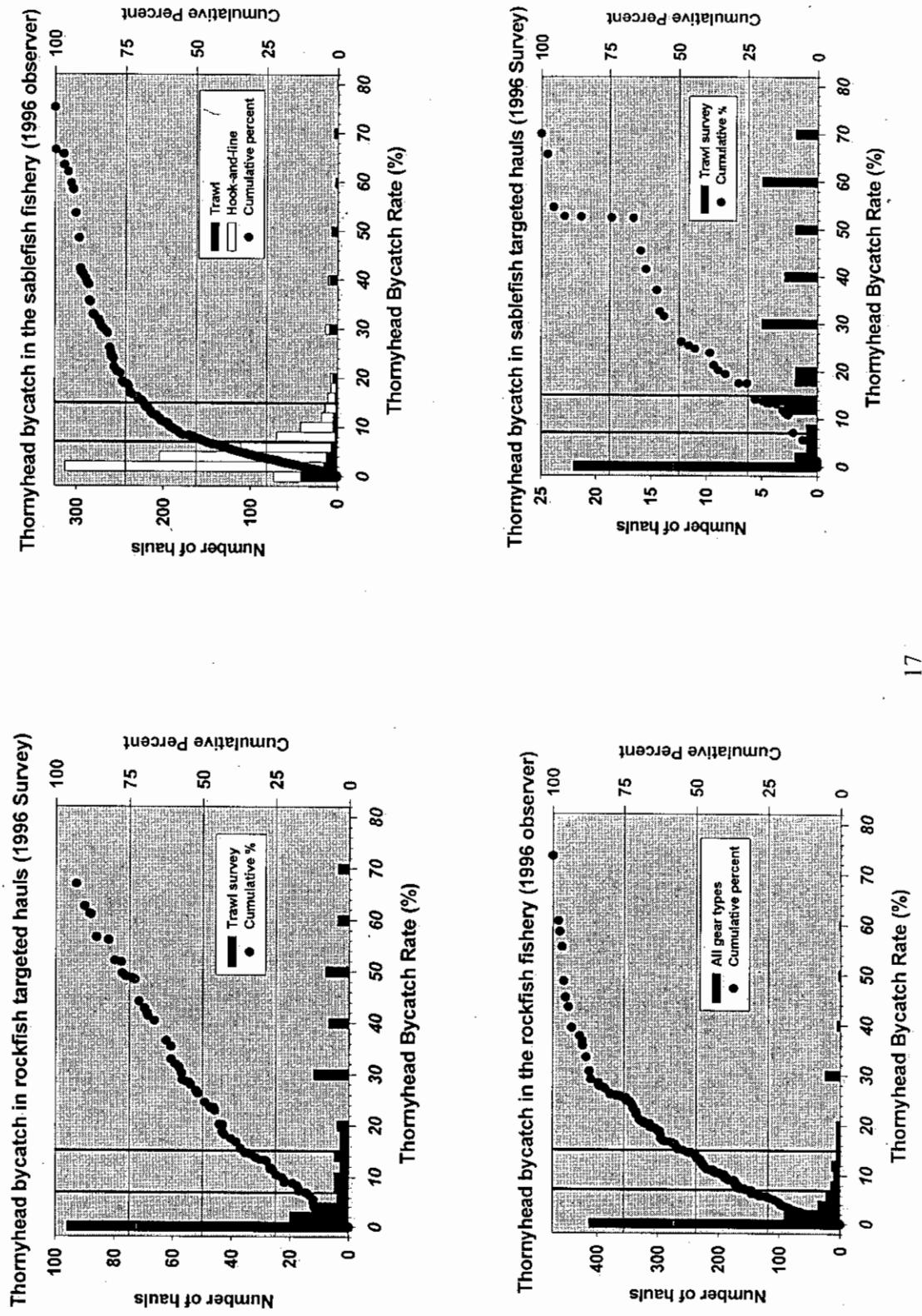
In observed sablefish targeted hauls, a theoretical MRB rate of 15% accounts for nearly 75% of the entire catch of thornyhead rockfish, yet only about 25% of the thornyhead rockfish catch in the survey data is attained by this point, indicating that the fishery is much more effective at avoiding thornyhead rockfish incidental catch. The plots of the survey data and the observer data appear to be very dissimilar. However, in the observed data the peak of the histogram is pushed slightly to the right, and is the only fishery which has a greater number of hauls occurring at a theoretical rate of 2% than at 0%, indicating that it is likely that the theoretical incidental catch rate for thornyhead rockfish is higher in the sablefish fishery than in the rockfish fishery.

Will the proposed MRB cause thornyhead rockfish regulatory discards?

For observed sablefish targeted hauls, a reduction of the MRB from 15% to 7% could, in theory reduce the number of hauls that occurred below the acceptable rate by about 150, and reduce the cumulative amount of thornyhead rockfish accounted for, under the MRB, from 75% to 50% (i.e., 50% of the observed thornyhead rockfish caught incidentally in the sablefish fishery would have been caught at a rate higher than 7%). On average, the incidental catch rate for thornyhead rockfish in the sablefish fishery has been about 4.0%, which is well below the proposed limit.

For observed rockfish targeted hauls, a reduction of the MRB from 15% to 7% could, in theory reduce the number of hauls that occurred below the acceptable rate by about 30, but reduce the cumulative amount of thornyhead rockfish from 50% to 25% (i.e., 75% of the observed thornyhead rockfish caught incidentally in the rockfish fishery would have been caught at a rate higher than 7%). On average, the incidental catch rate for thornyhead rockfish in the rockfish fishery has been about 1.4%. Again, the average rate is well below the proposed limit.

Figure 5— Incidental catch rates of thornyhead rockfish in sablefish and rockfish targeted hauls using observer and survey catch data



SR/RE and thornyhead rockfish incidental catch rates in the POP fishery

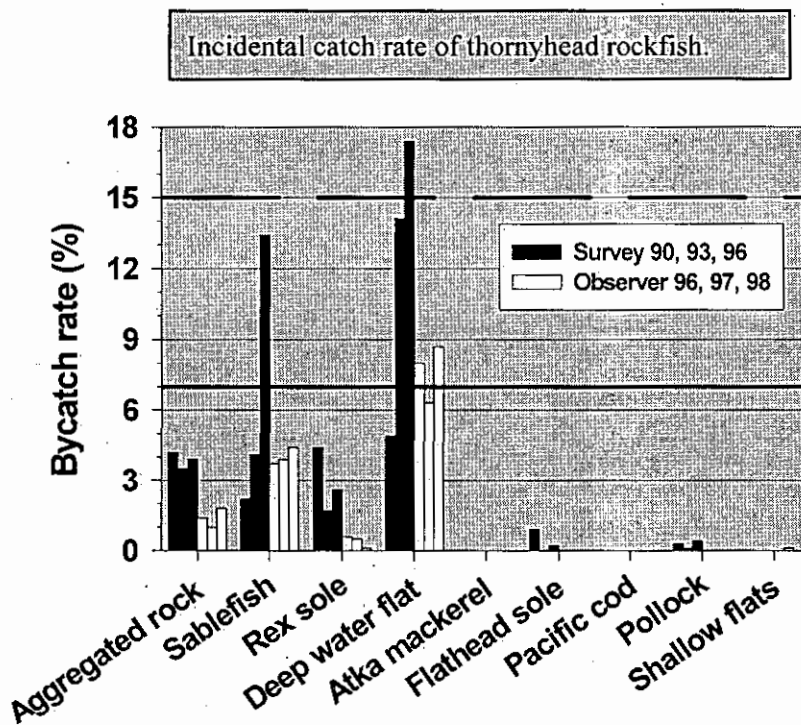
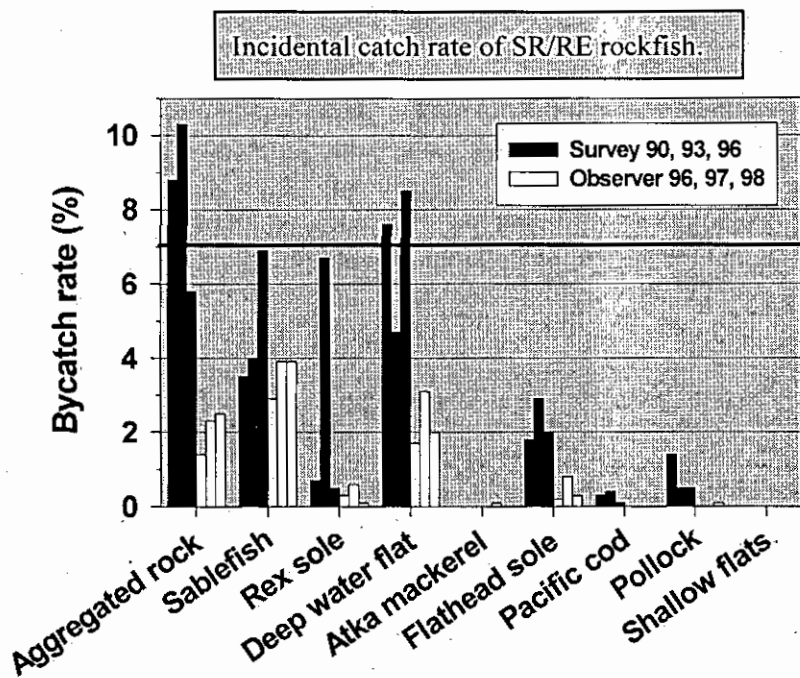
The trawl rockfish fishery has accounted for a significant amount of the SR/RE and thornyhead rockfish incidental catch in the GOA, about 45% and 26% respectively (Table 4 and 5). However, inspection of observed hauls has shown that the POP rockfish fishery encounters the highest rate of SR/RE and thornyhead rockfish incidental catch rates (on average 3.3% and 1.4% respectively, see Tables 8 and 10), and is by far the most significant of the directed rockfish fisheries.

Anecdotal information from fishermen has revealed to NMFS that some vessels have been successfully targeting on POP rockfish with pelagic trawl gear. Observed hauls from 1996 through 1998 (Table 11), indicate that the pelagic POP fishery encountered very little SR/RE and thornyhead rockfish incidental catch (rates of only 0.6% for SR/RE and 0.0% for thornyhead rockfish, from areas 630 and 640). The average weight of POP per haul was 27.9 mt with pelagic gear, but only 14.8 mt with non-pelagic gear, suggesting that pelagic gear is an effective means of harvesting POP. If we simulate a non-pelagic gear prohibition in 1998, the amount of SR/RE rockfish "saved" would have been about 656 mt. In 1998, the TAC was exceeded by 275 mt in the Eastern Regulatory Area, and 114 mt overall. If the alternative to prohibit non-pelagic trawl gear in the POP fishery had been effective, it is likely that the Gulf wide TAC would not have been exceeded in 1998. However, the Eastern Regulatory Area TAC would still have been exceeded, unless this alternative was combined with an MRB reduction.

Table 11—Incidental catch rates of SR/RE and thornyhead rockfish in the POP fishery by gear type (observed hauls from years 1996 through 1998, amounts are in mt)

	Non-pelagic Gear	Pelagic Gear
Incidental catch rate of SR/RE	3.9 %	0.6 %
CV %	12.8 %	33.2 %
Incidental catch rate of thornyheads	1.8 %	0.0 %
CV %	9.1 %	59.3 %
Number of hauls	725	90
Average weight of POP per haul	14.8	27.9
Sum of POP	10,741	2,517
Sum of SR/RE	424	15
Sum of Thornyheads	191	0.5
Percent of total POP	81.0 %	19.0 %
Percent of total SR/RE	96.6 %	3.4 %
Percent of total thornyheads	99.7 %	0.3 %

Figure 6—Range of observer and survey incidental catch rates of SR/RE and thornyhead rockfish (dates are shown).



2.0 NEPA REQUIREMENTS: ENVIRONMENTAL IMPACTS OF THE ALTERNATIVES

An EA as described by the National Environmental Policy Act (NEPA) of 1969 is used to determine whether the action considered will result in significant impact on the human environment. If the action is determined not to be significant, based on an analysis of relevant considerations, the EA and resulting finding of no significant impact would be the final environmental documents required by NEPA. If the analysis concludes that the proposal is a major Federal action significantly affecting the human environment an environmental impact statement (EIS) must be prepared.

An EA must include a brief discussion of the need for the proposal, the alternatives considered, the environmental impacts of the proposed action and the alternatives, and a list of document preparers. The purpose and alternatives were discussed in Sections 1.1 and 1.2, and the list of preparers is in Section 7. This section contains the discussion of the environmental impacts of the alternatives including impacts on threatened and endangered species, critical habitat, and marine mammals.

2.1 Environmental Impacts of the Alternatives

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

The environmental impacts of the groundfish specifications (TACs) are assessed annually in the environmental assessment prepared for these specifications. MRB percentages provide a management tool to facilitate the monitoring and management of species' harvest amounts within specified TACs. If MRBs provide an opportunity for increased harvest rates of a incidental catch species or a basis species through "topping off" activity in a manner that results in TACs being reached before the end of the fishing year, then NMFS is required to put the affected species on prohibited species status. If overfishing is not of concern, the species will continue to be taken incidental to other fishing operations, but must be discarded. While regulatory discards are a source of public concern, they do not necessarily create conservation problems. If attainment of a TAC and subsequent incidental catch amounts present a potential overfishing concern, NMFS is required to take action to prohibit all fishing activities that take the affected species incidentally.

Sometimes, unanticipated changes in fishing patterns together with the fast-paced, competitive nature of the groundfish fisheries creates a situation where harvest amounts reach the overfishing level before NMFS can take preventative action. To the extent that Alternatives 2 or 4 would implement reductions to SR/RE MRBs, slower harvest rates would result, management ability would be enhanced to maintain harvest amounts within specified TACs, and the potential of reaching overfishing levels would be lessened. This alternative, therefore, would facilitate NMFS's ability to manage SR/RE within the TAC levels assessed by the annual EA prepared for the groundfish specifications and within the scope of effects the annual EA determines these harvest levels may have on the biological environment as well as associated impacts on marine mammals, seabirds, and other endangered or threatened species and critical habitat. Alternative 3, a non-pelagic trawl gear prohibition for POP, would have similar effects on the overall fishery as alternative 2 or 4, and would lessen any impacts that might occur from trawling on the sea floor.

A description of the effects of the 1999 TACs on the biological environment and associated impacts on marine mammals, seabirds, and other endangered or threatened species and critical habitat is set out in the final EA prepared for the 1999 specifications (NMFS, 1998).

2.2 Impacts on Endangered or Threatened Species

Background. The ESA provides for the conservation of endangered and threatened species of fish, wildlife, and plants. The program is administered jointly by NMFS for most marine species, and the US Fish and Wildlife Service (FWS) for terrestrial and freshwater species.

The ESA procedure for identifying or listing imperiled species involves a two-tiered process, classifying species as either threatened or endangered, based on the biological health of a species. Threatened species are those likely to become endangered in the foreseeable future [16 U.S.C. §1532(20)]. Endangered species are those in danger of becoming extinct throughout all or a significant portion of their range [16 U.S.C. §1532(20)]. The Secretary of Commerce, acting through NMFS, is authorized to list marine mammal and fish species. The Secretary of the Interior, acting through the FWS, is authorized to list all other organisms.

In addition to listing species under the ESA, the critical habitat of a newly listed species must be designated concurrent with its listing to the "maximum extent prudent and determinable" [16 U.S.C. §1533(b)(1)(A)]. The ESA defines critical habitat as those specific areas that are essential to the conservation of a listed species and that may be in need of special consideration. The primary benefit of critical habitat designation is that it informs Federal agencies that listed species are dependent upon these areas for their continued existence, and that consultation with NMFS on any Federal action that may affect these areas is required. Some species, primarily the cetaceans, listed in 1969 under the Endangered Species Conservation Act and carried forward as endangered under the ESA, have not received critical habitat designations.

Listed Species. The following species are currently listed as endangered or threatened under the ESA and occur in the GOA and/or BSAI groundfish management areas.

Common Name	Scientific Name	ESA Status
Northern Right Whale	<i>Balaena glacialis</i>	Endangered
Bowhead Whale ¹	<i>Balaena mysticetus</i>	Endangered
Sei Whale	<i>Balaenoptera borealis</i>	Endangered
Blue Whale	<i>Balaenoptera musculus</i>	Endangered
Fin Whale	<i>Balaenoptera physalus</i>	Endangered
Humpback Whale	<i>Megaptera novaeangliae</i>	Endangered
Sperm Whale	<i>Physeter macrocephalus</i>	Endangered
Snake River Sockeye Salmon	<i>Onchorynchus nerka</i>	Endangered
Short-tailed Albatross	<i>Phoebastria albatrus</i>	Endangered
Steller Sea Lion	<i>Eumetopias jubatus</i>	Endangered and Threatened ²
Snake River Fall Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Snake River Spring/Summer Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Puget Sound Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Lower Columbia River Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Upper Willamette River Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Upper Columbia River Spring Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Endangered
Upper Columbia River Steelhead	<i>Onchorynchus mykiss</i>	Endangered
Snake River Basin Steelhead	<i>Onchorynchus mykiss</i>	Threatened
Lower Columbia River Steelhead	<i>Onchorynchus mykiss</i>	Threatened
Upper Willamette River Steelhead	<i>Onchorynchus mykiss</i>	Threatened
Middle Columbia River Steelhead	<i>Onchorynchus mykiss</i>	Threatened
Spectacled Eider	<i>Somateria fishcheri</i>	Threatened
Steller Eider	<i>Polysticta stelleri</i>	Threatened

¹ The bowhead whale is present in the Bering Sea area only.

² Steller sea lion are listed as endangered west of Cape Suckling and threatened east of Cape Suckling.

Section 7 Consultations. Because both groundfish fisheries are federally regulated activities, any fishery action that is likely to adversely affect any listed species or critical habitat is subject to ESA section 7

consultation. NMFS initiates the consultation and the resulting biological opinions are issued to NMFS. The Council may be invited to participate in the compilation, review, and analysis of data used in the consultations. The determination of whether the action "is likely to jeopardize the continued existence of" endangered or threatened species or to result in the destruction or modification of critical habitat, however, is the responsibility of the appropriate agency (NMFS or FWS). If the action is determined to result in jeopardy, the opinion includes reasonable and prudent alternatives that are necessary to alter the action so that jeopardy is avoided. If an incidental take of a listed species is expected to occur under normal promulgation of the action, an incidental take statement is appended to the biological opinion and non-discretionary reasonable and prudent measures are identified that are intended to minimize the impacts of incidental take that might otherwise result from the proposed action.

Section 7 consultations have been done for all the above listed species, some individually and some as groups. Below are summaries of the consultations.

Endangered Cetaceans. NMFS concluded a formal section 7 consultation on the effects of the BSAI and GOA groundfish fisheries on endangered cetaceans within the BSAI and GOA on December 14, 1979, and April 19, 1991, respectively. These opinions concluded that the fisheries are not likely to jeopardize the continued existence or recovery of endangered whales. Consideration of the bowhead whale as one of the listed species present within the area of the Bering Sea fishery was not recognized in the 1979 opinion, however, its range and status are not known to have changed. No new information exists that would cause NMFS to alter the conclusion of the 1979 or 1991 opinions. NMFS does not intend to reinitiate section 7 consultations on the listed cetaceans for this action. Of note, however, are observations of Northern Right Whales during Bering Sea stock assessment cruises in the summer of 1997 and 1998 (NMFS per. com). Prior to these sightings, and one observation of a group of two whales in 1996, confirmed sightings had not occurred.

Biological Opinion, Authorization of the Pollock and Atka Mackerel Fisheries for 1999-2002

On December 3, 1998, NMFS issued its Biological Opinion on the 1999-2002 authorization of the BSAI Atka mackerel fishery, the BSAI pollock fishery, and the GOA pollock fishery under their respective groundfish fishery management plans (NMFS 1998b). The opinion analyzes the effects of these actions on the endangered western population of Steller sea lions and its critical habitat. After reviewing (1) the 1998 status of ESA listed species, (2) the environmental baseline for the action area, (3) the effects of the proposed 1999-2002 fisheries, and (4) the recommendations of the NPFMC, NMFS' Biological Opinion concludes that the Atka mackerel fisheries will not jeopardize the continued existence of current ESA listed species or adversely modify their critical habitat if current proposed mitigation measures are effective in 1999 (see below). However, for the proposed 1999-2002 BSAI and GOA pollock fisheries, NMFS' Biological Opinion concluded that the action, as proposed, are likely to jeopardize the continued existence of the western population of Steller sea lions and adversely modify its critical habitat.

For the pollock fisheries, NMFS established RPAs to avoid jeopardizing Steller sea lions and presented those RPAs to the Council during its December meeting. Mitigation measures for the pollock fisheries were proposed by the Council and then modified by NMFS. These modified RPAs were issued by NMFS in a memorandum dated December 16, 1998 from Gary Matlock, Director, Office of Sustainable Fisheries. NMFS has determined that these mitigation measures would, if implemented, allow the proposed fishery to occur without jeopardizing the continued existence of Steller sea lions and avoid adverse modification of its critical habitat. NMFS prepared an emergency rule that will implement the RPA actions as proposed by the Council and modified by NMFS. This emergency rule was effective prior to the start of the 1999 pollock trawl fisheries (January 20, 1999).

NMFS promulgated management measures in the Atka mackerel fishery to mitigate fishery competition

for prey with the endangered Steller sea lions. This rule limited the amount of catch within Steller sea lion critical habitat, but did not alter the overall TAC amounts.

The Biological Opinion was challenged in the United States District Court for the Western District of Washington by Greenpeace, the American Oceans Campaign, and the Sierra Club. On July 9, 1999 (amended July 13, 1999) the Court upheld the no-jeopardy conclusion for the Atka mackerel fishery and the jeopardy conclusion for the pollock fisheries. However, the Court also found that "the Reasonable and Prudent Alternatives . . . were arbitrary and capricious . . . because they were not justified under the prevailing legal standards and because the record does not support a finding that they were reasonably likely to avoid jeopardy." On August 6, 1999, the Court remanded the Biological Opinion back to NMFS for further analysis and explanation.

To comply with the Court's Order, NMFS conducted additional analyses and considered recommendations from the Council to develop revised final RPAs (RFRPAs) issued in October, 1999. These RFRPAs, taken together, address the Court's concerns and will avoid the likelihood of the pollock fisheries jeopardizing the western population of Steller sea lions or adversely modifying its critical habitat.

Pacific Salmon. No species of Pacific salmon originating from freshwater habitat in Alaska are listed under the ESA. These listed species originate in freshwater habitat in the headwaters of the Columbia (Snake) River. During ocean migration to the Pacific marine waters a small (undetermined) portion of the stock extends into the GOA as far east as the Aleutian Islands. In that habitat they are mixed with hundreds to thousands of other stocks originating from the Columbia River, British Columbia, Alaska, and Asia. The listed fish are not visually distinguishable from the other, unlisted, stocks. Mortal take of them in the chinook salmon bycatch portion of the fisheries is assumed based on sketchy information on abundance, timing, and migration patterns.

NMFS designated critical habitat in 1992 (57 FR 57051) for the for the Snake River sockeye, Snake River spring/summer chinook, and Snake River fall chinook salmon. The designations did not include any marine waters, and therefore, does not overlap with the groundfish fisheries off Alaska.

NMFS has issued two biological opinions and no-jeopardy determinations for listed Pacific salmon in the Alaska groundfish fisheries (NMFS 1994, NMFS 1995). Conservation measures were recommended to reduce salmon bycatch and improve the level of information about the salmon bycatch. The no jeopardy determination was based on the assumption that if total salmon bycatch is controlled, the impacts to listed salmon are also controlled. The incidental take statement appended to the second biological opinion allowed for take of one Snake River fall chinook and zero take of either Snake River spring/summer chinook or Snake River sockeye, per year. As explained above, it is not technically possible to know if any have been taken. Compliance with the biological opinion is stated in terms of limiting salmon bycatch per year to under 55,000 and 40,000 for chinook salmon, and 200 and 100 sockeye salmon in the BSAI and GOA fisheries, respectively.

Short-tailed albatross. Seabirds spend the majority of their life at sea rather than on land. The group includes the Procellariiformes (albatross, shearwaters, and petrels), Pelecaniformes (comorants), and two families of the Charadriiformes: Laridae (gulls) and Alcidae (auks, such as puffins, murre, aukelets and murrelets). Detailed seabird information on species population status, life history, ecology, and bycatch is contained in section 3.5 of the SEIS (NMFS 1998a). New information since publication of the SEIS is presented here.

On 22 October 1998, NMFS reported the incidental take of two endangered short-tailed albatrosses in the

hook-and-line groundfish fishery of the BSAI. The first bird was taken on 21 September 1998, at 57°30'N, 173°57'W. The bird had identifying leg bands from its natal breeding colony in Japan. It was 8 years old. In a separate incident, one short-tailed albatross was observed taken on 28 September 1998, at 58°27'N, 175°16'W, but the specimen was not retained for further analysis. Identification of the bird was confirmed by USFWS seabird experts. The confirmation was based upon the observer's description of key characteristics that matched that of a subadult short-tailed albatross to the exclusion of all other species. A second albatross was also taken on 28 September 1998, but the species could not be confirmed (three species of albatross occur in the North Pacific). Both vessels were using seabird avoidance measures when the birds were hooked.

The current world population of short-tailed albatross is approximately 1200 individuals. Because it is listed as endangered under the ESA, actions such as these fisheries that may effect the species are subject to section 7 consultations. Under terms of the 1999 biological opinion, incidental take statement, a take of up to four birds is allowed during the 2-year period of 1999 and 2000 for the BSAI and GOA hook-and-line groundfish fisheries (USFWS 1999). If the anticipated level of incidental take is exceeded, NMFS must immediately reinstate formal consultation with the USFWS to review the need for possible modification of the reasonable and prudent measures established to minimize the impacts of the incidental take.

NMFS Regional Office, NMFS Groundfish Observer Program, and the USFWS Offices of Ecological Services and Migratory Bird Management are actively coordinating efforts and communicating with each other in response to the 1998 take incidents and are complying to the fullest extent with ESA requirements to protect this species. Regulations at 50 CFR Parts 679.24(e) and 679.42(b)(2) contain specifics regarding seabird avoidance measures. In February 1999, NMFS presented an analysis on seabird mitigation measures to the Council that investigated possible revisions to the currently required seabird avoidance methods that could be employed by the long-line fleet to further reduce the take of seabirds.

The Council took final action at its April 1999 meeting to revise the existing requirements for seabird avoidance measures. The Council's preferred alternative would: 1) Explicitly specify that weights must be added to the groundline. (Currently, the requirement is that baited hooks must sink as soon as they enter the water. It is assumed that fishermen are weighting the groundlines to achieve this performance standard.); 2) The offal discharge regulation would be amended by requiring that prior to any offal discharge, embedded hooks must be removed; 3) Streamer lines, towed buoy bags and float devices could both qualify as bird scaring lines. (Specific instructions are provided for proper placement and deployment of bird scaring lines.); 4) Towed boards and sticks would no longer qualify as seabird avoidance measures; 5) The use of bird scaring lines would be required in conjunction to using a lining tube; and 5) Night-setting would continue to be an option and would not require the concurrent use of a bird scaring line.

These revised seabird avoidance measures are expected to be effective early in 2000. The avoidance measures effect the method of harvest in the hook and line fisheries, but are not intended to effect the amount of harvest.

Spectacled Eider. In 1993, the spectacled eider was listed as a threatened species throughout its range in Alaska and Russia. At that time, very little was known about the spectacled eider's marine range. Recent satellite telemetry data and 3 years of late winter aerial surveys indicate that spectacled eiders spend the winter in exposed waters between St. Matthew and St. Lawrence Islands, or in open leads slightly west of the inter-island area (USFWS 1998). Other sightings in U.S. waters occur in August through September when they molt in Ledyard Bay and northeast Norton Sound and in migration near St.

Lawrence Island. Most studies of spectacled eiders have been within their breeding grounds. Dau and Kistchinski (Dau 1977) suggest that they feed primarily on benthic mollusks and crustaceans in shallow waters (less than 30 m). Kessel (Kessel 1989) hypothesized that they also may forage on pelagic amphipods that are concentrated along the sea water pack ice interface. On their coastal breeding grounds, these eiders feed on aquatic crustaceans, aquatic insects, and plant materials (Dau 1974). Although the species is noted as occurring in the GOA and BSAI management areas, no evidence that they interact with these groundfish fisheries exists.

The Alaska breeding population of the Steller's eider was listed as threatened in 1997. They are sea ducks that spend the majority of the year in shallow, near-shore marine waters where they feed by diving and dabbling for mollusks and crustaceans (Petersen 1980). Principal foods in marine areas include bivalves, crustaceans, polychaete worms, and molluscs (Petersen 1980; Troy 1987; Metzner 1993). During the breeding season, Steller's eiders move inland in coastal areas, where they nest adjacent to shallow ponds or within drained lake basins (King 1981; Flint 1984; Quakenbush 1993). Although it is noted as occurring in the GOA and BSAI management areas, no evidence exists that they interact with the groundfish fisheries or compete with the target species for prey.

2.3 Impacts on Marine Mammals Not Listed Under the ESA

Marine mammals not listed under the ESA that may be present in the GOA and BSAI include cetaceans, [minke whale (*Balaenoptera acutorostrata*), killer whale (*Orcinus orca*), Dall's porpoise (*Phocoenoides dalli*), harbor porpoise (*Phocoena phocoena*), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), and the beaked whales (e.g., *Berardius bairdii* and *Mesoplodon spp.*)] as well as pinnipeds [northern fur seals (*Callorhinus ursinus*), and Pacific harbor seals (*Phoca vitulina*)] and the sea otter (*Enhydra lutris*).

None of the alternatives will affect takes of other marine mammals not listed under the ESA. Therefore, none of the alternatives are expected to have a significant impact on marine mammals not listed under the ESA.

2.4 Coastal Zone Management Act

Implementation of the preferred alternative would be conducted in a manner consistent, to the maximum extent practicable, with the Alaska Coastal Management Program within the meaning of section 30(c)(1) of the Coastal Zone Management Act of 1972 and its implementing regulations.

2.5 Impacts on Essential Fish Habitat (EFH)

The proposed action would potentially involve all GOA species noted in the environmental assessment prepared for EFH (NPFMC 1999). The impacts of fishing gear on substrates and benthic communities was analyzed in the FSEIS (NMFS 1998b). A specific discussion of impacts of trawl and longline gear on substrates and benthic communities can be found in section 3.1.2 of the FSEIS. This action reduces the potential for overfishing of SR/RE rockfish. Additionally, in the context of the fishery as a whole, this action does not create impacts different from those already examined during development of the EFH amendments. Therefore, this action will not adversely affect EFH.

2.6 Finding of No Significant Impact

For reasons discussed above, implementation of an MRB reduction for shortraker and roughey rockfish in the ERA of the GOA would not significantly affect the quality of the human environment. Therefore, preparation of an environmental impact statement for the proposed action is not required by section 102(2)(C) of the National Environmental Policy Act or its implementing regulations.

This Environmental Assessment tiers off the Alaska groundfish SEIS (NMFS 1998a).


Administrator for Fisheries, NOAA

NOV 16 1998
Date

3.0 REGULATORY IMPACT REVIEW (RIR)

This section provides information about the economic and socioeconomic impacts of the alternatives including identification of the individuals or groups that may be affected by the action, the nature of these impacts, quantification of the economic impacts if possible, and discussion of the trade offs between benefits and costs, both qualitative and quantitative.

The requirements for all regulatory actions specified in E.O. 12866 are summarized in the following statement from the order:

In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environment, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.

E. O. 12866 requires that the Office of Management and Budget review proposed regulatory programs that are considered to be "significant." A "significant regulatory action" is one that is likely to:

- (1) Have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;
- (2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- (3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- (4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

The RIR is designed to provide information to determine whether the proposed regulation is likely to be "economically significant."

In the GOA, the TAC and acceptable biological catch (ABC) for SR/RE rockfish have been significantly exceeded in 3 of the last 4 years (1995, 1997, and 1998). During 1996, the TAC for the Eastern Regulatory Area were also exceeded. In 1995, TAC, ABC, and the overfishing level were exceeded. NMFS, by in-season management actions, has been unable to effectively maintain harvest amounts below the ABC level due to "topping off" activity within the MRB for SR/RE rockfish.

The alternative actions proposed by NMFS would reduce the amount of SR/RE incidental catch in the GOA by limiting the ability to "top off" with these valuable species. Both Alternative 2 and Alternative 3 (either separately or combined) meet the objective of reducing the total removals of SR/RE rockfish amounts below the ABC level.

3.1 Alternative 1: Status Quo

Under the status quo alternative, MRB rates for SR/RE and thornyhead rockfish would be maintained in the aggregated rockfish complex. If adopted, this alternative could mean that managers would be unable to maintain harvest levels below the ABC amount for SR/RE rockfish. We could risk approaching the OFL which would then force NMFS to place SR/RE or thornyhead rockfish on prohibited species status, resulting in additional discard losses.

3.2 Alternative 2: Reduce the MRB rate for SR/RE and thornyhead rockfish to 7% in the deep water complex and to 2% in the shallow water complex.

Alternative 2 would reduce the MRB for SR/RE and thornyhead rockfish to 7% in the deep water complex and 2% in the shallow water complex. In some circumstances, NMFS uses MRB rates to allow harvest of species that would not support a directed fishery due to small TAC amounts. Recently, NMFS has reduced the MRB for sablefish in the GOA and for SR/RE in the Aleutian Islands because of management difficulty keeping harvest amounts below the ABC. Anecdotal fishing information and inspection of haul by haul observer data support the argument that "topping off" activity is occurring in the rockfish and sablefish fisheries for SR/RE and thornyhead rockfish. This action would slow the fishery and is likely to reduce the total removals of SR/RE and thornyhead rockfish, however, the amount of reduction is difficult to estimate.

3.3 Alternative 3: Prohibit fishing for POP with non-pelagic trawl gear.

This alternative proposes to prohibit directed fishing for POP with non-pelagic trawl gear. Anecdotal information from fishermen and data from observed pelagic trawls, indicates that pelagic trawling can be an effective harvest method for POP that accumulates little incidental catch of SR/RE and thornyhead rockfish. However, it is unknown if the entire POP TAC could be harvested with pelagic gear alone. Historically, the fishery has harvested about 20% of the POP TAC with pelagic trawl gear. Small boats may be insufficiently powered to fish with pelagic gear and could be excluded from the fishery.

3.4 Alternative 4: Reduce the MRB for SR/RE to 7% in the deep water complex in the Eastern GOA Regulatory Area.

The preferred alternative (Alternative 4, a modification of Alternative 2) would establish MRB percentages for SR/RE rockfish by removing them from the "aggregated rockfish" complex in the Eastern GOA. The MRB percentage for SR/RE rockfish would be 7 percent relative to the deep water complex (sablefish, rockfish, rex sole, and deep water flatfish), and remain at 5 percent relative to the shallow water complex (pollock, Pacific cod, shallow water flatfish, flathead sole, Atka mackerel, and "other species"). These MRB percentages would reduce the incentive to "top off" target catch with SR/RE rockfish while minimizing the potential for regulatory discards during a fishing trip. No action is being taken at this time, under this alternative, for thornyhead rockfish due to the fact that the ABC has not been exceeded and is unlikely to be exceeded in the next few years. Also, the natural incidental catch rate for thornyhead rockfish is significantly higher than SR/RE. Therefore, a reduction in the thornyhead MRB could cause regulatory discards and an associated (and unjustified) loss in economic revenues.

3.5 Description of fleet, fishery, and industry directly and reasonably indirectly impacted by the proposed action

The following discussion repeats information from the "Stock Assessment and Fishery Evaluation Report

for the Groundfish Fisheries of the GOA and the Bering Sea/Aleutian Islands Area: Economic Status of the Groundfish Fisheries Off Alaska, 1997" (hereinafter 1998 Economic SAFE).

The domestic groundfish fishery off Alaska has become an important segment of the U.S. fishing industry. With a total catch of 2.06 million metric tons, a retained catch of 1.77 million metric tons and an ex-vessel value of \$583 million in 1997, it accounted for 46.1% of the catch and 16.5% of the ex-vessel value of U.S. domestic landings as reported in Fisheries of the United States, 1997. The value of the 1997 catch after primary processing was estimated at \$1.18 billion.

All but a small part of the commercial groundfish catch off Alaska occurs in the groundfish fisheries managed under the GOA and BSAI FMPs. In 1997, other fisheries accounted for only 6,100 metric tons and \$13 million of the catch and ex-vessel value reported above.

The Economic SAFE presents the economic status of groundfish fisheries off Alaska in terms of economic activity and outputs using estimates of catch, incidental catch, ex-vessel prices and value, the size and level of activity of the groundfish fleet, the weight and value of processed products, wholesale prices, and cold storage holdings. External factors which, in part, determine the economic status of the fisheries, include foreign exchange rates, the prices and price indexes of products that compete with products from these fisheries, and fishery imports.

Walleye pollock has been the dominant species in the commercial groundfish catch off Alaska. The pollock catch in 1997 totaled 1.24 million metric tons and accounted for 60% of the total groundfish catch of 2.06 million mt. In 1997, the pollock catch was down 2.6% from 1996. The next major species, Pacific cod, accounted for 326,200 mt or 15.8% of the total 1997 groundfish catch. The 1997 catch of flatfish, which includes yellowfin sole, rock sole, and arrowtooth flounder was 345,600 mt in 1997. Pollock, Pacific cod and flatfish comprised 92.6% of the total 1997 catch. Other important species are sablefish, rockfish, and Atka mackerel.

Trawl, hook-and-line and pot gear account for virtually all the catch in the BSAI and GOA groundfish fisheries. There are catcher vessel and catcher processors in each of these three gear groups. In the last five years, the trawl catch averaged 91.6% of the total catch, while the catch with hook-and-line gear accounted for 7.0%. Most species are harvested predominately by one type of gear, which typically accounts for 90% or more of the catch. The one exception is Pacific cod, where in 1997, 49.1% (160,000 mt) was taken by trawls, 41.4% (135,000 mt) was taken by hook and line gear, and 9.5% (31,000 mt) by pots. In the last five years for the BSAI and the GOA, as a whole, catcher vessels took 40.7% of the catch and catcher processor vessels took the other 49.3%. In 1997, catcher vessels took 41.7% of the total. The distribution of catch between catcher vessels and catcher processor vessels differed substantially by species and area.

More information on discards of groundfish and bycatch of PSC species of Pacific halibut, crab, Pacific salmon and Pacific herring are summarized in the 1998 Economic SAFE. Bycatch of PSC for halibut and crab are set by regulatory limits and fishing with trawl gear is prohibited in certain areas when regulatorily-established amounts of Pacific salmon and herring have been caught.

There are a variety of at least partially external factors that affect the economic performance of the BSAI and GOA groundfish fisheries. They include landing market prices in Japan, wholesale prices in Japan, U.S. imports of groundfish products, U.S. per capita consumption of seafood, U.S. consumer and producer price indexes, Foreign exchange rates, and U.S. cold storage

holdings of groundfish. More information on these factors are included in Tables 39-49 of the 1998 Economic SAFE.

Exchange rates and world supplies of fishery products play a major role in international trade. Exchange rates change rapidly and can significantly affect the economic status of the groundfish fisheries. There is also considerable uncertainty concerning the future conditions of the stocks, the resulting quotas, and future changes to the fishery management regimes for the BSAI and GOA groundfish fisheries. The management actions taken to allocate the catch between various user groups can significantly affect the economic health of either the domestic fishery as a whole or segments of the fishery. Additional management actions that will decrease groundfish catches or increase operating costs may result from continued concerns with: (1) the bycatch of prohibited species, (2) the discard and utilization of groundfish catch, and (3) the effects of the groundfish fisheries on marine mammals and sea birds. The implementation of the American Fisheries Act also is expected to result in major changes in the economic performance of the BSAI and GOA groundfish fisheries.

Statistics on number of vessels (catcher vessels and catcher/processor vessels) that caught groundfish by area, gear and target fishery in 1997. Data is excerpted from the "Economic Status of the Groundfish Fisheries off Alaska, 1997" chapter of the final 1998 SAFE report (NPFMC 1998).

Gear	Target	GOA	BSAI	All Alaska
Trawl	All groundfish	203	167	261
	Pollock	124	138	206
	Sablefish	1	0	1
	Pacific cod	144	123	225
	Flatfish	63	45	93
	Rockfish	40	10	40
	Atka Mackerel	0	12	12
Hook-&-line	All groundfish	975	137	1,004
	Sablefish	494	83	504
	Pacific cod	408	69	451
	Flatfish	1	50	50
	Rockfish	374	12	384
Pot	Pacific cod	145	82	199

3.6 Expected Effects of each Alternative on each Sector

Under Alternative 1 (status quo), vessels would continue to benefit from harvest of SR/RE and thornyheads above the TAC amount until harvest amounts approached the OFL, at which time NMFS would be forced to close all fisheries that encounter SR/RE and thornyhead rockfish as incidental catch. The potential cost in terms of foregone harvest opportunity to trawl and fixed gear vessels that are prevented from fishing for other species to prevent overfishing of SR/RE and thornyhead rockfish would vary depending on the fishery and foregone harvest amount, but would likely be much higher than any benefits gained from the harvesting of SR/RE and thornyhead rockfish above the TAC amount. In addition, catches in excess of the TAC, and certainly those at OFL levels, could not be sustained over

time without potentially serious adverse impacts on the resource-base, itself. Continued exploitation of these rockfish resources at these levels would be in direct conflict with the requirements of the Magnuson-Stevens Act.

Under Alternatives 2 through 4, the proposed action would impact primarily trawl catcher vessels and catcher/processors targeting rockfish and hook-and-line vessels targeting sablefish. In 1998, these two fisheries accounted for 73% of the SR/RE rockfish that was harvested in the GOA. Because this action does not reduce the TAC for SR/RE or thornyhead rockfish, but, instead, enhances NMFS's ability to maintain catches at TAC-levels, it is difficult to determine the amount of revenue that might be foregone from harvesting at a rate that just achieves the annual TAC. However, because these revenues accrue from fishing behavior that is contrary to the long run welfare of the resource (i.e., harvesting at levels above TAC), their elimination should probably not strictly be categorized as an economic "loss" attributable to the proposed action.

In 1998, while participating in the rockfish fisheries, 23 trawl catcher vessels and 17 catcher/processors accounted for 772 mt of SR/RE harvest in the GOA (roughly 45% of the total harvest of SR/RE). Also in 1998, 484 hook-and-line catcher vessels harvested 710 mt of SR/RE while participating in the sablefish fishery. Of the total 1,442 mt of SR/RE harvested by these two sectors, only 1,064 mt was actually retained (about 74% of the total catch amount). Using an ex-vessel price of \$0.147 per pound for the trawl sector and \$0.615 per pound for the hook-and-line sector, the total value of the 1997 SR/RE retained catch is estimated at \$ 326,000 for the two sectors. However, 60% of the SR/RE harvested was in SR/RE directed hauls. These hauls, composed primarily of SR/RE, are likely to be "top off" hauls and could be an estimate of the amount of fish that may be foregone by the fishery given the reduced ability to "top off". Given an average ex-vessel price of \$0.381 per pound, and 60% of the 1998 total catch (889 mt) was attributed to "top off" hauls, and that the average retained catch percentage was 71%, the foregone amount is estimated at \$ 144,300 (about a 45% loss in ex-vessel revenue). However, some of these "top off" hauls would still likely be allowed even under the reduced MRB, and therefore this estimated foregone revenue is likely to be higher than what would be seen in the fishery.

It is unknown if there will be a significant negative economic impact on vessels that retain SR/RE and thornyhead rockfish as a result of the proposed action. However, it is probable that some vessels will be affected more than others given previous fishing practices and that some vessels have been noted to catch higher rates of SR/RE and thornyhead rockfish. Conversely, the proposed action is expected to have a positive impact to the extent that the reduced MRB percentages for SR/RE and thornyhead rockfish would reduce the potential for reaching the specified overfishing level and, thus limit the number of required fishery closures necessary to keep incidental catch amounts at a minimum.

If this action does not reduce incidental catch rates enough to avoid exceeding the SR/RE and thornyhead rockfish TAC, NMFS likely will need to consider additional management measures to constrain SR/RE and thornyhead rockfish incidental catch, including closing other directed fisheries which incidentally catch these rockfish.

3.7 Qualitative Benefit Cost Analysis

Cost information, including fixed and variable operating cost statistics, is a crucial element of an effective net benefit analysis. Cost data for the proposed action fishery's harvesting and processing sectors are not currently available to NMFS. For this reason, NMFS cannot complete a quantitative cost/benefit examination of the preferred alternative, or derive comparative net benefit conclusions about the several competing alternatives and sub-options.

Changes in net benefits to the Nation cannot be determined with a gross revenue analysis. However, given that this action will not eliminate the SR/RE or thornyhead rockfish fishery or even reduce the annual TAC, we can conclude that the net benefits to the US economy would not decrease by \$100 million annually once costs were included in the calculation. However, it is likely that in the ERA of the GOA, less SR/RE will be harvested due to the fact that the TAC has been routinely exceeded in the past. This action will result in a positive effect on the long term viability of the resource by harvesting within acceptable biological limits. This in turn will have a positive long term influence in net benefits to the US economy.

NMFS is not aware of any inconsistency with any other actions which might interfere with the proposed action. The proposed action is consistent with the following guidelines as required by E.O. 12866.

- (1) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- (2) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- (3) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

Therefore, the Council's preferred alternative does not constitute a "significant" action under E.O. 12866, recognizing that there may be distributional economic impacts among the various sectors of the industry's affected by this proposed action.

4.0 FINAL REGULATORY FLEXIBILITY ANALYSIS (FRFA)

The Regulatory Flexibility Act (RFA) first enacted in 1980 was designed to place the burden on the government to review all regulations to ensure that, while accomplishing their intended purposes, they do not unduly inhibit the ability of small entities to compete. The RFA recognizes that the size of a business, unit of government, or nonprofit organization frequently has a bearing on its ability to comply with a federal regulation. Major goals of the RFA are: (1) to increase agency awareness and understanding of the impact of their regulations on small business, (2) to require that agencies communicate and explain their findings to the public, and (3) to encourage agencies to use flexibility and to provide regulatory relief to small entities. The RFA emphasizes predicting impacts on small entities as a group distinct from other entities and on the consideration of alternatives that may minimize the impacts while still achieving the stated objective of the action.

On March 29, 1996, President Clinton signed the Small Business Regulatory Enforcement Fairness Act. Among other things, the new law amended the RFA to allow judicial review of an agency's compliance with the RFA. The 1996 amendments also updated the requirements for a final regulatory flexibility analysis, including a description of the steps an agency must take to minimize the significant economic impact on small entities. Finally, the 1996 amendments expanded the authority of the Chief Counsel for Advocacy of the Small Business Administration (SBA) to file *amicus* briefs in court proceedings involving an agency's violation of the RFA.

4.1 Requirement to Prepare an FRFA

The central focus of the FRFA should be on the economic impacts of a regulation on small entities and on the alternatives that might minimize the impacts and still accomplish the statutory objectives. The

level of detail and sophistication of the analysis should reflect the significance of the impact on small entities. Under 5 U.S.C., section 603(b) of the RFA, each FRFA is required to address:

- A description of the reasons why action by the agency is being considered;
- A succinct statement of the objectives of, and the legal basis for, the proposed rule;
- A description and, where feasible, an estimate of the number of small entities to which the proposed rule will apply (including a profile of the industry divided into industry segments, if appropriate);
- A description of the projected reporting, recordkeeping and other compliance requirements of the proposed rule, including an estimate of the classes of small entities that will be subject to the requirement and the type of professional skills necessary for preparation of the report or record;
- An identification, to the extent practicable, of all relevant Federal rules that may duplicate, overlap or conflict with the proposed rule;
- A description of any significant alternatives to the proposed rule that accomplish the stated objectives of the Magnuson-Stevens Act and any other applicable statutes and that would minimize any significant economic impact of the proposed rule on small entities. Consistent with the stated objectives of applicable statutes, the analysis shall discuss significant alternatives, such as:
 1. The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities;
 2. The clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities;
 3. The use of performance rather than design standards;
 4. An exemption from coverage of the rule, or any part thereof, for such small entities.

4.2 What is a Small Entity?

The RFA recognizes and defines three kinds of small entities: (1) small businesses, (2) small non-profit organizations, and (3) small government jurisdictions.

Small businesses. Section 601(3) of the RFA defines a 'small business' as having the same meaning as 'small business concern,' which is defined under section 3 of the Small Business Act. 'Small business' or 'small business concern' includes any firm that is independently owned and operated and not dominant in its field of operation. The SBA has further defined a "small business concern" as one "organized for profit, with a place of business located in the United States, and which operates primarily within the United States or which makes a significant contribution to the U.S. economy through payment of taxes or use of American products, materials or labor. . . A small business concern may be in the legal form of an individual proprietorship, partnership, limited liability company, corporation, joint venture, association, trust or cooperative, except that where the form is a joint venture there can be no more than 49 percent participation by foreign business entities in the joint venture."

The SBA has established size criteria for all major industry sectors in the United States, including fish harvesting and fish processing businesses. A business involved in fish harvesting is a small business if it is independently owned and operated and not dominant in its field of operation (including its affiliates) and if it has combined annual receipts not in excess of \$ 3 million for all its affiliated operations worldwide. A seafood processor is a small business if it is independently owned and operated, not dominant in its field of operation, and employs 500 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide. A business involved in both the harvesting and processing of seafood products is a small business if it meets the \$3 million criterion for fish harvesting operations. Finally, a wholesale business servicing the fishing industry is a small business if it employs 100 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide.

The SBA has established "principles of affiliation" to determine whether a business concern is "independently owned and operated." In general, business concerns are affiliates of each other when one concern controls or has the power to control the other, or a third party controls or has the power to control both. The SBA considers factors such as ownership, management, previous relationships with or ties to another concern, and contractual relationships, in determining whether affiliation exists. Individuals or firms that have identical or substantially identical business or economic interests, such as family members, persons with common investments, or firms that are economically dependent through contractual or other relationships, are treated as one party with such interests aggregated when measuring the size of the concern in question. The SBA counts the receipts or employees of the concern whose size is at issue and those of all its domestic and foreign affiliates, regardless of whether the affiliates are organized for profit, in determining the concern's size. However, business concerns owned and controlled by Indian Tribes, Alaska Regional or Village Corporations organized pursuant to the Alaska Native Claims Settlement Act (43 U.S.C. 1601), Native Hawaiian Organizations, or Community Development Corporations authorized by 42 U.S.C. 9805 are not considered affiliates of such entities, or with other concerns owned by these entities, solely because of their common ownership.

Affiliation may be based on stock ownership under the following conditions: (1) If a person owns or controls, or has the power to control, 50% or more of its voting stock, or a block of stock which affords control because it is large compared to other outstanding blocks of stock, that person is considered an affiliate of the firm; (2) If two or more persons each owns, controls or has the power to control less than 50% of the voting stock of a concern, with minority holdings that are equal or approximately equal in size, but the aggregate of these minority holdings is large as compared with any other stock holding, each such person is presumed to be an affiliate of the concern.

Affiliation may be based on common management or joint venture arrangements. Affiliation arises where one or more officers, directors or general partners controls the board of directors and/or the management of another concern. Parties to a joint venture also may be affiliates. A contractor and subcontractor are treated as joint venturers if the ostensible subcontractor will perform primary and vital requirements of a contract or if the prime contractor is unusually reliant upon the ostensible subcontractor. All requirements of the contract are considered in reviewing such relationship, including contract management, technical responsibilities, and the percentage of subcontracted work.

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

Small governmental jurisdictions. The RFA defines a "small governmental jurisdictions" as a city, county, town, township, village, school district, or special district with a population of fewer than 50,000.

4.3 The Alternatives

- Alternative 1:** No action, could result in overfishing of the SR/RE or thornyhead rockfish stocks. This could force NMFS to place SR/RE or thornyhead rockfish on prohibited species status which would require NMFS to close all fisheries that take these species as incidental catch. While these costs (and numbers of potentially impacted operations, large or small) cannot be readily estimated, they clearly exceed any potential benefit which might accrue from retention of the Status Quo alternative.
- Alternative 2:** Reduce the MRB for SR/RE and thornyhead rockfish to 7% in the deep water complex and 2% in the shallow water complex. This alternative would slow the harvest of these species, and could reduce the Gulf wide harvest of SR/RE and thornyhead rockfish. With lower retention rates, the entire TAC might not be harvested. However, it is in the best interest of both small and large entities to maintain harvest levels as close to the ABC value as possible without exceeding it. Fishing at levels above the ABC increases the risk of overfishing the resource.
- Alternative 3:** Prohibit the use of non-pelagic trawl gear in the POP fishery. This would significantly reduce the amount of SR/RE and thornyhead rockfish taken by trawl catcher vessels and catcher/processors which account for the greatest share of these species taken each year. The economic effects of foregone harvest would be limited to this sector, which is composed of both small and large entities, and would spare new regulatory changes on the sablefish hook-and-line fleet which is composed primarily of small entities.
- Alternative 4:** Reduce the MRB for SR/RE to 7% in the deep water complex in the Eastern GOA Regulatory Area. The MRB for SR/RE would remain at 5% in the shallow water complex for aggregated rockfish Gulf wide. This alternative targets the area of the GOA which is of highest concern. Regions for which the TAC for SR/RE has not been exceeded in recent years would continue under status quo and would not be burdened with potentially unnecessary regulatory changes. In the ERA of the GOA this lower MRB rate is likely to result in harvest amounts that are less than the TAC but not significantly lower. The primary result would be slower harvest rates that would facilitate management of the resource. The management goal, which is likely to yield the greatest long term benefits to the Nation, is to fish at a rate as close to the ABC as possible without exceeding it. Fishing at levels above the ABC increases the risk of overfishing the resource, and could lead to an overfished stock and therefore trigger a *rebuilding plan*, which would involve drastically reducing fishing effort.

4.4 Reason for Considering the proposed action

In the GOA, the TAC and acceptable biological catch (ABC) for SR/RE rockfish has been significantly exceeded in 3 of the last 4 years (1995, 1997, and 1998). During 1996, the TAC for the Eastern Regulatory Area was also exceeded. In 1995, TAC, ABC, and the overfishing level was exceeded. NMFS, by in-season management actions, has been unable to effectively maintain harvest amounts below the ABC level due to "topping off" activity within the MRB for SR/RE rockfish.

The alternative actions proposed by NMFS would reduce the amount of SR/RE incidental catch in the GOA by limiting the ability to "top off" with these valuable species. Alternatives 2 through 4 (either separate or combined) meet the objectives of reducing the total removals of SR/RE rockfish.

The preferred alternative does not include thornyhead rockfish. Analysis shows that thornyhead rockfish have a higher intrinsic incidental catch rate (Table 9) and are less likely to be targeted by fishing vessels. Survey data and anecdotal information from fishermen reveals that thornyhead rockfish are patchily distributed and are often unavoidable. Additionally, the ABC has not been exceeded for this species in the last 4 years (Table 2). Therefore, a reduction in the MRB rate for thornyhead rockfish is not only unnecessary at this time, but it is unclear whether an MRB reduction would in fact be effective in reducing incidental catch. Other management measures may need to be considered in the future for this species if the incidental catch amount increases significantly.

4.5 Objectives of the proposed action

The objective of this action is to allow harvest of SR/RE and thornyhead rockfish up to the ABC (or TAC amount if it is lower) without exceeding it and possibly causing overfishing. The Magnuson-Stevens Act strictly prohibits the prosecution of a fishery above the ABC level, therefore this action is consistent with the intent of the Act.

4.6 Number and description of affected small entities

Table 27 of the 1998 Economic SAFE contains data concerning the number of vessels that caught groundfish off Alaska by area, catch category, target and gear from 1993 through 1997. In 1997, the number of hook-and-line catcher vessels catching all groundfish in the GOA was 957; and the number of hook-and-line catcher processor vessels totaled 25 in the GOA. In 1997, the number of pot catcher vessels catching all groundfish in the GOA was 145; and pot catcher processor vessels totaled 0 in the GOA. Finally, in 1997, trawl catcher vessels catching all groundfish in the GOA totaled 174 vessels; and trawl catcher processor vessels totaled 29 in the GOA. NMFS typically considers catcher vessels to be small entities and catcher processor vessels to be large entities for purposes of the RFA. While there are some exceptions, NMFS does not have access to sufficiently detailed ownership, affiliation, and net revenue data with which to estimate the exact number of each.

4.7 Number and description of small entities indirectly affected by the proposed action

See section 3.6.

4.8 Measures taken to reduce impacts on small entities

The Council considered and adopted a series of exemptions to reduce the impacts of this action on small entities. The preferred alternative contains the following elements to reduce impacts on small entities:

- **Alternative 4 (Preferred)** targets the ERA of the GOA which is the area of highest concern. Regions for which the TAC for SR/RE has not been exceeded in recent years would continue under status quo and would not be burdened with potentially unnecessary regulatory changes. In the ERA of the GOA this lower MRB rate is likely to result in harvest amounts which are less than the TAC but not significantly lower. The primary result would be slower harvest rates that would facilitate management of the resource and reduce the natural advantage enjoyed by "larger" vessels, as compared to "smaller" vessels, in an accelerated fishery. Fishing at levels at or below the ABC value allows the resource to be utilized near an optimum yield, which would sustain the greatest returns over the long term without overfishing the stock.

4.9 Recordkeeping and Reporting Requirements

No new recordkeeping and reporting requirements exist with the proposed action.

4.10 Relevant Federal Rules

No known Federal rules duplicate, overlap, or conflict with the proposed rule.

4.11 Administrative, Enforcement, and Information Costs

No new administrative, enforcement, or information costs exist with the proposed action.

4.12 Comments on the IRFA

No comments were received on the IRFA.

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