

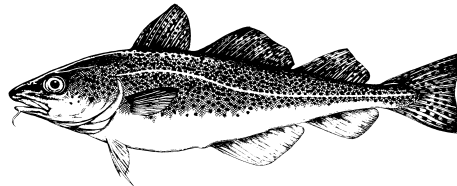
INITIAL REVIEW

DRAFT

ENVIRONMENTAL ASSESSMENT/REGULATORY IMPACT REVIEW/ INITIAL REGULATORY FLEXIBILITY ANALYSIS

**for Proposed Amendment to the
Fishery Management Plan for Groundfish
of the Gulf of Alaska Management Area**

ALLOCATION OF PACIFIC COD AMONG SECTORS IN THE WESTERN AND CENTRAL GULF OF ALASKA



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Table of Contents

TABLE OF CONTENTS	III
LIST OF FIGURES	V
LIST OF TABLES	V
EXECUTIVE SUMMARY	1
1 INTRODUCTION.....	6
1.1 Purpose and Need for the Action	7
1.1.1 Background.....	7
1.1.2 Purpose and Need Statement	7
1.2 Alternatives.....	8
1.3 Proposed changes to the Gulf of Alaska FMP.....	11
1.4 Consistency with the Problem Statement.....	11
2 ENVIRONMENTAL ASSESSMENT.....	12
2.1 Pacific cod	12
2.2 Incidental catch in the Pacific cod target fisheries	14
2.3 Prohibited Species Catch in the Pacific Cod Fisheries.....	16
2.4 Marine Mammals	16
2.5 Seabirds.....	18
2.6 Benthic Habitat and Essential Fish Habitat.....	21
2.7 Ecosystem.....	22
2.8 Economic Impacts and Management Considerations	22
2.9 Cumulative Effects	23
3 REGULATORY IMPACT REVIEW	24
3.1 Description of the Gulf of Alaska Pacific cod fisheries	24
3.1.1 Management of the Pacific cod fisheries in the Gulf of Alaska.....	32
3.1.2 State waters Pacific cod fisheries in the Gulf of Alaska	33
3.1.3 Halibut Prohibited Species Catch	36
3.1.4 Catch History in the Gulf of Alaska Pacific Cod Fisheries.....	38
3.1.5 The harvest sector	41
3.1.6 License Limitation Program	44
3.1.7 Incidental Catch and Discards of Pacific Cod	45
3.1.8 The processing sector	49
3.1.9 Ex-vessel prices and gross revenues.....	50
3.1.10 First wholesale prices and revenues.....	51
3.2 Analysis of the Components and Options.....	54
3.2.1 Options for Sector Definitions	55
3.2.2 Options for Defining Qualifying Catch	56
3.2.3 Management of Incidental Catch.....	58
3.2.4 Comparison of catch history using different data sets	59
3.2.5 Options for Calculating Sector Allocations	59
3.2.6 Jig Allocation.....	63
3.2.7 Rollover provisions for unused quota.....	68
3.2.8 Allocation of the hook-and-line halibut PSC apportionment.....	68
3.2.9 Seasonal apportionments of allocations.....	70
3.2.10 Limiting Access to Pacific Cod Sector Allocations and Potential Interactions with Fixed Gear Recency Action	70
3.2.11 Harvest Cooperative Formation.....	73
3.3 Analysis of the Alternatives	73
3.3.1 Effects on harvesters.....	73
3.3.2 Effects on processors	75

3.3.3	Effects on management, monitoring, and enforcement	76
3.3.4	Effects on communities	76
3.3.5	Interactions with other actions	84
3.3.6	Net Benefits to the Nation	84
4	INITIAL REGULATORY FLEXIBILITY ANALYSIS (IRFA)	85
4.1	Definition of a Small Entity	86
4.2	Reason for considering the proposed action	88
4.3	Objectives of, and legal basis for, the proposed action	88
4.4	Number and description of affected small entities	88
4.5	Recordkeeping and reporting.....	88
4.6	Relevant Federal rules that may duplicate, overlap, or conflict with the proposed action.....	89
4.7	Description of significant alternatives to the proposed action.....	89
5	CONSISTENCY WITH OTHER APPLICABLE LAWS.....	89
5.1	Consistency with National Standards.....	89
5.2	MSA Section 303(a)(9) – Fisheries Impact Statement.....	91
5.3	Marine Mammal Protection Act (MMPA).....	92
5.4	Coastal Zone Management Act	92
6	REFERENCES.....	92
7	LIST OF PREPARERS.....	94
8	AGENCIES AND INDIVIDUALS CONSULTED	94
	APPENDIX A. RETAINED CATCH OF PACIFIC COD.....	95
	APPENDIX B. COMPARISON BETWEEN CATCH DATA SETS.....	101
	APPENDIX C. MARKET INFORMATION ON ALASKA PACIFIC COD PRODUCTS	103

List of Figures

Figure 2-1	Seabird catch rates in the hook-and-line catcher processor sector by season, 1995-2004.....	20
Figure 2-2	Surficial Sediment Textural Characteristics, according to Naidu (1988)	21
Figure 3-1	Location of observed hook-and-line catcher processor Pacific cod fishing activity, 1995–2000.....	26
Figure 3-2	Location of observed hook-and-line catcher processor Pacific cod fishing ctivity, 2001-2006	26
Figure 3-3	Location of observed hook-and-line catcher vessel Pacific cod fishing activity, 1995-2000.....	27
Figure 3-4	Location of observed hook-and-line catcher vessel Pacific cod fishing activity, 2001-2006.....	27
Figure 3-5	Location of observed pot catcher processor Pacific cod fishing activity, 1995-2000.....	28
Figure 3-6	Location of observed pot catcher processor Pacific cod fishing activity, 2001-2006.....	28
Figure 3-7	Location of observed pot catcher vessel Pacific cod fishing activity, 1995-2000	29
Figure 3-8	Location of observed pot catcher vessel Pacific cod fishing activity, 2001-2006	29
Figure 3-9	Location of observed trawl catcher processor Pacific cod fishing activity, 1995-2000.....	30
Figure 3-10	Location of observed trawl catcher processor Pacific cod fishing activity, 2001-2006.....	30
Figure 3-11	Location of observed trawl catcher vessel Pacific cod catch, 1995-2000.....	31
Figure 3-12	Location of observed trawl catcher vessel Pacific cod catch, 2001-2006.....	31

List of Tables

Table 2-1	Criteria used to evaluate the alternatives	12
Table 2-2	Total catch in the Federal and State GOA Pacific cod fisheries, total allowable catch (TAC) for the Federal fishery, and acceptable biological catch (ABC), 1985-2007	13
Table 2-3	Average catch composition of Pacific cod target fisheries by gear and operation type, including amount retained and discarded (mt), during 2000-2007	14
Table 2-4	Incidental catch (mt) of skates, ‘other species’ and non-specified species in the Gulf of Alaska Pacific cod target fisheries, 2005- 2006.....	15
Table 2-5	ESA-listed marine mammal species that occur in the Gulf of Alaska	17
Table 2-6	Incidental mortality of Steller sea lions in the Gulf of Alaska Pacific cod target fisheries (2001-2005) and estimate of the mean annual mortality rate, based on observer data	18
Table 2-7	ESA-listed and candidate seabird species that occur in the management area	19
Table 3-1	Pacific cod catch by gear type in the Federal and State fisheries in the Gulf of Alaska, total allowable catch (TAC), and acceptable biological catch (ABC), 1985-2006.....	25
Table 3-2	Total catch of Pacific cod in the federal Pacific cod fisheries in the Western and Central Gulf of Alaska, 1995-2006.....	32
Table 3-3	Current allocations of Pacific cod to State waters fisheries in the Gulf of Alaska	33
Table 3-4	Catch (mt) and percent of GHL harvested in GOA State waters Pacific cod fisheries.....	34
Table 3-5	Recent season opening dates of the GOA Pacific cod State waters fisheries	35
Table 3-6	Number of vessels participating in the GOA Pacific cod fisheries in State waters (State) and parallel and federal waters (Federal), and percentage of State waters catch by participants in federal seasons	36
Table 3-7	Percent of pot vessels participating in the GOA State waters Pacific cod fisheries that had groundfish LLP licenses at the time of landing, and percent of State waters catch by these vessels, averaged from 2002-2006	36

Table 3-8	Halibut prohibited species catch seasonal allowances in the Gulf of Alaska, 2008	37
Table 3-9	Halibut prohibited species catch (PSC) (mt) by vessels targeting Pacific cod in the Western and Central Gulf of Alaska	38
Table 3-10	Pacific cod catch and percent of the TAC harvested in the inshore and offshore sectors, 2001-2007	39
Table 3-11	Pacific cod catch during the A and B seasons by the inshore and offshore sectors in the Western and Central Gulf, 2003-2007	39
Table 3-12	Pacific cod A season closures for the Western and Central Gulf of Alaska, 2001-2007	40
Table 3-13	Pacific cod B season closures for the trawl and hook-and-line sectors in the Western and Central Gulf of Alaska, 2001-2007	40
Table 3-14	Number of vessels participating in the directed Pacific cod fisheries in the Western and Central Gulf of Alaska, 1995-2007	42
Table 3-15	Percentage of Pacific cod caught before June 10 in the Western and Central Gulf of Alaska, averaged from 1995-2000 and 2001-2006	43
Table 3-16	2007 Pacific cod sideboards for non-exempt AFA vessels and non-AFA crab vessels.....	44
Table 3-17	Number of valid LLPs in the Western and Central Gulf of Alaska, by operation type and gear endorsement.....	45
Table 3-18	Total incidental catch (both retained and discarded; mt) of Pacific cod in the Western and Central Gulf of Alaska during the A (Jan 1–Jun 10) and B (Jun 10–Dec 31)* seasons, averaged from 1995-2000 and 2001-2006.....	46
Table 3-19	Incidental catch of Pacific cod (mt) in the Western and Central Gulf of Alaska reported by target fishery, and percent of total incidental catch by each target fishery.....	47
Table 3-20	Amount (mt) of incidental catch discarded by each sector, percent of incidental catch discarded by each sector, and percent of total catch that is discarded by all sectors	48
Table 3-21	Number of processors receiving landings of Pacific cod from the Western and Central Gulf of Alaska fisheries, and retained catch (mt) from 1995-2007.....	49
Table 3-22	Ex-vessel prices (dollars) per pound in the Gulf of Alaska Pacific cod fisheries	50
Table 3-23	Ex-vessel gross revenues from the GOA Pacific cod fisheries (millions of dollars).....	50
Table 3-24	First wholesale price (dollars per pound) of Pacific cod products by processing sector, includes BSAI and GOA fisheries.....	51
Table 3-25	Products produced from Pacific cod harvested in the Gulf of Alaska, 2001-2006	51
Table 3-26	Gross revenues (millions of dollars) from the groundfish fisheries by catcher vessels participating in the GOA Pacific cod fisheries.....	52
Table 3-27	Percentage of ex-vessel gross revenues from GOA Pacific cod and other fisheries by catcher vessels that participated in the GOA Pacific cod fisheries during 1995-2006	52
Table 3-28	First wholesale revenues from Alaska fisheries by catcher processors participating in the GOA Pacific cod fisheries during 2001-2006	53
Table 3-29	Potential percent allocations of the Western and Central Gulf Pacific cod TACs.....	61
Table 3-30	Potential percent allocations of the Western and Central Gulf Pacific cod TACs under suboptions to split sectors by vessel length (LOA).....	61
Table 3-31	Number of vessels and retained catch of Pacific cod (mt) by hook-and-line catcher vessels in the Central Gulf reported by vessel length (LOA), 1995-2007	62
Table 3-32	Number of jig vessels with groundfish and Pacific cod catch in the Western and Central Gulf, and number of vessels that hold LLP licenses	64
Table 3-33	Observer coverage in the Pacific cod target fisheries in the GOA during 2004-2006, including total catch (mt), observed catch (mt), and percent of catch observed for each sectors	69
Table 3-34	Potential halibut PSC allocations to hook-and-line catcher vessels and catcher processors based on Component 7, Option 2	70

Table 3-35	Average number of vessels fishing in the parallel waters fisheries without an LLP license, retained catch (mt), and percent of retained catch of Pacific cod within each sector by vessels without LLPs during 2002-2007	72
Table 3-36	Number of catcher vessels in each sector that participated in the Western and Central Gulf Pacific cod fisheries (parallel and federal seasons only) during 1995-2000 and 2001-2006, and percent of retained Pacific cod catch within each sector, reported by vessel owner residency.....	78
Table 3-37	Percent of retained Pacific cod harvested by catcher vessels delivered to shorebased processors in Alaska communities and to floating processors, during 1995-2000 and 2001-2006.	80
Table 3-38	Communities eligible for the Community Quota Entity (CQE) program in Southwest and Southcentral Alaska.....	81
Table 3-39	Number of vessels participating in the Western and Central GOA Pacific cod fisheries, gross revenues, and percent of total annual gross revenues from all Alaska fisheries comprised by GOA Pacific cod, reported by vessel owner residency.....	82
Table 3-40	Number of permits participating in the Western and Central GOA Pacific cod fisheries, gross revenues, and percent of total annual gross revenues from all Alaska fisheries comprised by GOA Pacific cod, reported by permit holder residency.....	83

EXECUTIVE SUMMARY

This EA/RIR/IRFA examines the environmental, economic, and socioeconomic aspects of the proposed amendment to allocate the Western and Central Gulf of Alaska Pacific cod TACs to the various sectors. The proposed action would allocate the TACs to the hook-and-line catcher vessel, hook-and-line catcher processor, pot catcher vessel, pot catcher processor, trawl catcher vessel, trawl catcher processor, and jig sectors based on catch history or other criteria. The action would result in an amendment to the Gulf of Alaska Fisheries Management Plan (FMP).

The Gulf of Alaska Pacific cod resource is targeted by multiple gear and operation types, principally by pot, trawl, and hook-and-line catcher vessels and hook-and-line catcher processors. Smaller amounts of Pacific cod are harvested by other sectors, including catcher vessels using jig gear. Separate TACs are identified for Pacific cod in the Western, Central, and Eastern Gulf of Alaska management subareas, but the TACs are not divided among gear or operation types. This results in a derby-style race for fish and competition among the various gear types for shares of the TACs. To address these issues, the Council adopted the following Problem Statement in April 2007:

Gulf of Alaska Pacific Cod Sector Split Purpose and Need Statement

The limited access derby-style management of the Western Gulf and Central Gulf Pacific cod fisheries has led to competition among the various gear types (trawl, hook-and-line, pot, and jig) and operation types (catcher processor and catcher vessel) for shares of the total allowable catch (TAC). Competition for the GOA Pacific cod resource has increased for a variety of reasons, including increased market value of cod products, rationalization of other fisheries in the BSAI and GOA, increased participation by fishermen displaced from other fisheries, reduced federal TACs due to the state waters cod fishery, and Steller sea lion mitigation measures including the A/B seasonal split of the GOA Pacific cod TACs. The competition among sectors in the fishery may contribute to higher rates of bycatch, discards, and out-of-season incidental catch of Pacific cod.

Participants in the fisheries who have made long-term investments and are dependent on the fisheries face uncertainty as a result of the competition for catch shares among sectors. Allocation of the catch among sectors may reduce this uncertainty and contribute to stability across the sectors. Dividing the TACs among sectors may also facilitate development of management measures and fishing practices to address Steller sea lion mitigation measures, bycatch reduction, and prohibited species catch (PSC) mortality issues.

Alternatives, Components, and Options

There are two alternatives currently under consideration. **Alternative 1** is the status quo alternative. **Alternative 2** would allocate the Western and Central Gulf of Alaska Pacific cod TACs among the trawl, pot, hook-and-line, and jig catcher vessel and catcher processor sectors based on historic catch levels and other considerations, and includes the following components:

Component 1 identifies the management areas subject to the proposed action: the Western Gulf and Central Gulf. **Component 2** identifies the sectors subject to the proposed action. They include hook-and-line catcher processors, pot catcher processors, hook-and-line catcher vessels, pot catcher vessels, trawl catcher processors, trawl catcher vessels, and jig vessels. There are suboptions to establish separate allocations for the hook-and-line and trawl catcher processor sectors based on vessel length (<125 ft and ≥125 ft). There are also suboptions to establish separate allocations for the hook-and-line and pot catcher vessel sectors based on vessel length (<60 ft and ≥60 ft).

Component 3 identifies the two possible definitions of qualifying catch for the purpose of calculating sector allocations. Options include:

Option 1 All retained legal catch of Pacific cod in the federal and parallel waters fisheries in the Western and Central Gulf of Alaska.

Option 2 All retained Pacific cod harvested during the directed Pacific cod fisheries in the federal and parallel waters in the Western and Central Gulf.

Provisions applicable to both options:

- Catch will be calculated using Fish Tickets for catcher vessels and Catch Accounting/Blend data for catcher processors.
- Under all options, incidental catch allocated to trawl catcher vessels for the Central Gulf Rockfish program (currently, 2.09 percent of the Central Gulf Pacific cod TAC) will be deducted from the Central Gulf trawl catcher vessel allocation.
- In addition, all sector allocations will be managed to support incidental and directed catch needs.

Component 4 identifies the years included in catch history. There are 4 options:

Option 1 Qualifying years 1995-2005: average of best 5 years

Option 2 Qualifying years 1995-2005: average of best 7 years

Option 3 Qualifying years 2000-2006: average of best 3 years

Option 4 Qualifying years 2000-2006: average of best 5 years

Component 5 addresses the allocation to the jig sector. Options include setting aside 1, 3, 5, or 7 of the Western and Central GOA Pacific cod TACs for the jig vessel sector, with a stairstep provision to increase the jig allocation by 1, 2, or 3 percent if 90 percent of the federal jig allocation in an area is harvested in any given year. In addition, there is a step-down provision to reduce the jig allocation if it is not 90 percent harvested during three consecutive years, but the jig allocation would not fall below its initial level.

The Council also requested that staff work with the State of Alaska and NMFS to explore possible options for the jig fishery management structure (both federal and State) that create a workable fishery and minimize the amount of stranded quota. Possible solutions could include separate State and federal allocations (similar to status quo), or a State managed jig fishery, where the State would manage the jig allocation in federal waters, under delegated management authority from NMFS.

Component 6 addresses rollovers of unharvested allocations, and gives NMFS the discretion to determine when rollovers should occur. Options include rolling over unharvested catcher vessel and catcher processor allocations to other catcher vessel and catcher processor sectors, or to all sectors. Finally, **Component 7** identifies options for apportioning hook-and-line halibut PSC to catcher processors and catcher vessels. Halibut PSC could be apportioned in proportion to the total Western and Central GOA Pacific cod allocations to each sector, or another apportionment could be identified.

Range of Potential Sector Allocations

The range of potential percent sector allocations of the Western and Central GOA Pacific cod TACs are summarized in Tables E-1 and E-2. The qualification period that includes earlier years (1995-2005) generally favors the trawl catcher vessel sector, particularly in the Western Gulf. The qualification period that only includes more recent years (2000-2006) generally favors the pot catcher vessel sector, and, to a lesser extent, the hook-and-line sectors. Using each sector's best years reduces the disparities among the options somewhat, but there are still strong differences among the options, depending on the range of

qualifying years selected by the Council. For example, depending on which definition of qualifying catch is used, the trawl catcher vessel allocation could range from 30.2 to 47.2 percent of the Western Gulf TAC and 38.1 to 47.8 percent of the Central Gulf TAC. Similarly, the pot catcher vessel allocation could range from 27.3 to 42.0 percent of the Western Gulf TAC and 24.6 to 30.3 percent of the Central Gulf TAC.

Table E-1 Potential percent allocations of the Western and Central Gulf Pacific cod TACs

Western Gulf										
	Period		HAL CP	HAL CV	Jig CV	POT CP	Pot CV	Trawl CV	TRW CP	
All cod	1995-2005	Best 7 years	19.8	0.6	0.5	2.2	27.3	47.1	2.5	
	1995-2005	Best 5 years	18.5	0.7	0.5	2.5	30.0	45.4	2.4	
	2000-2006	Best 5 years	21.7	0.6	0.7	2.3	40.5	31.8	2.6	
	2000-2006	Best 3 years	21.4	0.8	0.8	2.7	41.4	30.2	2.7	
Directed cod	1995-2005	Best 7 years	19.6	0.5	0.5	2.3	28.3	47.2	1.7	
	1995-2005	Best 5 years	18.5	0.5	0.6	2.6	31.0	45.1	1.7	
	2000-2006	Best 5 years	21.7	0.5	0.7	2.4	41.2	32.3	1.2	
	2000-2006	Best 3 years	21.5	0.7	0.8	2.8	42.0	30.8	1.3	

Central Gulf										
	Period		HAL CP	HAL CV	Jig CV	POT CP	Pot CV	Trawl CV	TRW CP	
All cod	1995-2005	Best 7 years	2.8	17.2	0.2	2.1	24.6	47.8	5.3	
	1995-2005	Best 5 years	3.4	17.5	0.2	2.0	25.3	45.9	5.6	
	2000-2006	Best 5 years	4.2	20.7	0.3	1.2	25.2	44.0	4.4	
	2000-2006	Best 3 years	4.7	19.4	0.4	1.4	27.9	41.8	4.4	
Directed cod	1995-2005	Best 7 years	3.1	18.5	0.2	2.6	25.9	45.6	4.2	
	1995-2005	Best 5 years	3.8	18.9	0.2	2.4	26.5	43.6	4.6	
	2000-2006	Best 5 years	4.6	22.6	0.3	1.8	27.9	39.7	3.1	
	2000-2006	Best 3 years	5.2	21.1	0.4	1.5	30.3	38.1	3.4	

Table E-2 Potential percent allocations of the Western and Central Gulf Pacific cod TACs under suboptions to split sectors by vessel length (LOA)

Western Gulf													
	Period		HAL CP <125	HAL CP ≥125	HAL CV <60	HAL CV ≥60	Jig CV	Pot CP	Pot CV <60	Pot CV ≥60	Trawl CV	Trawl CP <125	Trawl CP ≥125
All cod	1995-2005	Best 7 years	16.5	3.7	0.4	0.2	0.5	2.2	13.5	13.7	46.6	1.3	1.5
	1995-2005	Best 5 years	15.6	3.8	0.5	0.2	0.5	2.5	14.3	15.5	44.3	1.2	1.6
	2000-2006	Best 5 years	17.5	4.6	0.6	0.0	0.6	2.2	18.5	22.4	31.1	1.4	1.2
	2000-2006	Best 3 years	17.7	4.9	0.7	0.0	0.8	2.6	19.4	22.2	29.0	1.3	1.3
Directed cod	1995-2005	Best 7 years	16.6	3.4	0.4	0.1	0.5	2.3	13.9	14.4	46.7	0.9	0.9
	1995-2005	Best 5 years	15.8	3.7	0.4	0.1	0.5	2.6	14.9	16.0	44.0	1.0	1.0
	2000-2006	Best 5 years	17.7	4.5	0.5	0.0	0.7	2.3	18.8	22.8	31.5	1.0	0.3
	2000-2006	Best 3 years	17.8	4.8	0.7	0.0	0.8	2.7	19.8	22.6	29.6	1.0	0.3

Central Gulf													
	Period		HAL CP <125	HAL CP ≥125	HAL CV <60	HAL CV ≥60	Jig CV	Pot CP	Pot CV <60	Pot CV ≥60	Trawl CV	Trawl CP <125	Trawl CP ≥125
All cod	1995-2005	Best 7 years	0.8	2.1	15.7	1.5	0.2	2.1	11.6	13.0	47.5	1.5	4.2
	1995-2005	Best 5 years	0.9	2.7	16.0	1.6	0.2	2.0	11.5	13.6	45.5	1.5	4.5
	2000-2006	Best 5 years	0.7	3.6	18.7	2.1	0.3	1.2	10.9	14.3	43.7	1.8	2.8
	2000-2006	Best 3 years	0.8	4.1	17.7	2.1	0.4	1.4	11.3	16.2	41.2	1.8	3.0
Directed cod	1995-2005	Best 7 years	0.8	2.7	16.9	1.5	0.2	2.5	12.1	13.7	45.1	0.9	3.6
	1995-2005	Best 5 years	0.9	3.0	17.3	1.6	0.2	2.3	12.0	14.3	43.2	1.0	4.0
	2000-2006	Best 5 years	0.7	4.0	20.5	2.2	0.3	1.8	12.1	15.8	39.5	1.0	2.2
	2000-2006	Best 3 years	0.8	4.6	19.4	2.2	0.4	1.5	12.3	17.6	37.6	1.0	2.6

Interactions with Fixed Gear Recency Action

In refining the alternatives and options for analysis, the Council may wish to consider interactions between the proposed GOA Pacific cod sector allocations and the GOA fixed gear recency action. A comparison of the components and options currently under consideration for the two actions is found Table E-3. The Council is considering options to add Pacific cod endorsements to fixed gear licenses to limit entry into the directed Pacific cod fisheries in the Western and Central Gulf of Alaska. Pacific cod endorsements could also restrict licenses to using the specific fixed gear type (e.g., pot or hook-and-line) and operation type (catcher processor or catcher vessel) specified on the endorsement. The pot, hook-and-line, and jig catcher vessel sectors could be subject to the endorsement requirement. Pot and hook-and-line catcher processors could also be subject to the Pacific cod endorsement requirement, and there is an option to create vessel length designations on hook-and-line catcher processor endorsements. The Council may wish to make the sector allocation definitions consistent with Pacific cod endorsement sector definitions to ensure that vessels that contributed catch history to the sector allocations have access to those allocations.

Other issues

An analysis of the alternatives, components, and options is included in Chapter 3 of this document. The analysis includes several new sections that the Council may wish to review at this meeting, including:

- Options for management of the jig sector allocations
- Options for allocating halibut PSC between hook-and-line catcher processors and catcher vessels
- A review of the current inshore/offshore processing component allocations, and potential interactions with the proposed sector allocations
- Options for establishing sector allocations based on vessel length
- Community impacts

Table E-3. A comparison of the components and options included in the proposed GOA sector allocations and GOA fixed gear recency actions.

COMPARISON OF GULF OF ALASKA ACTIONS		
ACTION	GOA Pacific Cod Sector Allocations	GOA Fixed Gear LLP Recency
PURPOSE OF ACTION	Allocate Western and Central Gulf Pacific cod TACs to the various sectors	(1) Remove latent fixed gear licenses with WG and/or CG endorsements from the groundfish fisheries (2) Add Pacific cod endorsements to licenses to limit entry to directed Pacific cod fisheries in GOA
MANAGEMENT AREAS	Western and Central Gulf of Alaska	Western and Central Gulf of Alaska (CG endorsement also includes West Yakutat)
SECTORS	(1) Hook-and-line CVs Suboption: Hook-and-line CVs <60 and ≥60 (2) Hook-and-line CPs Suboption: Hook-and-line CPs <125 and ≥125 (3) Pot CVs Suboption: Pot CVs <60 and ≥60 (4) Pot CPs (5) Jig (6) Trawl CVs (7) Trawl CPs Suboption: Trawl CPs <125 and ≥125	(1) Hook-and-line CVs (2) Hook-and-line CPs Suboption: Hook-and-line CPs <125 and ≥125 (3) Pot CVs (4) Pot CPs (5) Jig
CATCH DEFINITIONS	(1) All retained catch of Pacific cod from parallel and federal waters (2) Retained catch from the directed Pacific cod fisheries in parallel and federal waters State waters catch is excluded	(1) All retained catch of groundfish from parallel and federal waters (2) Retained catch from the directed Pacific cod fisheries in parallel and federal waters State waters catch is excluded IFQ catch is excluded
QUALIFYING YEARS	(1) 1995-2005: best 7 years (2) 1995-2005: best 5 years (3) 2000-2006: best 5 years (4) 2000-2006: best 3 years	(1) 2000-2005 (2) 2000-2006 (3) 2002-2005 (4) 2002-2006
LANDINGS THRESHOLDS	None	(1) 1,3, or 5 landings during qualifying years (2) 5, 10, 25, or 100 mt during qualifying years
JIG	1, 3, 5, or 7 percent allocation Step up provision (1, 2, or 3 percent) if allocation is 90 percent harvested during a given year Step down provision if allocation is not 90 percent harvested during 3 consecutive years, but allocation will not drop below its initial level	(1) Exempt jig vessels from any LLP requirement (2) Exempt jig vessels from Pacific cod endorsement requirement
OTHER COMPONENTS	Options to allocate hook-and-line halibut PSC to CVs and CPs	Options to restrict licenses from using both fixed and trawl gear

1 INTRODUCTION

The groundfish fisheries in the Exclusive Economic Zone (3 to 200 miles offshore) of the Gulf of Alaska are managed under the Gulf of Alaska Fisheries Management Plan (FMP), developed by the North Pacific Fishery Management Council under the Magnuson-Stevens Fishery Conservation and Management Act. The Gulf of Alaska FMP was approved by the Secretary of Commerce and became effective in 1978.

This document is an Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis (EA/RIR/IRFA) for proposed sector allocations of the Western and Central Gulf of Alaska Pacific cod total allowable catch (TAC), which would result in an amendment to the Gulf of Alaska FMP. The proposed action would divide the TACs among the various sectors based on historic catch levels. For the purposes of this action, the sectors are defined as follows: pot catcher vessels, pot catcher processors, hook-and-line catcher vessels, hook-and-line catcher processors, trawl catcher vessels, trawl catcher processors, and jig catcher vessels, with options to further divide sectors by vessel length.

An environmental assessment is required by the National Environmental Policy Act of 1969 (NEPA) to determine whether the proposed action will result in a significant impact on the human environment. If the action is determined not to be significant based on an analysis of the relevant considerations, the EA and finding of no significant impact (FONSI) would be the final environmental documents required by NEPA. An environmental impact statement (EIS) must be prepared for major federal actions significantly affecting the human environment.

The purpose of the EA is to analyze the environmental impacts of the proposed Federal action to apportion the Western and Central GOA Pacific cod TACs among the gear sectors based on historic catch levels. The human environment is defined by the Council on Environmental Quality as the natural and physical environment and the relationships of people with that environment (40 CFR 1508.14). This means that economic or social effects are not intended by themselves to require preparation of an EA. However, when an EA is prepared and socio-economic and natural or physical environmental impacts are interrelated, the EA must discuss all of these impacts on the quality of the human environment. NEPA requires a description of the purpose and need for the proposed action as well as a description of alternatives which may address the problem. This information is included in **Chapter 1** of this document. **Chapter 2** contains a description of the affected human environment and information on the impacts of the alternatives on that environment, specifically addressing potential impacts on endangered species and marine mammals and cumulative effects.

Executive Order 12866 (E.O. 12866) requires preparation of a Regulatory Impact Review (RIR) to assess the social and economic costs and benefits of available regulatory alternatives, in order to determine whether a proposed regulatory action is economically “significant” as defined by the order. This analysis is included in **Chapter 3**. **Chapter 4** addresses the requirements of other applicable laws, including the Magnuson Stevens Act, Marine Mammal Protection Act, and Regulatory Flexibility Act (RFA). The RFA requires an analysis of potential adverse economic impacts to small entities that would be directly regulated by the proposed action. The references and literature cited are in **Chapter 5**, the list of preparers is in **Chapter 6**, and the list of agencies and individuals consulted is in **Chapter 7**.

1.1 Purpose and Need for the Action

1.1.1 Background

Management of the Gulf of Alaska groundfish fisheries has become increasingly complex as a result of Steller sea lion protection measures, increased participation by vessels displaced from other fisheries, and requirements to reduce bycatch under the Magnuson-Stevens Act (MSA). These factors have made achieving the goals set by the National Standards in the MSA difficult, and have had significant adverse social and economic impacts on harvesters, processors, crew, and communities that depend on the GOA fisheries. As a result, in 1999 the Council began developing a package of measures to rationalize the Gulf of Alaska groundfish fisheries. At its April 2003 meeting, the Council adopted a motion defining preliminary alternatives for rationalizing the Gulf of Alaska groundfish fisheries. During 2003 through 2006, the Council worked to develop and refine these alternatives. However, in December 2006, the Council elected to delay further consideration of the comprehensive rationalization program, and instead proceed with the more discrete issues of allocating the Pacific cod resource to the various gear sectors and limiting future entry to the Gulf groundfish fisheries by extinguishing latent LLP licenses.

At its February 2007 meeting, the Council reviewed a discussion paper that outlined the goals, objectives, elements, and options for dividing the Gulf of Alaska Pacific cod TACs among various sectors and removing latent licenses from fisheries in the Gulf. After reviewing the discussion paper, the Council decided to address these issues through separate actions and take further public testimony before developing a statement of purpose and need and alternatives for consideration. In April 2007, the Council adopted a problem statement and outlined draft components and options for establishing Gulf Pacific cod sector allocations. Finally, in October 2007 the council reviewed a draft preliminary EA/RIR/IRFA for the proposed Pacific cod sector allocations. At that meeting, the Council refined the components and options for analysis.

1.1.2 Purpose and Need Statement

The Gulf of Alaska Pacific cod resource is targeted by multiple gear and operation types, principally by pot, trawl, and hook-and-line catcher vessels and hook-and-line catcher processors. Smaller amounts of cod are taken by other sectors, including catcher vessels using jig gear. Separate TACs are identified for Pacific cod in the Western, Central, and Eastern Gulf of Alaska management subareas, but the TACs are not divided among gear or operation types. This results in a derby-style race for fish and competition among the various gear types for shares of the TACs. To address these issues, the Council adopted the following problem statement in April 2007:

Gulf of Alaska Pacific Cod Sector Split Purpose and Need Statement

The limited access derby-style management of the Western Gulf and Central Gulf Pacific cod fisheries has led to competition among the various gear types (trawl, hook-and-line, pot, and jig) and operation types (catcher processor and catcher vessel) for shares of the total allowable catch (TAC). Competition for the GOA Pacific cod resource has increased for a variety of reasons, including increased market value of cod products, rationalization of other fisheries in the BSAI and GOA, increased participation by fishermen displaced from other fisheries, reduced federal TACs due to the state waters cod fishery, and Steller sea lion mitigation measures including the A/B seasonal split of the GOA Pacific cod TACs. The competition among sectors in the fishery may contribute to higher rates of bycatch, discards, and out-of-season incidental catch of Pacific cod.

Participants in the fisheries who have made long-term investments and are dependent on the fisheries face uncertainty as a result of the competition for catch shares among sectors. Allocation of the catch among sectors may reduce this uncertainty and contribute to stability across the sectors. Dividing the TACs among sectors may also facilitate development of management measures and fishing practices to address Steller sea lion mitigation measures, bycatch reduction, and prohibited species catch (PSC) mortality issues.

The proposed action would divide the Western and Central Gulf of Alaska Pacific cod TACs among gear and operation types based on historic dependency and use by each sector. This action may enhance stability in the fishery, reduce competition among sectors, and preserve the historic distribution of catch among sectors. Without sector allocations, future harvests by some sectors may increase and impinge on the historic levels of catch by other sectors.

For example, some fixed gear participants believe that the relatively high catching power of the trawl fleet has limited their ability to maintain their historic catch levels in the Pacific cod fishery. Sector allocations would stabilize the proportion of the catch taken by each sector, allowing participants to better plan their operations. Another concern expressed by some participants is that larger boats, both trawl and fixed gear, are more capable of fishing during the winter months (January/February) of the A season. Harvest opportunities for smaller vessels may be limited if larger vessels quickly catch much of the TAC. The proposed action contains options to establish separate allocations for catcher processor and catcher vessel sectors based on vessel length to ensure that smaller boats have a stable allocation. Finally, some participants are concerned that catcher processors fishing the inshore TACs have the potential to increase their catch and impinge on catcher vessel harvest shares. Sector allocations would protect harvest shares of catcher vessels by creating distinct catcher processor and catcher vessel allocations.

While sector allocations may reduce competition among sectors and protect historic catch levels, sector allocations alone may not slow down the race for fish, reduce bycatch, increase product quality, or have a substantial effect on the number of participating vessels. Sector allocations may be a first step toward stabilizing the GOA Pacific cod fishery, and may enable the Council to begin developing a series of Gulf of Alaska management measures to address Steller sea lion issues, halibut PSC usage, and bycatch reduction.

1.2 Alternatives

This section identifies the alternatives and options under consideration for the proposed action. **Alternative 1** is the status quo alternative. **Alternative 2** would allocate the Western and Central Gulf of Alaska Pacific cod TACs among the trawl, pot, hook-and-line, and jig catcher vessel and catcher processor sectors based on historic catch levels and other considerations, and includes the following components:

ALTERNATIVE 1. No Action. The Gulf of Alaska Pacific cod TACs would not be allocated to the various gear and operation types.

ALTERNATIVE 2. Allocate the Western and Central Gulf of Alaska Pacific cod TACs to the trawl, pot, hook-and-line, and jig catcher vessel and catcher processor sectors based on catch history or other criteria.

Component 1:

The Western and Central Gulf of Alaska Pacific cod TACs will be allocated among the various gear and operation types, as defined in Component 2.

Component 2: Sector definitions

The Western and Central GOA Pacific cod TACs will be allocated among the following sectors:

- Trawl catcher processors
 - Option: Trawl catcher processors <125 ft
 - Trawl catcher processors ≥125 ft

- Trawl catcher vessels
- Hook-and-line catcher processors
 - Option: Hook-and-line catcher processors <125 ft
 - Hook-and-line catcher processors ≥125 ft
- Hook-and-line catcher vessels
 - Option: Hook-and-line catcher vessels <60 ft
 - Hook-and-line catcher vessels ≥60 ft
- Pot catcher processors
- Pot catcher vessels
 - Option: Pot catcher vessels <60 ft
 - Pot catcher vessels ≥60 ft
- Jig vessels

Additional option: Combined allocation to the pot and hook-and-line catcher vessel sectors.

Component 3: Definition of qualifying catch

Option 1 All retained legal catch of Pacific cod in the federal and parallel waters fisheries in the Western and Central Gulf of Alaska.

Option 2 All retained Pacific cod harvested during the directed Pacific cod fisheries in the federal and parallel waters in the Western and Central Gulf.

Provisions applicable to both options

- Catch will be calculated using Fish Tickets for catcher vessels and Catch Accounting/Blend data for catcher processors.
- Under all options, incidental catch allocated to trawl catcher vessels for the Central Gulf Rockfish program (currently, 2.09 percent of the Central Gulf Pacific cod TAC) will be deducted from the Central Gulf trawl catcher vessel allocation.
- All sector allocations will be managed to support incidental and directed catch needs.

Component 4: Years included for purposes of determining catch history

Option 1 Qualifying years 1995-2005: average of best 5 years

Option 2 Qualifying years 1995-2005: average of best 7 years

Option 3 Qualifying years 2000-2006: average of best 3 years

Option 4 Qualifying years 2000-2006: average of best 5 years

Component 5: Allocation of Pacific cod to jig sector

Options include setting aside 1%, 3%, 5%, or 7% of the Western and Central GOA Pacific cod TACs for the jig vessel sector, with a stairstep provision to increase the jig sector allocation by 1%, 2%, or 3% if 90% of the federal jig allocation in an area is harvested in any given year.

Subsequent to the jig allocation increasing, if the harvest threshold criterion described above is not met during three consecutive years, the jig allocation will be stepped down by 1% in the following year, but shall not drop below the level initially allocated.

The jig allocation could be set aside from the A season TAC, the B season TAC, or divided between the A and B season TACs.

The Council requested that staff work with the State of Alaska and NMFS to explore possible options for the jig fishery management structure (both federal and State) that create a workable fishery and minimize the amount of stranded quota.

Possible solutions that could be explored are:

1. Separate State and federal allocations- manage accounting by seasonal structure.
2. State managed jig Pacific cod fishery- federal management authority goes to the state of Alaska to manage a state gear specific fishery.

Component 6: Management of unharvested sector allocations

Any portion of a CV, CP, or jig allocation determined by NMFS to remain unharvested during the remainder of the fishing year will become available as soon as practicable to either:

Option 1 Other respective CV or CP sectors first, and then to all sectors as necessary to harvest available TAC, or

Option 2 All sectors

Component 7: Apportionment of hook-and-line halibut PSC (other than DSR) between catcher processors and catcher vessels

Option 1 No change in current apportionments of GOA halibut PSC

Option 2 Apportion the GOA hook-and-line halibut PSC to the CP and CV sectors in proportion to the total Western Gulf and Central Gulf Pacific cod allocations to each sector. No later than November 1, any remaining halibut PSC not projected by NMFS to be used by one of the hook-and-line sectors during the remainder of the year would be made available to the other sector.

Option 3 Other apportionment (select amount for each sector). No later than November 1, any remaining halibut PSC not projected by NMFS to be used by one of the hook-and-line sectors during the remainder of the year would be made available to the other sector.

Suboption (can be applied to Options 1, 2, or 3): Change seasonal apportionment by sector.

Other Issues for Analysis

The Council requested that staff include a discussion of cumulative economic and socioeconomic effects of the proposed action, including an analysis of vessel ownership, skipper residency, potential impacts on crew and processors, economic dependency of participants on GOA Pacific cod in comparison to other fisheries, and potential changes in the distribution of landings. The analysis may include a discussion of the likelihood of voluntary harvest cooperative formation within each sector, and the expected effects of cooperative fishing under sector allocations.

The Council also requested that staff discuss interactions between sector allocations and GOA Pacific cod sideboards. The analysis will also include a comparison of the options for defining sectors and qualifying catch in the sector split action and the trawl and fixed gear recency actions and a discussion of the implications of these differences on sector allocations.

The Council requested that staff provide a summary of discarded incidental Pacific cod harvests by year. Finally, the Council requested a description of the State-managed Pacific cod fisheries and a discussion of the overlap in participation in the federal and State-managed GOA Pacific cod fisheries.

Options considered and rejected

Component 2: The Council considered, but rejected, options to create separate inshore catcher processor allocations. Instead, the Council is considering options to divide catcher processor allocations by vessel length. Most catcher processors less than 125 feet in length have participated in the inshore sector during recent years, and current options would protect historic harvest shares of these inshore participants.

Component 3: Options to exclude meal from qualifying catch were deleted. Meal has typically been excluded when a certain segment would be disadvantaged by the inclusion of meal in calculations. Specifically, small catcher processors without meal plants could be disadvantaged. Weekly Production Reports indicate that in the Gulf of Alaska no catcher processors produced meal from Pacific cod during 1995-2006. Meal is a relatively minor component of the total retained catch by catcher vessels, generally amounting to less than 1% of total retained catch. Based on these data and public testimony, the Council rejected options to exclude meal from the definition of qualifying catch. After reviewing a comparison between catch data sets, the Council elected to use Catch Accounting/Blend data for catcher processors rather than Weekly Production Reports.

Component 6: Options to roll over unused quota on specific dates were deleted and replaced with the current language, which defers management of rollovers to NMFS inseason management.

Management of incidental catch: The Council deleted what was formerly Component 6, which included two options for managing incidental catch under sector allocations. Instead, the Council added a provision under Component 3 which defers management of incidental catch to NMFS inseason management. In effect, the Council removed the option to set aside incidental catch allowances off the top of the TACs. Instead, incidental catch would be managed inseason (similar to the status quo) and each sector's allocation would support its own incidental catch needs.

1.3 Proposed changes to the Gulf of Alaska FMP

The proposed action would result in an amendment to the Gulf of Alaska Fisheries Management Plan (FMP) and 50 CFR 679.20(a)(11). This action would require changing language in the following sections of the FMP:

ES-3	Executive Summary
p. 18	Section 3.2.6.3.2 Management Measures of GOA Groundfish Fisheries
p. 50	Section 4.1.2.2 Pacific cod
Appendix A	Summary of Gulf of Alaska Amendment XX

1.4 Consistency with the Problem Statement

The alternatives under consideration are consistent with the problem statement. Under the no action alternative, the Western and Central Gulf of Alaska Pacific cod fisheries will continue to be managed on a fleet-wide basis. The problem identified is that participants who have made significant long-term investments, have extensive catch histories, and are highly dependent on the GOA Pacific cod fisheries need stability in the form of sector allocations. Without sector allocations, future harvests by some sectors may increase and impinge on historic levels of catch by other sectors. The intent of the proposed action is to establish allocations for each gear sector in the GOA Pacific cod fishery based on historic catch levels. The problem statement notes that dividing the TAC among sectors may also facilitate the future development of management measures to address Steller Sea lion mitigation issues, bycatch reduction, and PSC mortality issues.

2 ENVIRONMENTAL ASSESSMENT

The purpose of this environmental assessment (EA) is to analyze the environmental impacts of the proposed Federal action to allocate the Central and Western Gulf of Alaska Pacific cod TACs among the various gear and operation types. An EA is intended to provide sufficient evidence of whether or not the environmental impacts of the action are significant (40 CFR 1508.9).

The purpose and need statement for this action and a description of the alternatives and options are included in Chapter 1. This chapter analyzes the alternatives for their effects on the biological, physical, and human environment. Each section discusses the environment that would be affected by the alternatives and then describes the impacts of the alternatives. The following components of the environment are discussed: the Pacific cod fishery, other groundfish and prohibited species caught incidentally in the Pacific cod target fishery, seabirds and marine mammals, benthic habitat, essential fish habitat, the ecosystem, and economic impacts and management considerations, and cumulative effects.

The criteria listed in Table 2-1 are used to evaluate the significance of impacts. If significant impacts are likely to occur, preparation of an Environmental Impact Statement (EIS) is required. Although economic and socioeconomic impacts must be evaluated, such impacts by themselves are not sufficient to require the preparation of an EIS (see 40 CFR 1508.14).

Table 2-1 Criteria used to evaluate the alternatives

Component	Criteria
Fish species	An effect is considered to be significant if it can be reasonably expected to jeopardize the sustainability of the species or species group.
Habitat	An effect is considered to be significant if it exceeds a threshold of more than minimal and not temporary disturbance to habitat.
Seabirds and marine mammals	An effect is considered to be significant if it can be reasonably expected to alter the population trend outside the range of natural variation.
Ecosystem	An effect is considered to be significant if it produces population-level impacts for marine species, or changes community- or ecosystem-level attributes beyond the range of natural variability for the ecosystem.

2.1 Pacific cod

Pacific cod (*Gadus macrocephalus*) is widely distributed in the Gulf of Alaska (GOA) and occurs at depths from shoreline to 500 m (Thompson et al. 2006). Pacific cod are moderately fast growing, and females reach 50% maturity at approximately 5.8 years old. Spawning occurs during January through April in the Gulf of Alaska. Cod are demersal and concentrate on the shelf edge and upper slope at depths of 100-250 m in the winter, and move to shallower waters (<100 m) in the summer.

The Pacific cod resource is managed under three discrete TACs in the Gulf of Alaska: the Western Gulf TAC, the Central Gulf TAC, and the Eastern Gulf TAC. In addition, the GOA Pacific cod TACs are divided between the A season (60%) and B season (40%), and apportioned to the inshore processing component (90%) and offshore component (10%). Historically, the majority of the GOA Pacific cod catch has come from the Central and Western Gulf management subareas. Final 2008 harvest specifications apportioned 57% of the Gulf catch to the Central Gulf (28,426 mt), 39% to the Western Gulf (19,449 mt), and 5% to the Eastern Gulf (2,394 mt). Table 2-2 provides a history of acceptable biological catch (ABC), total allowable catch (TAC), and actual catch of Pacific cod in the federal and state fisheries in the Gulf of Alaska from 1985 to 2007. From 1989 to 1996, the Federal TAC was set at 100% of the acceptable biological catch (ABC). The Federal TAC has been set below the ABC since

1997 to accommodate the State waters Pacific cod fishery. Total catch in the federal and state Pacific cod fisheries averaged 87% of the ABC from 1997 to 2007.

Table 2-2 Total catch in the Federal and State GOA Pacific cod fisheries, total allowable catch (TAC) for the Federal fishery, and acceptable biological catch (ABC), 1985-2007

Year	Federal catch	Federal TAC	Percentage of TAC harvested	State catch	Total catch	ABC	Percentage of ABC harvested
1985	14,428	60,000	24.0	n/a	14,428	n/a	n/a
1986	25,012	75,000	33.3	n/a	25,012	136,000	18.4
1987	32,939	50,000	65.9	n/a	32,939	125,000	26.4
1988	33,802	80,000	42.3	n/a	33,802	99,000	34.1
1989	43,293	71,200	60.8	n/a	43,293	71,200	60.8
1990	72,517	90,000	80.6	n/a	72,517	90,000	80.6
1991	76,328	77,900	98.0	n/a	76,328	77,900	98.0
1992	80,747	63,500	127.2	n/a	80,747	63,500	127.2
1993	56,487	56,700	99.6	n/a	56,487	56,700	99.6
1994	47,484	50,400	94.2	n/a	47,484	50,400	94.2
1995	68,084	69,200	98.4	n/a	68,084	69,200	98.4
1996	68,150	65,000	104.8	n/a	68,150	65,000	104.8
1997	67,856	69,115	98.2	8,393	76,250	81,500	93.6
1998	61,504	66,060	93.1	10,422	71,926	77,900	92.3
1999	67,927	67,835	100.1	13,781	81,708	84,400	96.8
2000	54,266	58,715	92.4	12,037	66,303	76,400	86.8
2001	41,532	52,110	79.7	9,917	51,449	67,800	75.9
2002	42,306	44,230	95.6	12,211	54,516	57,600	94.6
2003	41,152	40,540	101.5	11,423	52,575	52,800	99.6
2004	43,017	48,033	89.6	13,605	56,622	62,810	90.1
2005	35,127	44,433	79.1	12,714	47,840	58,100	82.3
2006	37,807	52,264	72.3	10,338	48,145	68,859	69.9
2007	39,721	52,264	76.0	11,250	50,971	68,859	74.0

Source: 2006 Groundfish SAFE Report, Pacific cod stock assessment (Thompson et al., 2006), NMFS Blend and Catch Accounting databases (1995-2007 federal catch), and Sagalkin (2007) (State waters catch).

Changes in the abundance of major predator or prey species may affect Pacific cod abundance and recruitment. Pacific cod prey on polychaetes, amphipods, crangonid shrimp, walleye pollock, fishery offal, yellowfin sole, and crustaceans. Predators of Pacific cod include Pacific cod, halibut, salmon shark, northern fur seals, Steller sea lions, harbor porpoises, various whale species, and tufted puffin. Effects of the proposed action depend to some extent on current and future abundance of the Pacific cod stock. Model projections indicate that the Pacific cod stock is not overfished. However, total allowable catch is projected to decline over the next several years due to below average recruitment levels during a series of recent years. A comprehensive description of recent survey data and biomass projections is available in the groundfish SAFE report (NMFS 2006a).

Effects of the Alternatives

Current management of the GOA Pacific cod fishery was analyzed in detail in the Groundfish PSEIS (NOAA 2004a). This analysis is updated annually during the harvest specifications process for the groundfish fisheries (NMFS 2006a). These analyses concluded that the Pacific cod stock is currently being managed at a sustainable level, and that the probability of overfishing occurring is low. The status quo management of Pacific cod is not expected to have a significant impact on the long-term sustainability of the GOA Pacific cod stock.

The proposed action would divide the GOA Pacific cod TACs among the various gear and operation types based on the average annual harvest share by each sector. In effect, Alternative 2 would not change the status quo apportionment of Pacific cod among sectors. The proposed action would not change the annual harvest specifications process, which sets TACs at appropriate levels to prevent the stock from being overfished. As a result, the proposed action is not expected have a significant effect on the sustainability of the Pacific cod stock.

2.2 Incidental catch in the Pacific cod target fisheries

Incidental catch of groundfish and other species in the GOA Pacific cod target fisheries is summarized by gear type in Table 2-3. Incidental catch was averaged across the period from 2000 to 2007. Pot vessels mainly have incidental catch of ‘other species’, including octopus and skates, while targeting Pacific cod. Hook-and-line vessels have somewhat higher incidental catch levels, and catch skates, roundfish (including sablefish and pollock), and rockfish. Trawl vessels have the highest incidental catch levels, and the majority of incidental catch consists of roundfish (mainly pollock and sablefish). In general, incidental catch of most species is more likely to be discarded than retained, but trawl CVs in the Central Gulf retain the majority of roundfish and flatfish.

Table 2-3 Average catch composition of Pacific cod target fisheries by gear and operation type, including amount retained and discarded (mt), during 2000-2007

Western Gulf								
Species	Retained or Discarded	Hook-and-line		Jig	Pot		Trawl	
		CP	CV	CV	CP	CV	CP	CV
Pacific Cod*	R	3,623	62	83	375	6,059	176	4,819
Pacific Cod*	D	40	0	0	0	65	0	144
Flatfish	R	1	0	0	0	0	74	0
Flatfish	D	3	0	0	0	0	20	12
Rockfish	R	4	0	0	0	0	9	0
Rockfish	D	13	1	0	0	7	29	36
Roundfish**	R	58	1	0	0	1	83	45
Roundfish**	D	118	2	0	1	14	180	335
Skates, Squid, and Other Species	R	36	0	0	4	29	9	2
Skates, Squid, and Other Species	D	146	3	0	4	130	14	60

Central Gulf								
Species	Retained or Discarded	Hook-and-line		Jig	Pot		Trawl	
		CP	CV	CV	CP	CV	CP	CV
Pacific Cod*	R	841	5,278	73	409	5,964	506	8,531
Pacific Cod*	D	29	40	0	1	30	8	95
Flatfish	R	0	0	0	0	0	75	68
Flatfish	D	1	2	0	0	0	9	26
Rockfish	R	0	3	1	0	0	19	13
Rockfish	D	1	32	0	0	5	26	49
Roundfish**	R	26	130	1	0	3	189	1,031
Roundfish**	D	40	305	0	0	10	485	799
Skates, Squid, and Other Species	R	36	19	0	0	46	8	24
Skates, Squid, and Other Species	D	52	448	9	2	101	27	110

Source: NMFS Catch Accounting/Blend 2000-2007. *Does not include Pacific cod caught in other target fisheries. **Roundfish includes pollock, sablefish, and Atka mackerel.

Incidental catch of skates, “other species”, and non-specified species during 2005 and 2006 is summarized in Table 2-4. The “other species” management category is comprised of octopus, squid,

sculpins, and sharks, and is managed under a single TAC in the GOA. Species in the “other species” category cannot be targeted, and are only taken incidentally during other directed fisheries. Information on “other species” and non-specified species is derived from observer data. A complete account of incidental catch in the Pacific cod target fisheries since 1997 is included in the Pacific cod chapter of the GOA Stock Assessment and Fishery Evaluation report (Thompson et al. 2006).

In the hook-and-line fishery, skates, large sculpins, other sculpins, sharks, and sea stars comprise the majority of the other and non-specified species bycatch. The pot fishery catches the majority of the octopus bycatch in the Gulf of Alaska, and the trawl fishery catches much of the miscellaneous fish species catch. It is not possible to determine whether the ‘other species’ complex is overfished or whether it is approaching an overfished condition. However, even though the complex is managed under a single ABC and TAC, the ‘other species complex’ stock assessment recommended ABCs for each species group. Catch in 2006 did not exceed these ABC recommendations (NMFS 2007a).

Table 2-4 Incidental catch (mt) of skates, ‘other species’ and non-specified species in the Gulf of Alaska Pacific cod target fisheries, 2005- 2006

Gear	Species group	Catch		Proportion	
		2005	2006	2005	2006
Hook-and-line	Skates	472	108	0.21	0.06
	Sea Star	246	170	0.23	0.17
	Large sculpins	129	49	0.20	0.09
	Sharks	13	10	0.11	0.04
	Other sculpins	7	7	0.14	0.15
	Misc fish	6	2	0.02	0.01
	Octopus	1	0	0.01	0.00
	Sea Anemone	1	0	0.09	0.02
	Greenlings	1	1	0.06	0.16
	Sponge	0	1	0.07	0.34
Trawl	Misc fish	108	35	0.36	0.11
	Skates	49	26	0.02	0.01
	Large sculpins	20	88	0.03	0.16
	Sea Star	9	3	0.01	0.00
	Other sculpins	5	0	0.09	0.00
	Sharks	5	7	0.04	0.03
	Greenlings	5	0	0.36	0.03
	Octopus	3	0	0.02	0.00
Sea Anemone	1	0	0.06	0.00	
Pot	Sea Star	756	748	0.71	0.73
	Large sculpins	262	157	0.41	0.28
	Octopus	135	88	0.86	0.96
	Other sculpins	7	8	0.15	0.18
	Greenlings	1	0	0.04	0.04
	Skates	0	1	0.00	0.00

Source: 2006 Groundfish SAFE Report, Pacific cod stock assessment (Thompson et al., 2006).

Effects of the Alternatives

Incidental catch of other groundfish species during the directed GOA Pacific cod fishery is counted toward the TAC for that species or species group. Groundfish stocks are assessed annually and are managed using conservative catch quotas. The Groundfish PSEIS (NOAA 2004a) and the Harvest

Specifications Environmental Assessment (NMFS 2006d) both conclude that the groundfish species caught incidentally during the directed GOA Pacific cod fishery are currently at sustainable population levels and are unlikely to be overfished under the current management program. As a result, impacts on these species under the status quo alternative are not likely to be significant.

The proposed action is not expected to result in significant changes in incidental catch levels. Sector allocations are likely to reflect the current distribution of catch among the gear sectors. Overall levels of fishing effort by each gear sector, and the timing and location of fishing activities, are not expected to change under the proposed action. Consequently, effects on populations of the species caught incidentally to Pacific cod are not expected to be significant.

2.3 Prohibited Species Catch in the Pacific Cod Fisheries

In the groundfish fisheries in the Gulf of Alaska, NMFS estimates Prohibited Species Catch (PSC) of halibut, salmon, and crab based on observer estimates. Since 1990, all vessels ≥ 60 ft LOA participating in the groundfish fisheries have been required to have observers onboard at least part of the time. The amount of observer coverage is based on vessel length, with 30 percent coverage required on vessels 60 ft to 125 ft, 100 percent coverage on vessels larger than 125 ft, and 100 percent coverage at shorebased processing facilities. There are no observer coverage requirements for vessels less than 60 ft. Since January 2003, observer requirements for pot vessels >60 ft have been modified such that these vessels are only required to have coverage on 30 percent of pots pulled for that calendar year, as opposed to 30 percent of fishing days. Observer estimates from the 30 percent observed fleet are extrapolated to unobserved vessels.

Prohibited species catch (PSC) limits for halibut apply to the hook-and-line and trawl sectors and constrain bycatch levels. Attainment of these seasonal limits often closes the trawl fisheries, particularly during the B season, and occasionally closes the hook-and-line fisheries. Halibut PSC in the GOA Pacific cod fisheries is discussed in detail in Chapter 3. Halibut PSC seasonal apportionments for the Gulf of Alaska are summarized in Table 3-8, and halibut PSC during 1995-2007 in the targeted GOA Pacific cod fisheries is reported by sector in Table 3-9. Crab and salmon PSC levels in the Gulf of Alaska are monitored by the observer program, but there are no crab or salmon PSC catch limits in the GOA. Most bycatch of crab and salmon occurs in the Central Gulf, and the majority of crab bycatch consists of Tanner crab. Salmon bycatch levels vary from year to year, and are generally low.

2.4 Marine Mammals

Marine mammals occur in diverse habitats in the GOA, and include both resident and migratory species. Marine mammal species that occur in the GOA are listed below (NOAA 2004b). The Groundfish PSEIS (NOAA 2004a) provides descriptions of the range, habitat, diet, abundance, and population status for these marine mammals. Annual stock assessment reports prepared by the National Marine Mammal Laboratory provide population estimates, population trends, and estimates of potential biological removals (Angliss and Outlaw 2007).

NMFS Managed Species

Pinnipeds: Steller sea lion (Western U.S., Eastern U.S.), Northern fur seal (Eastern Pacific), Harbor seal (Southeast Alaska, Gulf of Alaska, Bering Sea), Spotted seal (Alaska), Bearded seal (Alaska), Ringed seal (Alaska), Ribbon seal (Alaska).

Cetaceans: Beluga Whale (Beaufort Sea, Eastern Chukchi Sea, Eastern Bering Sea, Bristol Bay, Cook Inlet), Killer whale (Eastern North Pacific Northern Resident, Eastern North Pacific transient), Pacific

White-sided dolphin (North Pacific), Harbor porpoise (Southeast Alaska, Gulf of Alaska), Dall’s porpoise (Alaska), Sperm whale (North Pacific), Baird’s beaked whale (Alaska), Cuvier’s beaked whale (Alaska), Stejneger’s beaked whale (Alaska), Gray whale (Eastern North Pacific), Humpback whale (Western North Pacific, Central North Pacific), Fin whale (Northeast Pacific), Minke whale (Alaska), North Pacific right whale (North Pacific).

USFWS Managed Species

Northern sea otter (Southeast Alaska, Southcentral Alaska, Southwest Alaska), Pacific walrus (Alaska).

Direct and indirect interactions between marine mammals and the groundfish fisheries result from temporal and spatial overlap between commercial fishing activities and marine mammal occurrence. Direct interactions include injury or mortality due to entanglement in fishing gear. Indirect interactions include overlap in the size and species of groundfish important both to the fisheries and to marine mammals as prey. The GOA Pacific cod target fisheries are classified as Category III fisheries under the Marine Mammal Protection Act. Category III fisheries are unlikely to cause mortality or serious injury to more than 1% of the marine mammal’s potential biological removal level, calculated on an annual basis (50 CFR 229.2). Taking of marine mammals is monitored by the North Pacific observer program.

Marine mammals listed under the Endangered Species Act (ESA) that may be present in the GOA are listed in Table 2-6. All of these species are managed by NMFS, with the exception of Northern Sea Otter, which is managed by U.S. Fish and Wildlife Service. A Biological Opinion evaluating impacts of the groundfish fisheries on the endangered species managed by NMFS was completed in November 2000 (NMFS 2000). The western population segment of Steller sea lions was the only ESA-listed species identified as likely to be adversely affected by the groundfish fisheries. A new Section 7 consultation was initiated in 2006. NMFS is also currently consulting with USFWS on the distinct southwest Alaska population of northern sea otters.

Table 2-5 ESA-listed marine mammal species that occur in the Gulf of Alaska

Common Name	Scientific Name	ESA Status
Steller Sea Lion (Western Population)	<i>Eumetopias jubatus</i>	Endangered
Steller Sea Lion (Eastern Population)	<i>Eumetopias jubatus</i>	Threatened
Blue Whale	<i>Balaenoptera musculus</i>	Endangered
Fin Whale	<i>Balaenoptera physalus</i>	Endangered
Humpback Whale	<i>Megaptera novaeangliae</i>	Endangered
Right Whale	<i>Balaena glacialis</i>	Endangered
Sei Whale	<i>Balaenoptera borealis</i>	Endangered
Sperm Whale	<i>Physeter macrocephalus</i>	Endangered
Northern Sea Otter	<i>Enhydra lutris</i>	Threatened

A Biological Opinion addressing Steller sea lion management issues was completed in 2001 (NMFS 2001b), and found that the under the new suite of protection measures, the GOA groundfish fisheries were unlikely to jeopardize the continued existence of the western population of Stellar sea lions or adversely modify critical habitat. Protection measures include area-specific closures around rookeries and haulouts and seasonal divisions of TACs to disperse fishing effort throughout the year. The Pacific cod fishing season was divided into two periods: 60% of the TAC was allocated to the A season (Jan. 1 – June 10) and 40% to the B season (June 10 – Dec. 31). The objective was to limit the total amount of cod harvested in the first half of the year. Pacific cod is one of the four most important prey items of Steller sea lions and is especially important to sea lions during winter (Sinclair and Zeppelin 2002).

Since 2000, the U.S. portion of the western population of Steller sea lions has been increasing. However, the 2004 count (38,988 animals) was still 7.4% lower than the 1996 count and 32.6% lower than the 1990 count. In the Gulf of Alaska, the 2004 count (9,005 animals) was 12.6% higher than the 2000 count (7,995 animals), but was 45.1% lower than the 1990 count. Annual counts at haulouts and rookeries represent a minimum population estimate and are not corrected to account for animals that were at sea during the surveys (Angliss and Outlaw 2007).

Incidental mortality of Steller sea lions during the GOA Pacific cod target fisheries is summarized in Table 2-7. No incidental mortalities were observed in the fixed gear sectors. The GOA Pacific cod trawl fishery contributes an estimated 4% of the total annual mortality to the western population of Steller sea lions attributed to commercial fisheries. The minimum estimate of incidental mortality due to commercial fishing activities in all waters off Alaska is 24.2 sea lions per year, which is slightly more than 10% of the allowable level (234 animals) of removal for this stock (Angliss and Outlaw 2007).

Table 2-6 Incidental mortality of Steller sea lions in the Gulf of Alaska Pacific cod target fisheries (2001-2005) and estimate of the mean annual mortality rate, based on observer data

Fishery	Years	Observer coverage	Observed mortality	Estimated mortality	Mean annual mortality
GOA Pacific cod trawl	2001	20.3	1	4.7	0.94 (CV = 0.83)
	2002	23.2	0	0	
	2003	27.3	0	0	
	2004	27.0	0	0	
	2005	21.4	0	0	

Source: Angliss and Outlaw 2007.

Effects of the Alternatives on Marine Mammals

Impacts of the GOA Pacific cod fishery on Steller sea lions were analyzed in the Programmatic SEIS (NOAA 2004a) and in the 2001 Biological Opinion. Current management practices were found to have no adverse impacts on marine mammals, including Steller sea lions. As a result, the status quo alternative is not expected to have a significant impact on Steller sea lions or other marine mammals.

The proposed action would allocate the Western and Central GOA Pacific cod TACs based on historic catch levels by each sector. The timing, location, and overall level of fishing effort in the GOA Pacific cod fishery is not expected to change, and there will be no changes in the harvest specifications process. Annual mortality of Steller sea lions is not expected to change under the proposed action, because fishing effort by the various gear sectors will remain similar to the status quo. Sector allocations will continue to be divided into seasonal apportionments to disperse fishing effort throughout the year.

2.5 Seabirds

Various species of seabirds occur in the Gulf of Alaska, including resident species, migratory species that nest in Alaska, and migratory species that only occur in Alaska outside of the breeding season. A list of species is provided below.¹ The Groundfish PSEIS (NOAA 2004a) provides descriptions of the range, habitat, diet, abundance, and population status for these seabirds.

¹Source: (USFWS web site "Seabirds. Species in Alaska. Accessed at <http://alaska.fws.gov/mbsp/mbm/seabirds/species.htm> on August 31, 2007).

Species nesting in Alaska

Tube-noses-Albatrosses and relatives: Northern Fulmar, Fork-tailed Storm-petrel, Leach's Storm-petrel

Kittiwakes and terns: Black-legged Kittiwake, Red-legged Kittiwake, Arctic Tern, Aleutian Tern

Pelicans and cormorants: Double-crested Cormorant, Brandt's Cormorant, Pelagic Cormorant, Red-faced Cormorant

Jaegers and gulls: Pomarine Jaeger, Parasitic Jaeger, Bonaparte's Gull, Mew Gull, Herring Gull, Glaucous-winged Gull, Glaucous Gull, Sabine's Gull

Auks: Common Murre, Thick-billed Murre, Black Guillemot, Pigeon Guillemot, Marbled Murrelet, Kittlitz's Murrelet, Ancient Murrelet, Cassin's Auklet, Parakeet Auklet, Least Auklet, Wiskered Auklet, Crested Auklet, Rhinoceros Auklet, Tufted Puffin, Horned Puffin

Species that visit Alaska waters

Tube-noses: Short-tailed Albatross, Black-footed Albatross, Laysan Albatross, Sooty Shearwater, Short-tailed Shearwater

Gulls: Ross's Gull, Ivory Gull

The Northern Fulmar accounts for the majority of incidental seabird take in the groundfish fisheries, and is one of the most abundant species breeding in Alaska. The hook-and-line sector causes most of this take. Three ESA-listed species occur in waters off Alaska (see Table 2-8), and Kittlitz's Murrelet is a candidate species for listing under the ESA. The U.S. Fish and Wildlife Service (USFWS) has primary responsibility for managing seabirds, and has evaluated effects of the BSAI and GOA FMPs and the harvest specifications process on currently listed species in two Biological Opinions (USFWS 2003a and 2003b). Both Biological Opinions concluded that the groundfish fisheries, including the GOA Pacific cod fishery, are unlikely to jeopardize populations of listed species or adversely modify or destroy critical habitat for listed species.

Table 2-7 ESA-listed and candidate seabird species that occur in the management area

Common Name	Scientific Name	ESA Status
Short-tailed Albatross	<i>Phoebastria albatrus</i>	Endangered
Steller's Eider	<i>Polysticta stelleri</i>	Threatened
Spectacled Eider	<i>Somateria fishcheri</i>	Threatened
Kittlitz's Murrelet	<i>Brachyramphus brevirostris</i>	Candidate

The Pacific cod fishery has direct and indirect impacts on seabirds. Seabird take is the primary direct effect of fishing operations. Seabirds are taken in the hook-and-line fisheries in two ways. While hooks are being set, seabirds attracted to bait may become entangled in fishing lines. Seabirds are also caught directly on baited hooks. Seabirds are taken in the trawl fisheries when they are attracted by offal or discarded fish and become entangled in fishing gear. Hook-and-line and trawl gear accounts for most seabird take in the groundfish fisheries.

Indirect effects include impacts to food sources. The Pacific cod fishery may reduce the biomass of prey species available to seabird populations. Fishing gear may disturb benthic habitat used by seabirds that forage on the seafloor and reduce available prey. Bottom trawl gear is the primary source of benthic habitat disturbance in the groundfish fisheries. Fishing activities may also create feeding opportunities for seabirds, for example when catcher processors discard offal.

Hook-and-line gear accounts for the majority of seabird take in the North Pacific groundfish fisheries. Depending on which estimates are used, hook-and-line gear accounts for either 65% or 94% of seabird bycatch in the BSAI and GOA combined (Fitzgerald et al. 2006). Seabird bycatch by the GOA hook-and-line fisheries consists of 46% fulmars, 34% albatrosses, 12% gull species, 5% unidentified seabirds, 2% shearwater species, and less than 1% of 'all other' species (Fitzgerald et al. 2006). Most bycatch of

Black-footed Albatross in waters off Alaska occurs in the GOA hook-and-line fisheries. From 2000 to 2004, an estimated 88 Black-footed Albatross were taken annually in the GOA hook-and-line fisheries. Total seabird bycatch in the GOA hook-and-line fisheries peaked in 1996 at 1,649 birds, and decreased to 156 birds in 2004, despite an increase in fishing effort. The incidental catch rate in the GOA decreased from an annual average of 0.021 birds per 1,000 hooks from 1993 to 2004 to 0.01 birds per 1,000 hooks from 2000-2004.

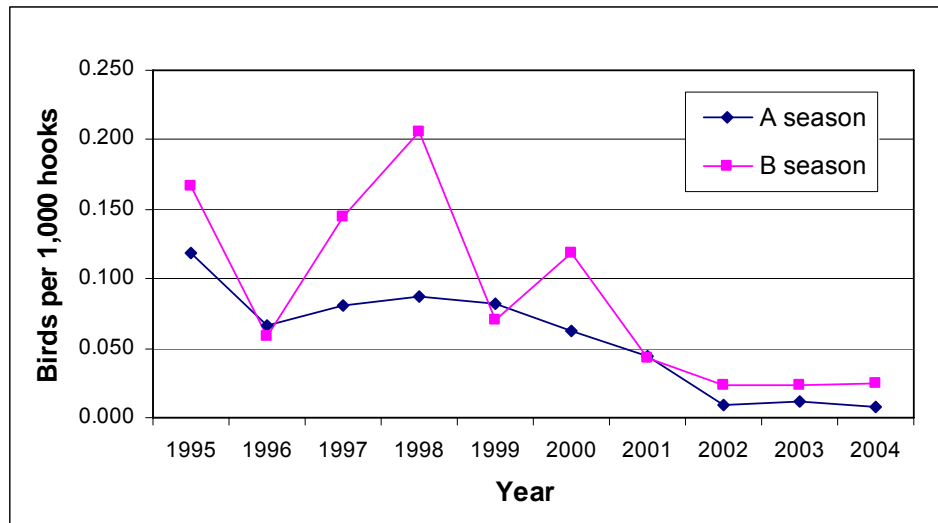


Figure 2-1 Seabird catch rates in the hook-and-line catcher processor sector by season, 1995-2004
 Source: AFSC. Data include BSAI and GOA hook-and-line CP fisheries.

Figure 2-1 compares seabird bycatch rates per 1,000 hooks by the hook-and-line catcher processor fleet during the A and B seasons from 1995 to 2004, and includes data from both the BSAI and GOA. Seabird bycatch by hook-and-line catcher processors has historically been higher during the B season than during the A season, but bycatch rates have been reduced substantially since 2001 as a result of widespread use of seabird avoidance techniques such as paired streamer lines. During recent years, bycatch rates during the A and B seasons have been similar. The average bycatch rate for hook-and-line catcher processors from 2002 through 2004 was 0.018 birds per 1,000 hooks, a substantial reduction from previous years.

Due to different sampling procedures on trawl vessels, two sets of estimates are calculated for seabird bycatch. Average annual take by trawl vessels in the GOA from 1993 to 2004 was either 63 birds or 97 birds (Fitzgerald et al. 2006). Northern Fulmars comprised the majority of bycatch by trawl vessels during this period. Seabird bycatch by the groundfish pot sector has historically been very low. Average annual bycatch in the GOA pot sector from 1993–2004 was 55 seabirds, less than 1% of the average annual seabird bycatch in the groundfish fisheries.

Effects of the Alternatives

The Groundfish PSEIS (NMFS 2004a) concluded that the current groundfish fisheries are not adversely impacting ESA-listed seabird species. Biological Opinions by the USFWS (2003a and 2003b) concluded that the groundfish fisheries, including the GOA Pacific cod fishery, are unlikely to jeopardize populations of listed species or adversely modify or destroy critical habitat for listed species. Based on current estimates of seabird bycatch, the status quo alternative is not likely to have a significant impact on seabird populations.

The proposed action would establish sector allocations for the GOA Pacific cod fisheries based on historic catch levels. Under sector allocations, overall levels of fishing effort by each gear sector, and the timing and location of fishing activities are not expected to change. Sector allocations will not modify the management practices analyzed in previous Biological Opinions (USFWS 2003a, 2003b), are not likely to cause additional adverse effects to ESA-listed species, and are not likely to increase incidental takes of listed species. The hook-and-line catcher processor sector is responsible for the majority of seabird take in the Gulf of Alaska. If recent catch history (2000-2006) is used to calculate sector allocations, the hook-and-line catcher processor sector's effort in the GOA Pacific cod fishery would remain approximately the same as it has been during recent years. This sector has realized substantial reductions in seabird bycatch during recent years as a result of using paired streamer lines. If the Council chooses to include earlier years in catch history (1995-2005), the hook-and-line catcher processor sector's allocation would be somewhat smaller than its recent catch levels, and this sector's effort (and seabird bycatch levels) in the GOA Pacific cod fishery would likely decrease. Consequently, seabird bycatch by this sector is not expected to increase under any of the options being considered by the Council, and the proposed action is not likely to have a significant impact on seabird populations.

2.6 Benthic Habitat and Essential Fish Habitat

Benthic habitat is potentially impacted by fishing practices that contact the seafloor. The impacts of fishing gear on benthic habitat are discussed in the Groundfish PSEIS (NOAA 2004a). Essential fish habitat (EFH) is defined as those areas necessary to fish for spawning, breeding, feeding, or growth to maturity. Maps and descriptions of EFH for the GOA groundfish species are available in the EFH EIS (NMFS 2005). This document also describes the importance of benthic habitat to different groundfish species and the impacts of different types of fishing gear on benthic habitat. In the hook-and-line fishery, anchors, groundline, ganglions, and hooks potentially contact the seafloor. The Pacific cod pot fishery has a very small footprint (an estimated 0.17 square mile footprint for the GOA and BSAI combined). The jig fishery has no direct contact with the seafloor, although contact may occur incidentally. In the trawl fishery, doors, sweeps, and bobbins on the net may contact the seafloor.

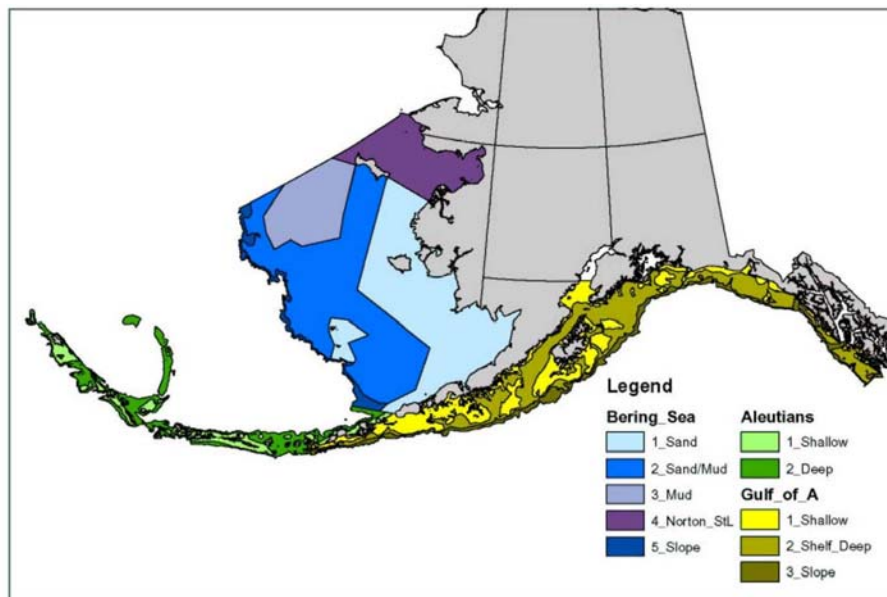


Figure 2-2 Surficial Sediment Textural Characteristics, according to Naidu (1988)

Effects of the Alternatives

The effects of the GOA Pacific cod fishery on benthic habitat and EFH were analyzed in the EFH EIS (NMFS 2005e). Year-round area closures protect sensitive benthic habitat. Current fishing practices have minimal or temporary effects on benthic habitat and essential fish habitat. These effects are likely to continue under Alternative 1, and are not considered to be significant. Under the proposed sector allocations, the location, timing, and overall level of fishing effort by the various gear sectors will remain essentially the same as under Alternative 1. As a result, impacts on benthic and essential fish habitat under this alternative are not expected to be significant.

2.7 Ecosystem

Ecosystems consist of communities of organisms interacting with their physical environment. Within marine ecosystems, competition, predation, and environmental disturbance cause natural variation in recruitment, survivorship, and growth of fish stocks. Human activities, including commercial fishing, can also influence the structure and function of marine ecosystems. Fishing may change predator-prey relationships and community structure, introduce foreign species, affect trophic diversity, alter genetic diversity, alter habitat, and damage benthic habitats.

The GOA Pacific cod fishery potentially impacts the GOA ecosystem by relieving predation pressure on shared prey species (i.e., species which are prey for both Pacific cod and other species), reducing prey availability for predators of Pacific cod, altering habitat, imposing bycatch mortality, or by “ghost fishing” caused by lost fishing gear. Further information may be found in the Ecosystems Considerations Appendix to the Stock Assessment and Fisheries Evaluation report (NMFS 2006b) and the Groundfish PSEIS (NOAA 2004a).

Effects of the Alternatives

An evaluation of the effects of the GOA Pacific cod fisheries on the ecosystem is conducted annually in the Ecosystem Assessment section of the Stock Assessment and Fishery Evaluation report (NMFS 2006b) and in the Harvest Specifications SAFE report (NMFS 2006c). These analyses conclude that the current GOA Pacific cod fishery does not produce population-level impacts to marine species or change ecosystem-level attributes beyond the range of natural variation. Consequently, Alternative 1 is not expected to have a significant impact on the ecosystem.

Alternative 2 will result in the same overall level of Pacific cod harvest as Alternative 1. The level of fishing effort by each sector, and the location and timing of fishing activities is not expected to change. As a result, Alternative 2 is not likely to have a significant impact on the ecosystem.

2.8 Economic Impacts and Management Considerations

A detailed description of the economic and socioeconomic components of the GOA Pacific cod fisheries and an analysis of the effects of the proposed action are found in Chapter 3. Here, management and enforcement considerations are briefly discussed. A more comprehensive analysis of the effects of the proposed action on management of the GOA Pacific cod fishery is provided in Chapter 3.

The GOA Pacific cod resource is currently managed as a limited access race for fish, with fleet-wide TACs in the Western, Central, and Eastern Gulf. The Pacific cod A season TACs are typically fully harvested, but much of the B season TACs have remained unharvested in recent years. If sector allocations are implemented, NMFS will be required to manage catch for up to 10 sectors, depending on

how sectors are defined. Each sector's allocation would be further divided into A and B season allocations. Inseason monitoring of GOA Pacific cod sector allocations and management of rollovers of unused quota would require additional staff resources.

2.9 Cumulative Effects

Analysis of the potential cumulative effects of a proposed action and its alternatives is a requirement of NEPA. Cumulative effects result from the incremental impact of the proposed action in addition to past, present, and reasonably foreseeable future actions. The Alaska Groundfish Fisheries PSEIS (NOAA 2004a) assesses the potential direct and indirect effects of groundfish FMP policy alternatives in combination with other factors that affect physical, biological and socioeconomic components of the BSAI and GOA environment.

Beyond the cumulative impacts analysis documented in the Groundfish PSEIS, no additional past, present, or reasonably foreseeable cumulative negative impacts on the natural and physical environment (including fish stocks, essential fish habitat, ESA-listed species, marine mammals, seabirds, or marine ecosystems), fishing communities, fishing safety or consumers have been identified that would occur as a result of the proposed action. The proposed action, in combination with other actions, may have additional economic effects on sectors participating in the GOA Pacific cod fishery. In recent years, several regulatory changes implemented to protect Steller sea lions have had economic effects on participants in the GOA Pacific cod fisheries. Several reasonably foreseeable future actions are expected to have additional social and economic effects on these sectors, including GOA fixed gear LLP recency, GOA and BSAI trawl LLP recency, and possible revisions to the GOA Pacific cod sideboards. The potential interaction of sector allocations with these pending and potential actions is discussed in Chapter 3.

3 REGULATORY IMPACT REVIEW

This chapter provides information on the economic and socioeconomic impacts of the alternatives, as required by Executive Order 12866 (E.O. 12866). This chapter includes a description of the current Gulf of Alaska Pacific cod fishery, an analysis of the potential effects of the proposed action on the fishery, identification of the individuals or groups that may be affected by the action, and a discussion of the nature of those impacts (quantifying the economic impacts where possible) and potential tradeoffs.

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.

This section addresses the requirements of E.O. 12866 to provide adequate information to determine whether an action is "significant" under E.O. 12866. The order 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.

3.1 Description of the Gulf of Alaska Pacific cod fisheries

Pacific cod is the second most dominant species (after pollock) in the commercial groundfish catch in the Gulf of Alaska. Of the remaining open access fisheries in the GOA, Pacific cod is one of the most valuable species, and is the primary species targeted by the fixed gear sectors. The GOA Pacific cod resource is targeted by multiple gear and operation types, principally by pot, trawl, and hook-and-line catcher vessels, and hook-and-line catcher processors. Smaller amounts of cod are taken by other sectors, including catcher vessels using jig gear. About 15% of the total commercial Pacific cod catch off Alaska is harvested in the Gulf of Alaska, with the remaining 85% harvested in the Bering Sea and Aleutian Islands.

Table 3-1 Pacific cod catch by gear type in the Federal and State fisheries in the Gulf of Alaska, total allowable catch (TAC), and acceptable biological catch (ABC), 1985-2006

Year	Federal					Federal TAC	State		Total catch	ABC
	Trawl	Longline	Pot	Other	Total		Pot	Jig		
1985	4,876	9,411	2	139	14,428	60,000	n/a	n/a	14,428	n/a
1986	6,850	17,619	141	402	25,012	75,000	n/a	n/a	25,012	136,000
1987	22,486	8,261	642	1,550	32,939	50,000	n/a	n/a	32,939	125,000
1988	27,145	3,933	1,422	1,302	33,802	80,000	n/a	n/a	33,802	99,000
1989	37,637	3,662	376	1,618	43,293	71,200	n/a	n/a	43,293	71,200
1990	59,188	5,919	5,661	1,749	72,517	90,000	n/a	n/a	72,517	90,000
1991	58,093	7,656	10,464	115	76,328	77,900	n/a	n/a	76,328	77,900
1992	54,593	15,675	10,154	325	80,747	63,500	n/a	n/a	80,747	63,500
1993	37,806	8,962	9,708	11	56,487	56,700	n/a	n/a	56,487	56,700
1994	31,446	6,778	9,160	100	47,484	50,400	n/a	n/a	47,484	50,400
1995	41,706	10,779	15,525	74	68,084	69,200	n/a	n/a	68,084	69,200
1996	46,042	10,081	11,973	53	68,150	65,000	n/a	n/a	68,150	65,000
1997	48,415	10,665	8,759	17	67,856	69,115	7,322	1,072	76,250	81,500
1998	41,452	9,653	10,383	16	61,504	66,060	9,189	1,234	71,926	77,900
1999	37,166	11,980	18,718	63	67,927	67,835	12,321	1,461	81,708	84,400
2000	25,441	11,500	17,274	50	54,266	58,715	10,399	1,638	66,303	76,400
2001	24,382	9,825	7,171	155	41,532	52,110	7,841	2,076	51,449	67,800
2002	19,809	14,627	7,694	176	42,306	44,230	10,505	1,706	54,516	57,600
2003	18,913	9,475	12,675	90	41,152	40,540	8,132	3,291	52,575	52,800
2004	17,472	10,317	14,884	345	43,017	48,033	10,874	2,731	56,622	62,810
2005	14,509	5,730	14,684	203	35,127	44,433	10,020	2,694	47,840	58,100
2006	13,111	10,167	14,412	118	37,807	52,264	9,648	690	48,145	68,859
2007	14,746	11,411	13,523	41	39,721	52,264	10,576	674	50,971	68,859

Source: 2006 Groundfish SAFE Report, Pacific cod stock assessment (Thompson et al., 2006), NMFS Blend and Catch Accounting databases (1995-2007 federal catch), and Sagalkin (2007) (State catch).

In the Gulf of Alaska, trawl landings of Pacific cod peaked in 1990 and 1991 at nearly 60,000 mt per year, and declined to just 14,746 mt in 2007 (see Table 3-2). Harvests by hook-and-line vessels peaked in the early 1980s at more than 25,000 mt per year. Since 1990, longline harvests have fluctuated between 6,000 and 15,000 mt per year. Vessels using pot and jig gear began to make significant landings in the early 1990s. Pot and jig landings increased substantially when the State waters Pacific cod fishery, which only allows the use of pot and jig gear, was initiated in 1997. Since 2003, vessels using pot gear have harvested a larger share of Gulf of Alaska Pacific cod than the trawl or hook-and-line sectors. Total catch of Pacific cod peaked in 1999 at 81,708 mt, and declined to 50,971 mt in 2007. Total federal catch as a percentage of the federal TAC has generally declined since Steller sea lion regulations went into effect in 2001.

Fishing effort for Pacific cod is widely distributed along the shelf edge in the Gulf of Alaska. Trawl effort was also located near Chirikof, Cape Barnabus, Cape Chiniak, and Marmot Flats. The hook-and-line fishery primarily occurs at depths of 25 to 140 fathoms over gravel, cobble, mud, sand, and rocky bottoms (Livingston et al. 2002). Figure 3-1 through Figure 3-12 indicate the location of Pacific cod fishing effort by hook-and-line, pot, and trawl gear during 1995-2000 and 2001-2006, when an observer was onboard.

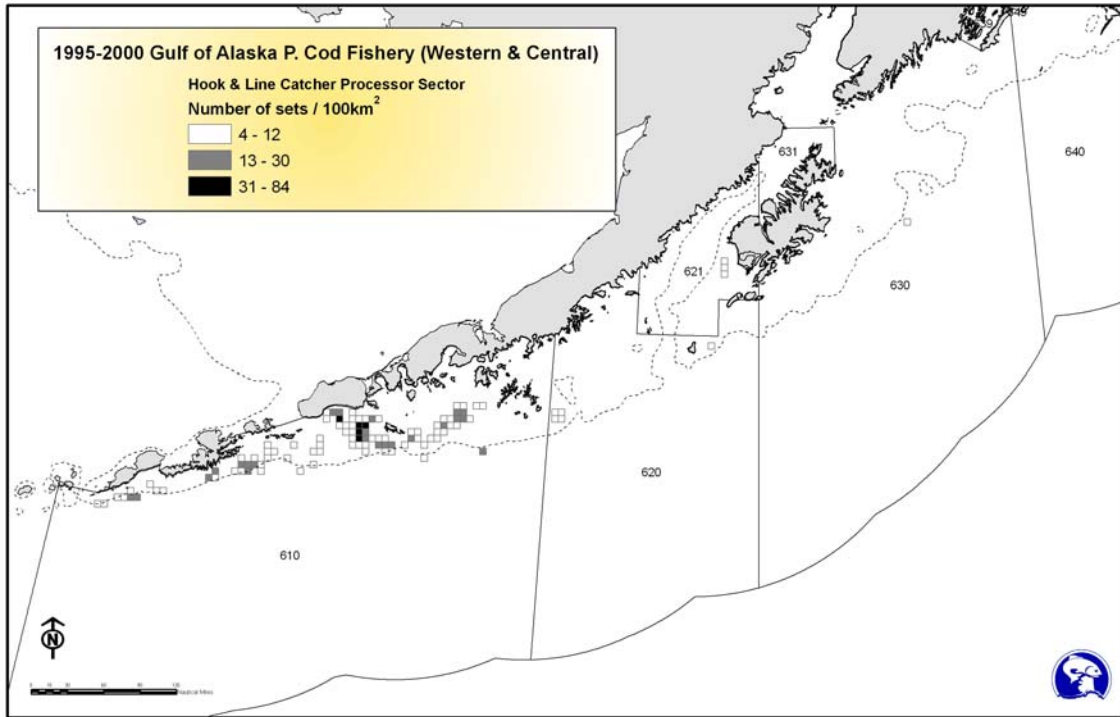


Figure 3-1 Location of observed hook-and-line catcher processor Pacific cod fishing activity, 1995–2000

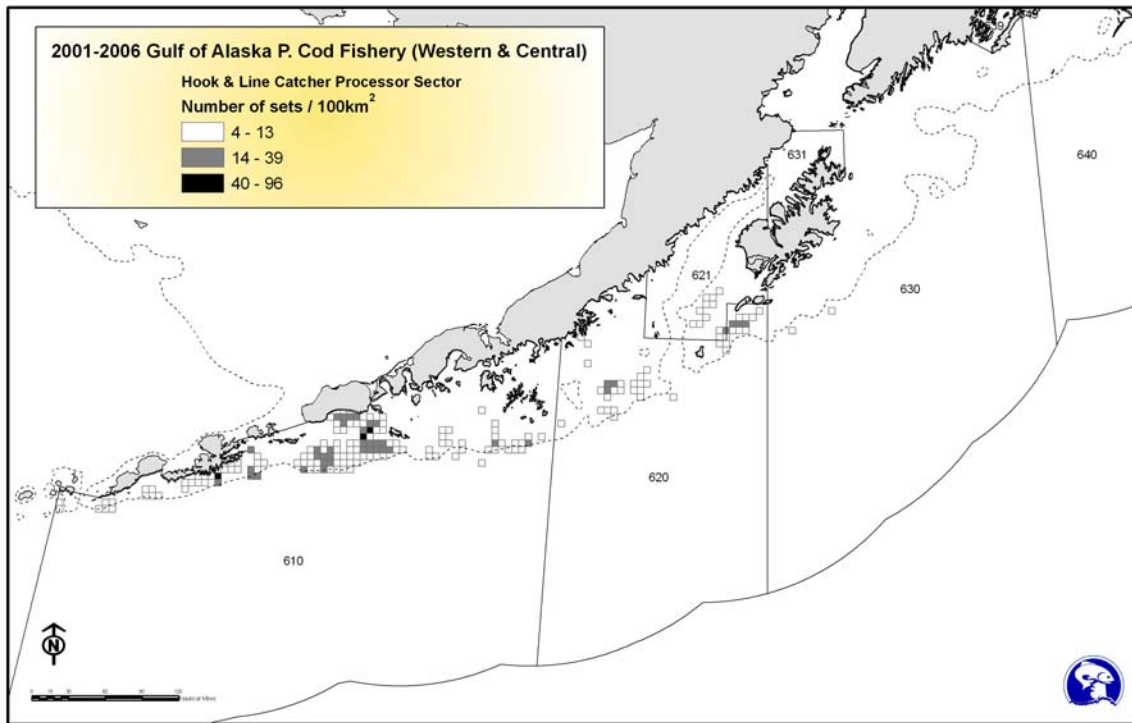


Figure 3-2 Location of observed hook-and-line catcher processor Pacific cod fishing activity, 2001-2006

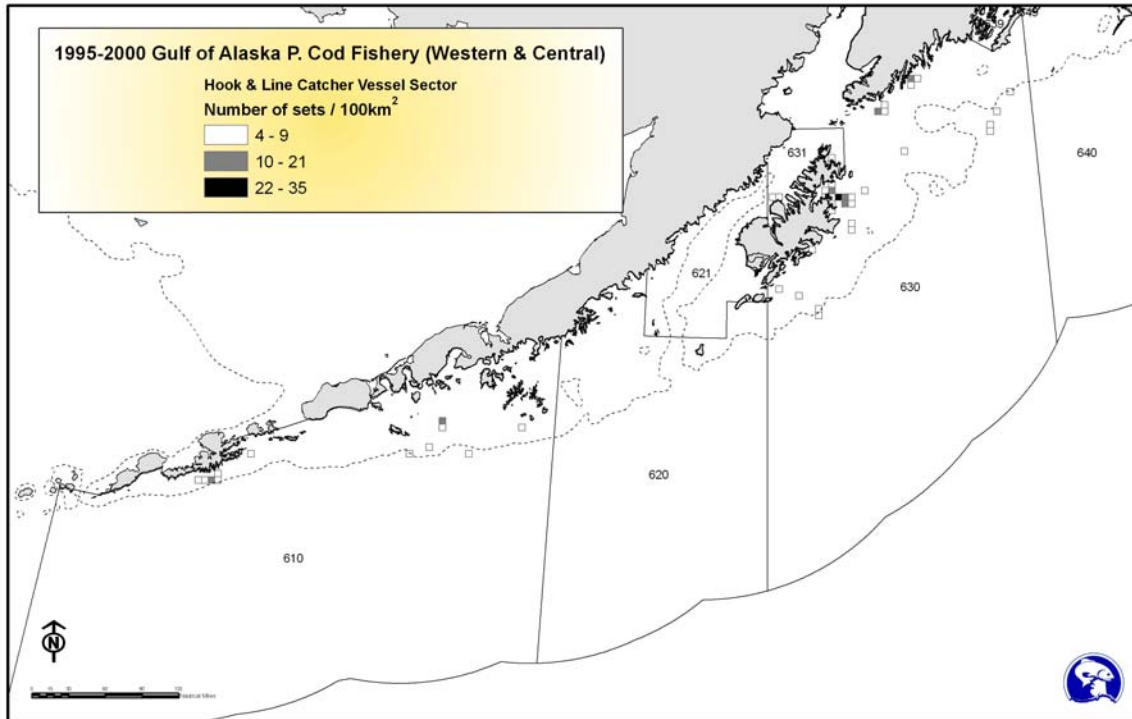


Figure 3-3 Location of observed hook-and-line catcher vessel Pacific cod fishing activity, 1995-2000

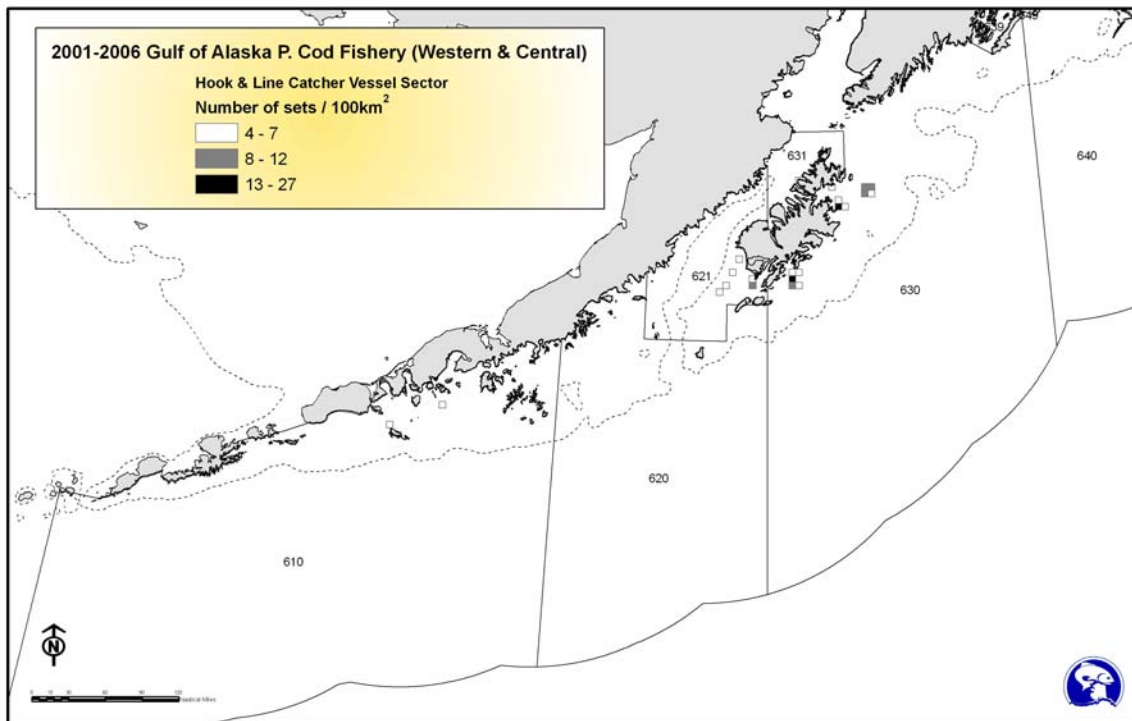


Figure 3-4 Location of observed hook-and-line catcher vessel Pacific cod fishing activity, 2001-2006

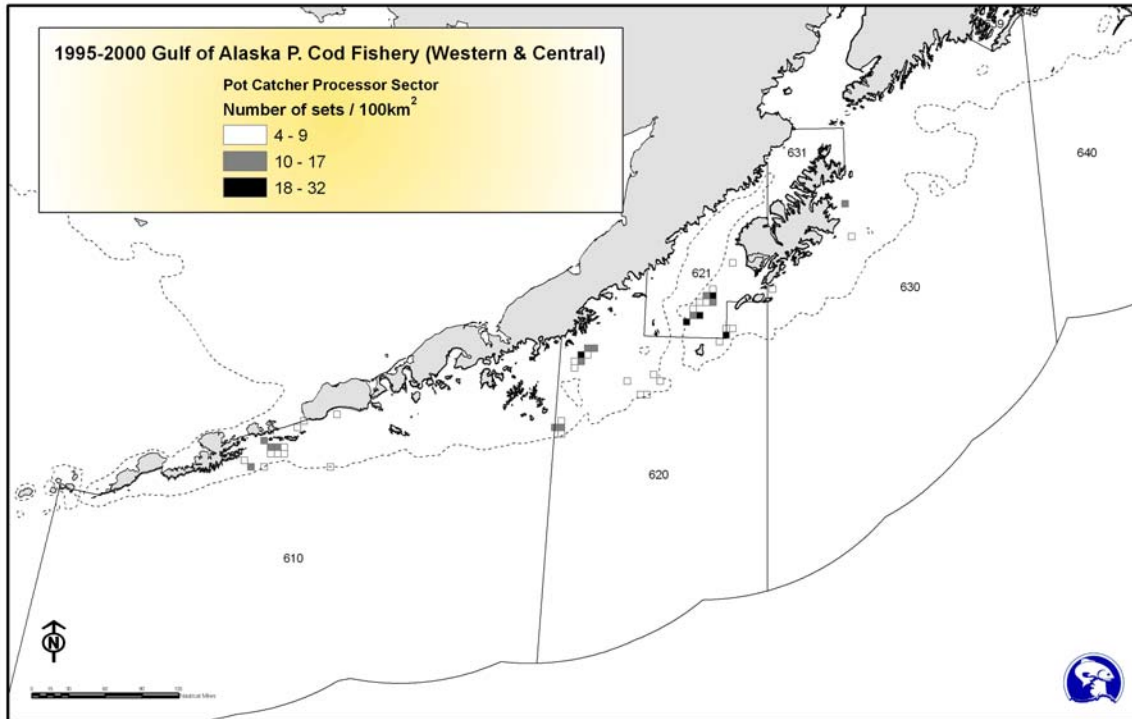


Figure 3-5 Location of observed pot catcher processor Pacific cod fishing activity, 1995-2000

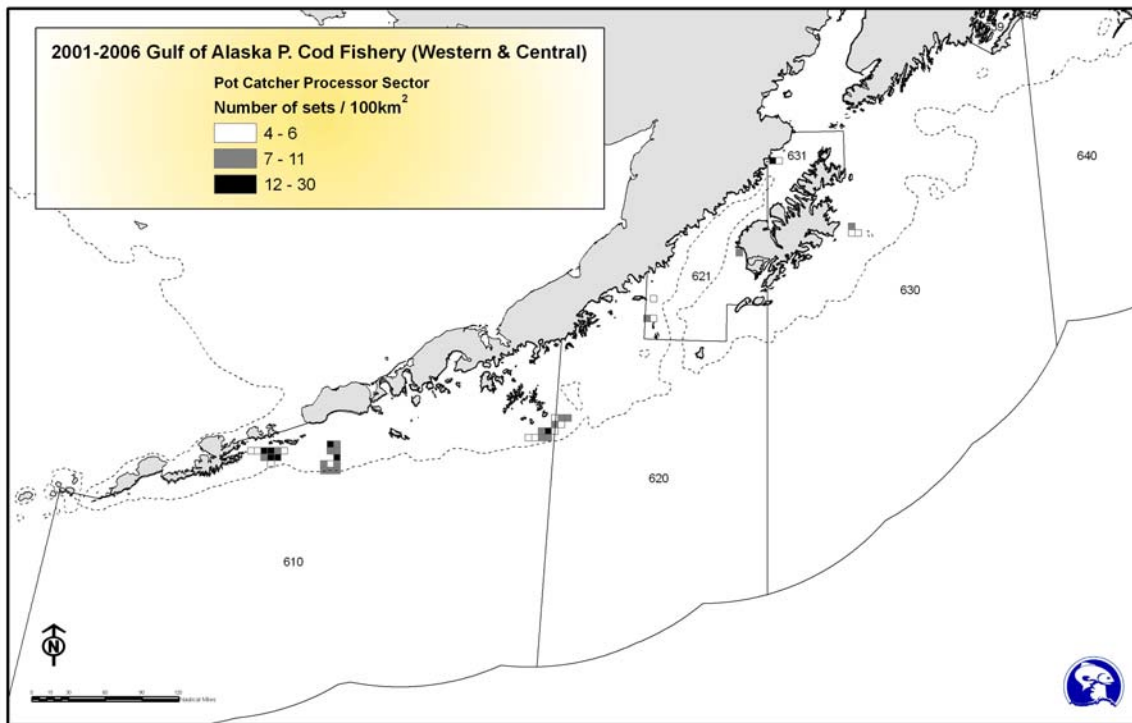


Figure 3-6 Location of observed pot catcher processor Pacific cod fishing activity, 2001-2006

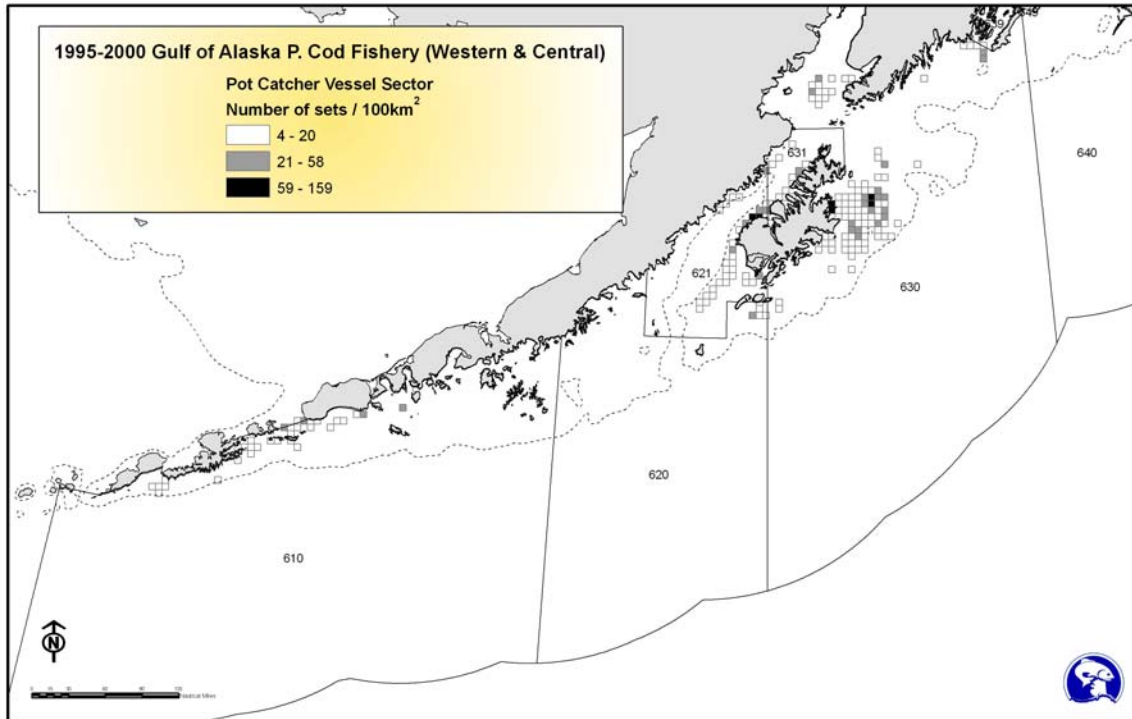


Figure 3-7 Location of observed pot catcher vessel Pacific cod fishing activity, 1995-2000

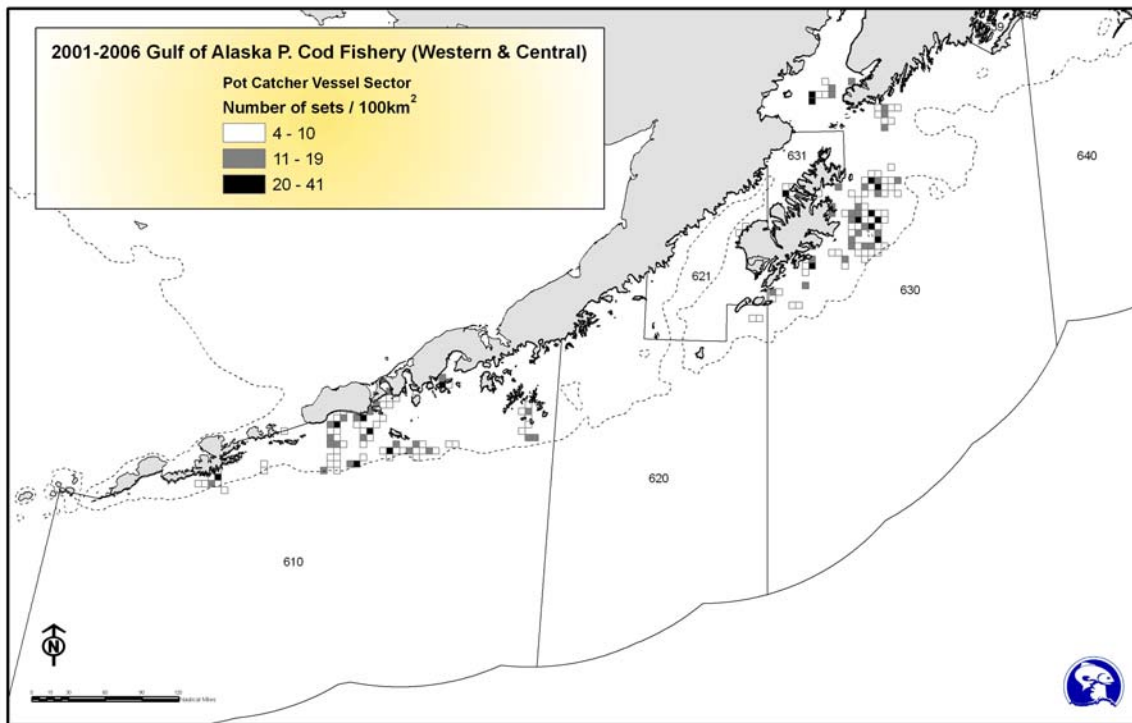


Figure 3-8 Location of observed pot catcher vessel Pacific cod fishing activity, 2001-2006

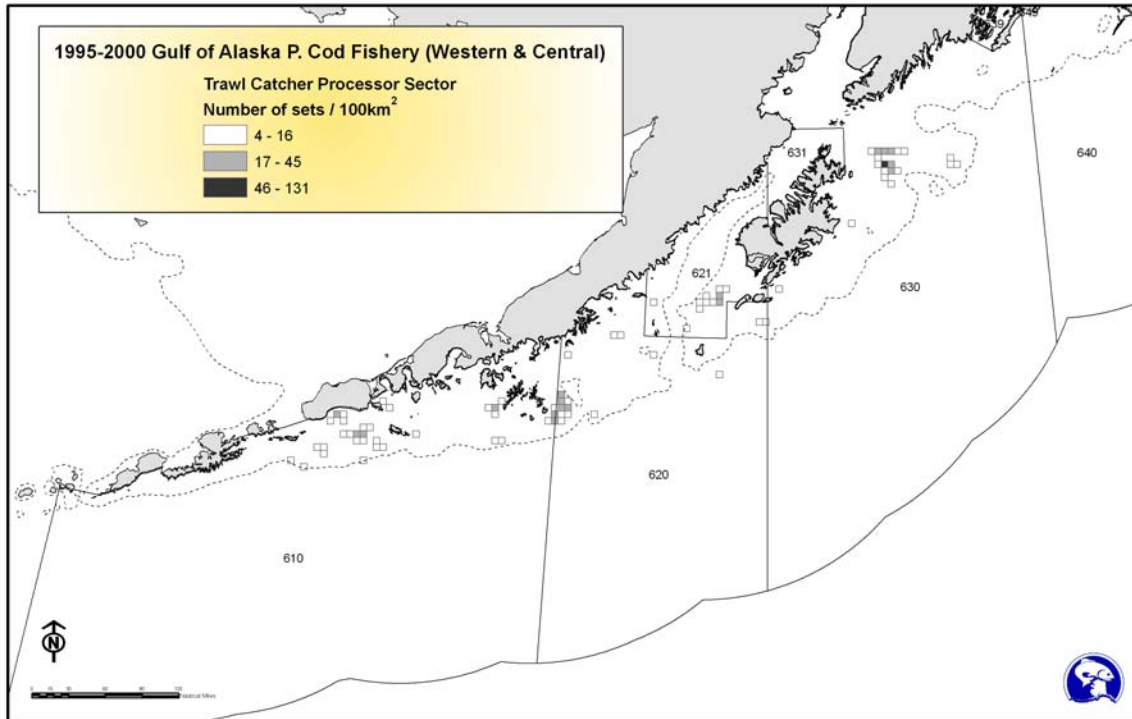


Figure 3-9 Location of observed trawl catcher processor Pacific cod fishing activity, 1995-2000

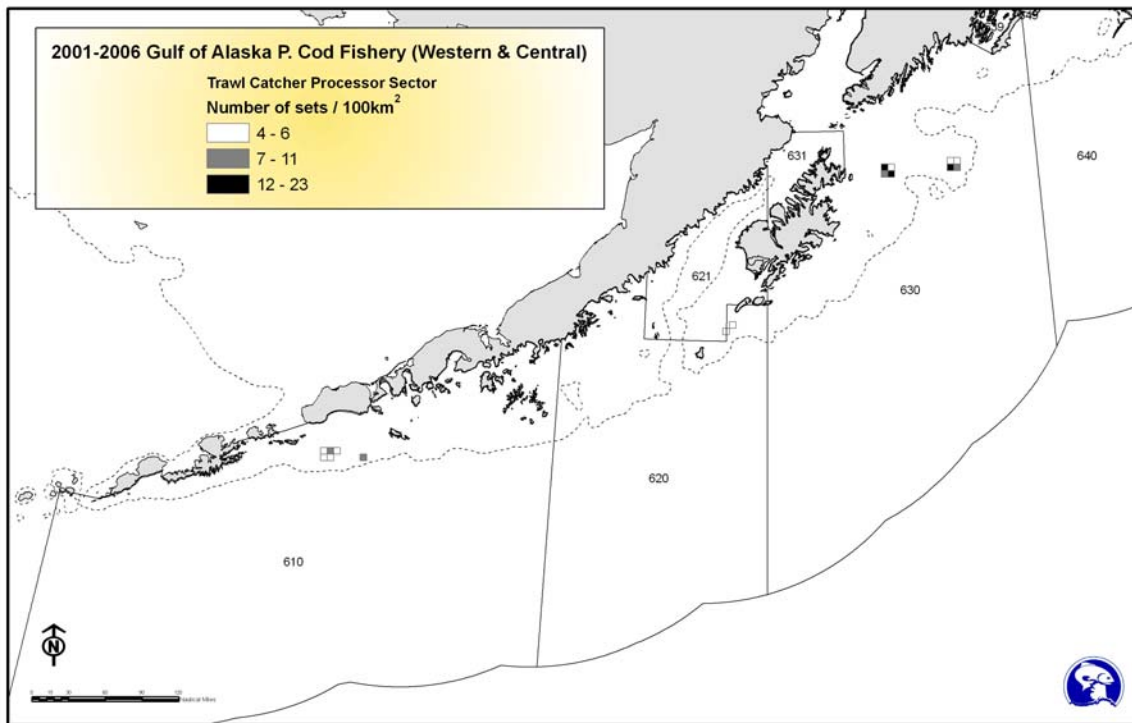


Figure 3-10 Location of observed trawl catcher processor Pacific cod fishing activity, 2001-2006

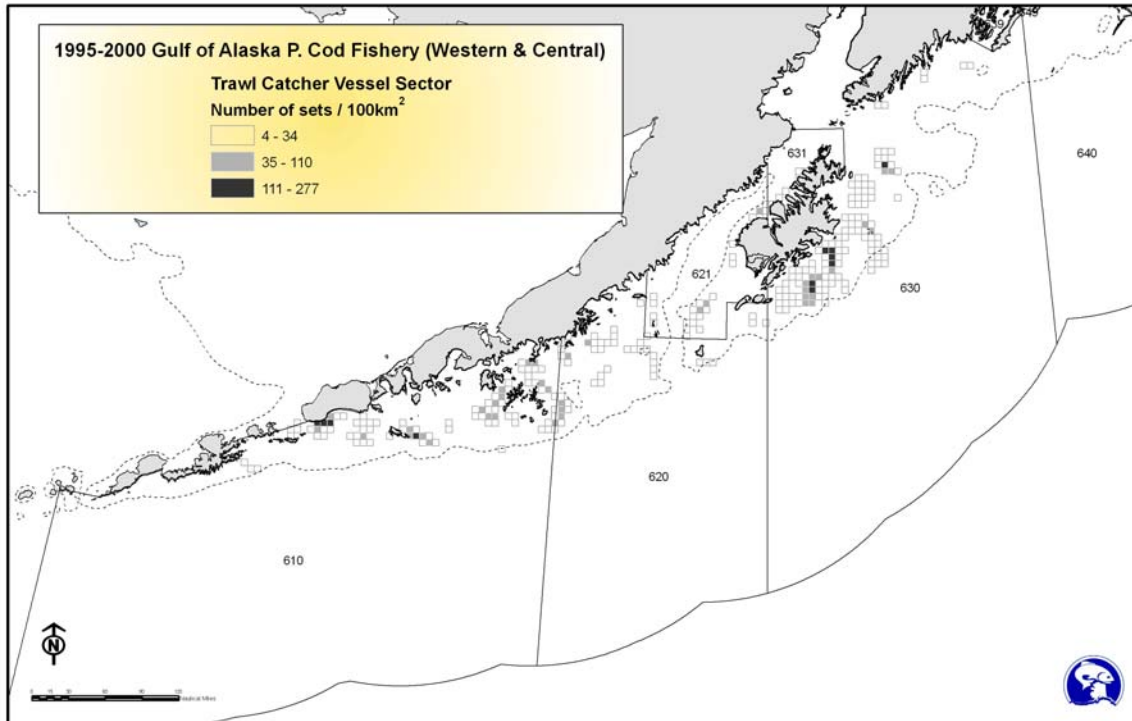


Figure 3-11 Location of observed trawl catcher vessel Pacific cod catch, 1995-2000

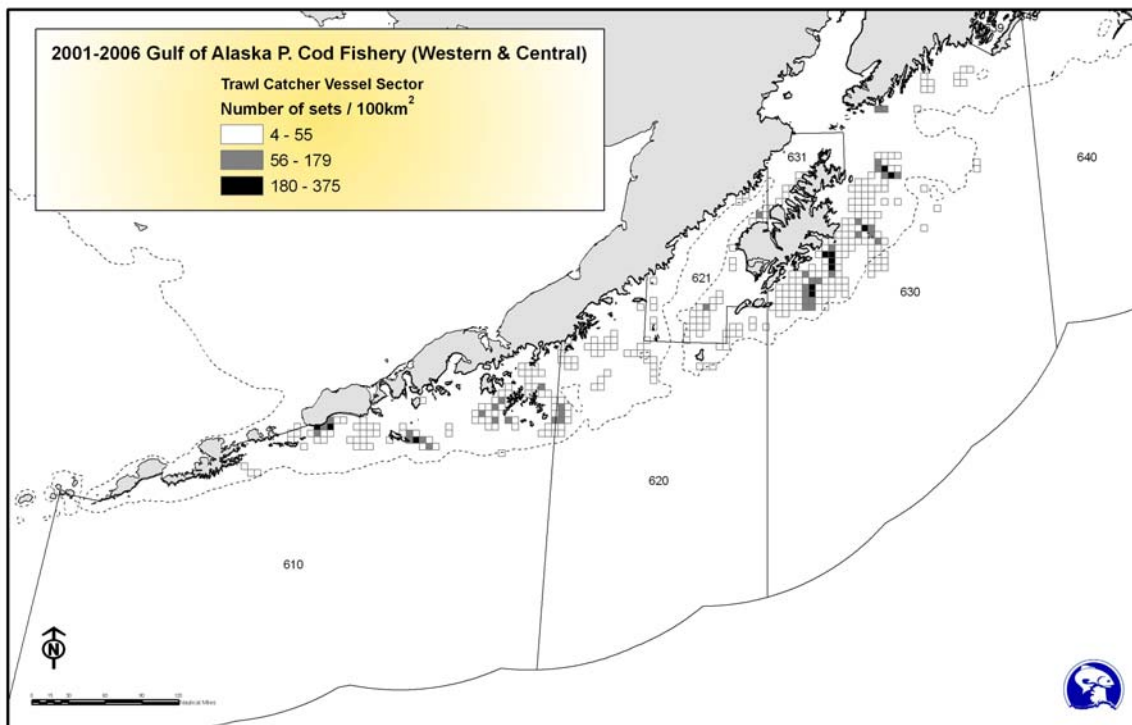


Figure 3-12 Location of observed trawl catcher vessel Pacific cod catch, 2001-2006

Additional descriptions of the Gulf of Alaska Pacific cod fisheries are included in the Groundfish Economic Stock Assessment and Fishery Evaluation (SAFE) report (Hiatt et al. 2007) and the Groundfish PSEIS (NOAA 2004a). The SAFE document includes information on catch and revenues from the fisheries, the numbers and sizes of fishing vessels and processing plants, and other economic variables that describe or relate to the performance of the fisheries.

3.1.1 Management of the Pacific cod fisheries in the Gulf of Alaska

Three separate area TACs are identified for Pacific cod in the Western Gulf, Central Gulf, and Eastern Gulf management subareas. Final 2008 harvest specifications apportioned 57 percent of the Gulf catch to the Central Gulf (28,426 mt), 39 percent to the Western Gulf (19,449 mt), and 5 percent to the Eastern Gulf (2,394 mt). The GOA Pacific cod TACs are not divided among gear types, but are apportioned to the inshore and offshore processing sectors, with 90 percent allocated to the inshore component and 10 percent to the offshore component. In addition, the TACs are apportioned seasonally, with 60 percent of the TACs allocated to the A season and 40 percent to the B season. The A and B seasons were implemented in 2001 as a Steller sea lion protection measure. The A season begins on January 1 for fixed gear vessels, and on January 20 for trawl vessels. The A season ends on June 10, but NMFS usually closes the season much earlier when the directed fishing allowance has been harvested. The B season begins on September 1 for all gear types, and ends November 1 for trawl vessels and December 31 for fixed gear vessels. However, the B season usually closes much earlier for the trawl sector, and often closes earlier for the hook-and-line sector as well, due to PSC halibut restrictions. The total allowable catch (TAC), actual catch, and percentage of TAC harvested in the federal Pacific cod fisheries in the Western and Central GOA are summarized in Table 3-2.

Table 3-2 Total catch of Pacific cod in the federal Pacific cod fisheries in the Western and Central Gulf of Alaska, 1995-2006

Year	Western Gulf			Central Gulf		
	Total catch	Federal TAC	Percent of TAC harvested	Total catch	Federal TAC	Percent of TAC harvested
1995	22,516	20,100	112.0	45,465	45,650	99.6
1996	19,823	18,850	105.2	47,589	42,900	110.9
1997	23,949	24,225	98.9	43,678	43,690	100.0
1998	19,817	23,170	85.5	41,424	41,720	99.3
1999	23,158	23,630	98.0	44,554	42,935	103.8
2000	21,867	20,625	106.0	32,188	34,080	94.4
2001	14,161	18,300	77.4	27,324	30,250	90.3
2002	17,168	16,849	101.9	25,057	24,790	101.1
2003	16,235	15,450	105.1	24,828	22,690	109.4
2004	15,554	16,957	91.7	27,350	27,116	100.9
2005	12,408	15,687	79.1	22,705	25,086	90.5
2006	14,743	20,141	73.2	23,029	28,405	81.1
2007	13,401	20,141	66.5	25,985	28,405	91.5

Source: NMFS Blend (1995-2002) and Catch Accounting (2003-2007) databases.

Inseason managers monitor catch in the fisheries and time the closure of the directed fisheries to allow full harvest of the TAC. To meet that goal, the closure must be timed to leave only enough of the TAC to support incidental catch in other fisheries during the remainder of the season. Managers attempt to time the A season closure to leave a sufficient portion of the A season TAC available for incidental catch by other directed fisheries. Incidental catch continues to account to the A season TAC until the A season ends on June 10. Any A season overage or incidental catch between the end of the A season (June 10) and the beginning of the B season (September 1) counts toward the B season TAC. Incidental catch when the directed fisheries are closed is limited to a maximum retainable allowance (MRA). The MRA limits

the amount of non-directed species catch that may be retained to a percentage of directed species catch. For Pacific cod, the MRA with respect to all directed species, with the exception of arrowtooth flounder, is 20 percent. The MRA for Pacific cod in the directed arrowtooth flounder fishery in the Gulf is 5 percent. When Pacific cod is not open for directed fishing, a vessel may retain Pacific cod up to the amount of the MRA.² Any Pacific cod caught in excess of the MRA must be discarded. Pacific cod is also an Improved Retention/Improved Utilization Species. Thus, all catch must be retained when the fisheries are open for directed fishing, and all catch up to the MRA must be retained when the fisheries are closed to directed fishing.

Entry to the GOA Pacific cod fisheries in federal waters has been restricted under the License Limitation Program (LLP) since 2000. The number of Gulf of Alaska LLPs is summarized in Table 3-17. Catcher processors and motherships participating in the directed Pacific cod fisheries must make an annual election to participate in either the inshore or offshore processing component. The inshore component is comprised of shore plants, stationary floating processors, and vessels less than 125 feet in length that process less than 126 metric tons (round weight) per week of pollock and Pacific cod in the aggregate. The directed fisheries for Pacific cod in state waters (0 to 3 nm) are open concurrently with the directed fisheries in federal waters (3 to 200 nm). These fisheries in State waters (referred to as the ‘parallel fisheries’) are prosecuted under the same rules as the federal fisheries, with catch counted against the federal TAC. In addition, beginning in 1997 the State of Alaska has managed its own Pacific cod fisheries inside of 3 nm (referred to as the ‘State waters fisheries’), which is allocated a portion of the federal TAC.

3.1.2 State waters Pacific cod fisheries in the Gulf of Alaska

The Council requested a description of the State waters Pacific cod fisheries in the GOA, and a discussion of the possible interactions between the State waters fisheries and the federal and parallel waters fisheries if Pacific cod sector allocations are implemented. In 1997, the State of Alaska began managing its own Pacific cod fisheries inside of 3 nm (referred to as the ‘State waters fishery’), which are allocated a portion of the federal acceptable biological catch (ABC). State fisheries are managed under a guideline harvest level (GHL), which limits total catch in the fishery in a manner similar to the federal TAC. State waters GHLs are specified as a portion of the federal ABC and can be increased on an annual basis if the GHL is fully fished. In 1997, 15 percent of the ABC in each of the three Gulf management subareas was allocated to the State waters fisheries. State waters allocations in the Western and Central Gulf have increased to 25 percent of the ABC and are currently at the maximum level permitted by state regulation. Only 15 percent of the Eastern Gulf ABC is allocated to the state waters fishery (the regulatory minimum), because this allocation has not been fully utilized by the fishery (Table 3-3).

Table 3-3 Current allocations of Pacific cod to State waters fisheries in the Gulf of Alaska

Federal Management Area	State Management Area	Percent of Area ABC	Pot/Jig Allocation	Pot allocation as a percent of ABC	Jig allocation as a percent of ABC
Central Gulf	Cook Inlet	3.75%	75/25	2.81%	0.94%
	Chignik	8.75%	90/10	7.88%	0.88%
	Kodiak	12.50%	50/50	6.25%	6.25%
	Total Central Gulf	25%		16.94%	8.06%
Western Gulf	Alaska Peninsula	25%	85/15 ¹	21.25%	3.75%
Eastern Gulf	Prince William Sound	15%	none	n/a	n/a

² Pacific cod catch is also retained in the halibut and sablefish IFQ program. Vessels fishing IFQ are required to retain Pacific cod up to the MRA, except if Pacific cod is on PSC status.

The Gulf of Alaska State waters Pacific cod fisheries are open only to pot and jig gear. The GHLS in each management area are allocated to the pot and jig sectors, and vessel size restrictions limit harvests by >58 ft LOA vessels in some areas or exclude them from participating in the fisheries. Currently, the Kodiak allocation is apportioned 50 percent to the pot sector and 50 percent to the jig sector. In the Kodiak management area, vessels \geq 58 feet LOA are capped at 25 percent of the GHL prior to September 1. The Cook Inlet allocation is apportioned 75 percent to the pot sector and 25 percent to the jig sector. The Chignik allocation is apportioned 90 percent to the pot sector and 10 percent to the jig sector, and the fishery is limited to vessels <58 feet LOA. The South Alaska Peninsula GHL is not allocated to the gear sectors, but the pot sector is capped at 85 percent of the GHL. In sum, the State waters fisheries allocate a total of 16.94 percent of the Central Gulf ABC to the pot sector and 8.06 percent of the Central Gulf ABC to the jig sector. In addition, the pot and jig sectors are allocated 21.25 percent and 3.75 percent, respectively, of the Western Gulf ABC (Table 3-3).

Catch in each State management area during 1997-2007 is reported in Table 3-4. Pot allocations have generally been fully harvested in all management areas. Jig harvests were relatively high during 2003-2005, but jig catch decreased substantially during 2006-2007. A combination of poor weather conditions, difficulty finding fish in State waters, and high operating costs contributed to low levels of jig effort during 2006-2007. Total catch was substantially below the GHLS in all four Western and Central Gulf management areas during 2006-2007. Most unharvested State waters quota was unused jig quota. In 2006, only 64 percent of the combined Western and Central Gulf GHLS were harvested, and nearly 6,000 mt of State waters was not harvested. Unused quota is rolled over to other sectors on August 15 (Chignik) or September 1 (Kodiak and Cook Inlet) if it is determined that an allocation will not be fully harvested. However, during 2005-2007, the parallel waters B season remained opened to vessels using fixed gear from September 1 until December 31. During these years, State managers did not have the opportunity to re-open the State waters season in the fall and roll over unused jig quota to the pot sector.

Table 3-4 Catch (mt) and percent of GHL harvested in GOA State waters Pacific cod fisheries

Year	Jig catch	Pot catch	Total catch	GHL	Percent of GHL harvested	Jig catch	Pot catch	Total catch	GHL	Percent of GHL harvested
KODIAK						COOK INLET				
1997	898	2,533	3,431	3,856	89%	255	128	383	1,134	34%
1998	959	2,896	3,856	3,674	105%	87	249	336	1,089	31%
1999	1,041	3,828	4,869	5,307	92%	57	631	688	1,179	58%
2000	1,277	2,608	3,884	5,443	71%	6	515	521	998	52%
2001	569	1,659	2,228	4,808	46%	9	397	406	862	47%
2002	630	3,373	4,003	3,946	101%	8	508	516	726	71%
2003	1,447	2,248	3,696	3,629	102%	195	464	659	635	104%
2004	1,909	2,631	4,540	4,491	101%	147	838	985	1,089	90%
2005	2,073	1,804	3,877	4,128	94%	47	1011	1,058	1,225	86%
2006	656	2,214	2,870	4,717	61%	*	*	608	1,406	43%
2007	565	2,339	2,904	4,717	62%	n/a	n/a	n/a	1,406	n/a
CHIGNIK						ALASKA PENINSULA				
1997	16	498	514	2,676	19%	158	4,162	4,320	4,264	101%
1998	76	2,327	2,403	2,586	93%	199	3,716	3,915	4,082	96%
1999	99	2,820	2,919	3,719	78%	321	5,042	5,362	5,897	91%
2000	17	797	814	3,039	27%	344	6,480	6,824	6,849	100%
2001	130	1,058	1,188	2,722	44%	1,376	4,727	6,103	6,078	100%
2002	147	1,771	1,918	2,223	86%	928	4,853	5,777	5,625	103%
2003	196	1,830	2,026	2,041	99%	1,647	3,590	5,237	5,171	101%
2004	64	2,537	2,601	2,631	99%	758	4,869	5,626	5,670	99%
2005	63	2,597	2,661	2,903	92%	558	4,608	5,165	6,713	99%
2006	*	*	1,560	3,311	47%	34	5,267	5,301	6,713	79%
2007	0	2,596	2,596	3,311	78%	109	5,641	5,750	6,713	86%

Source: Kodiak, Chignik, and South Alaska Peninsula management areas (Sagalkin, 2006). Cook Inlet (ADFG Fish Tickets).

In the Kodiak and South Alaska Peninsula areas, the State waters Pacific cod fisheries open 7 days after the federal A season closes (Table 3-5). The Cook Inlet fishery opens 24 hours after the inshore Central Gulf A season closes, and the Chignik fishery opening date is set in regulation on March 1. There is no overlap between the parallel and State waters seasons in the Kodiak, Cook Inlet, and South Alaska Peninsula areas. There is potential for the seasons to overlap in the Chignik area. The Western Gulf inshore A season generally closes before March 1, although in 2007, the inshore A season closed on March 8. As a result, the parallel and State waters season overlapped for one week. The State waters fisheries have opened as early as January 27, but typically open in early March.

Within each state management area, pot and jig seasons currently open on the same day. Under the proposed GOA Pacific cod sector allocations, there may be timing conflicts between the federal and State seasons if the federal jig and pot seasons no longer close on the same date. If one sector has to wait for the other to finish fishing its federal allocation, opening of the State waters fisheries could potentially be delayed. Coordinating the timing of the pot and jig A season closures is important because the majority of vessels that fish during the federal GOA Pacific cod seasons using pot or jig gear also participate in the State waters Pacific cod fisheries. More than half of the vessels that fish the federal pot season also fish the state pot season, and the majority of State waters pot catch is by vessels that also fish the federal season (Table 3-6). Most of the relatively few vessels that fish the federal jig season also participate in the State waters jig fisheries, and these vessels have generally harvested 20 to 40 percent of the State waters jig catch. Inclement weather conditions during the A season (January/February) and again during the B season probably limit participation by jig vessels during the federal Pacific cod seasons.

Table 3-5 Recent season opening dates of the GOA Pacific cod State waters fisheries

Year	Kodiak		Chignik		Cook Inlet		Alaska Peninsula	
	Jig	Pot	Jig	Pot	Jig	Pot	Jig	Pot
2003	10-Feb	10-Feb	1-Mar	1-Mar	10-Feb	10-Feb	24-Feb	24-Feb
2004	1-Feb	1-Feb	1-Mar	1-Mar	1-Feb	1-Feb	2-Mar	2-Mar
2005	27-Jan	27-Jan	1-Mar	1-Mar	27-Jan	27-Jan	3-Mar	3-Mar
2006	1-Mar	1-Mar	1-Mar	1-Mar	1-Mar	1-Mar	9-Mar	9-Mar
2007	6-Mar	6-Mar	1-Mar	1-Mar	21-Feb	21-Feb	15-Mar	15-Mar

The Council is considering measures to ensure continuity in the federal and state pot and jig seasons that allow both sectors access to their allocations and minimize the amount of stranded quota. The Council requested that staff work with ADFG and NMFS to discuss options for creating a workable jig fishery that minimizes the amount of stranded quota in both the federal and State waters jig fisheries. Options could include consolidating the federal and State waters jig allocations and managing them jointly to facilitate more efficient and effective management of the fishery while maximizing access to the resource. Options for management of the jig fishery could include:

- Option 1 State managed fishery, where the State would manage the federal jig allocation out to 200 miles under delegated management authority.
- Option 2 Federally managed fishery, where NMFS would manage the federal jig allocation (potentially in combination with the current State waters jig allocation).
- Option 3 Separate federal and State waters jig allocations and seasons.

These options are discussed in Section 3.2.6 of this document.

Table 3-6 Number of vessels participating in the GOA Pacific cod fisheries in State waters (State) and parallel and federal waters (Federal), and percentage of State waters catch by participants in federal seasons

	Year	Number of jig vessels		Number of pot vessels		Percent of State waters catch by vessels fishing federal season	
		Federal	State	Federal	State	Jig	Pot
Western Gulf	1997	5	34	36	55	20%	48%
	1998	3	25	64	58	0%	57%
	1999	0	26	53	59	0%	36%
	2000	4	29	81	66	9%	45%
	2001	17	73	46	60	13%	43%
	2002	30	74	48	60	28%	54%
	2003	11	69	60	48	12%	81%
	2004	23	57	81	52	27%	92%
	2005	6	45	59	47	21%	81%
	2006	1	12	51	45	*	68%
Central Gulf	1997	14	111	61	56	13%	77%
	1998	16	121	61	85	15%	69%
	1999	9	124	85	124	14%	58%
	2000	17	142	114	103	13%	85%
	2001	15	82	62	56	14%	74%
	2002	7	62	45	50	14%	76%
	2003	12	125	35	65	15%	65%
	2004	35	146	35	74	36%	59%
	2005	28	130	47	76	40%	58%
	2006	24	78	59	62	45%	65%

Source: ADFG Fish Tickets

Table 3-7 Percent of pot vessels participating in the GOA State waters Pacific cod fisheries that had groundfish LLP licenses at the time of landing, and percent of State waters catch by these vessels, averaged from 2002-2006

	Year	Pot	
		Percent of vessels with LLPs	Percent of catch by vessels with LLPs
Central Gulf	2002-2006 average	75%	83%
Western Gulf	2002-2006 average	91%	88%

Source: ADFG Fish Tickets and RAM groundfish LLP license file, January 2008.

3.1.3 Halibut Prohibited Species Catch

Halibut prohibited species catch allowances are currently allocated separately to the Gulf of Alaska trawl and hook-and-line sectors, according to the guidelines outlined in 50 CFR 679.21(d). Halibut PSC allowances are not apportioned by management subarea within the Gulf of Alaska. The 2008 PSC allowances for the Gulf of Alaska Pacific cod trawl and hook-and-line fisheries are shown in Table 3-8. The pot and jig sectors are exempt from halibut PSC limits. The Gulf-wide halibut PSC allowance is 2000 mt for the trawl sector and 300 mt for the hook-and-line sector (including 10 mt set aside for the demersal shelf rockfish fishery).

The hook-and-line allowance is divided into three seasons: January 1 to June 10 (the A season for Pacific cod), June 10 to September 1, and September 1 to December 31 (the B season for Pacific cod). The trawl allowance is divided not only seasonally, but also between the shallow-water species complex (including the pollock, Pacific cod, shallow-water flatfish, flathead sole, Atka mackerel, skates, and the “other species” directed fisheries) and the deep-water species complex (all other fisheries, which includes Pacific

Ocean perch, northern rockfish, pelagic shelf rockfish, and deep-water flatfish). Halibut bycatch during the directed Pacific cod fishery is counted against the shallow-water trawl halibut PSC apportionment. This apportionment is divided into four seasons: January 20 to April 1, April 1 to July 1, July 1 to September 1, and September 1 to October 1. In addition, a separate apportionment that is not divided between the shallow-water and deep-water complexes is available for use from October 1 to December 31. Any unused halibut PSC quota during one season is rolled over to the following season. Halibut PSC limits often determine season closure dates for the trawl sector, and to a lesser extent, for the hook-and-line sector. The Council is considering options to allocate the hook-and-line halibut PSC apportionment to the hook-and-line catcher vessel and catcher processor sectors. These options are discussed later in this document.

Table 3-8 Halibut prohibited species catch seasonal allowances in the Gulf of Alaska, 2008

Trawl		Hook-and-line			
		Other than Demersal Shelf Rockfish		Demersal Shelf Rockfish	
Dates	Amount (mt)	Dates	Amount (mt)	Dates	Amount
Jan 20 - Apr 1	550 (27.5%)	Jan 1 - Jun 10	250 (86%)	Jan 1 - Dec 31	10 (100%)
Apr 1 - July 1	400 (20%)	Jun 10 - Sep 1	5 (2%)		
July 1 - Sep 1	600 (30%)	Sep 1 - Dec 31	35 (12%)		
Sep 1 - Oct 1	150 (7.5%)				
Oct 1 - Dec 31	300 (15%)				
Totals	2000		290		10

Source: NMFS 2008-2009 harvest specifications for the groundfish fisheries in the Gulf of Alaska.

Halibut PSC usage in the Gulf of Alaska Pacific cod target fisheries during 1995-2007 is summarized in Table 3-8. The table reports PSC by catcher vessels and catcher processors in each harvest sector. The pot sector is not subject to PSC limits in the GOA, and halibut PSC by pot vessels is reported for informational purposes only. NMFS estimates halibut PSC based on observer estimates. Since 1990, all vessels larger than 60 ft LOA participating in the groundfish fisheries have been required to have observers onboard at least part of the time. The amount of observer coverage is based on vessel length, with 30 percent coverage required on vessels 60 ft to 125 ft LOA, 100 percent coverage on vessels larger than 125 ft LOA, and 100 percent coverage at shorebased processing facilities. There are no observer coverage requirements for vessels less than 60 ft LOA. Since January 2003, observer requirements for pot vessels >60 ft LOA have been modified such that these vessels are only required to have coverage on 30 percent of pots pulled for that calendar year, as opposed to 30 percent of fishing days. Most of the hook-and-line catcher vessel fleet in the GOA is comprised of vessels <60 ft LOA, and these vessels are unobserved. Halibut PSC for vessels <60 ft LOA is based on observer estimates from the 30 percent observed fleet.

Prohibited species catch limits for halibut apply to the hook-and-line and trawl sectors and constrain bycatch levels. Inseason managers monitor halibut PSC in the Pacific cod fisheries and close the directed fisheries if halibut PSC limits are reached. After such a closure, the directed fisheries are typically reopened when the next seasonal apportionment of halibut PSC becomes available. In recent years, managers have frequently closed the directed trawl fisheries due to halibut PSC limits, particularly during the B season, and have occasionally closed the hook-and-line fisheries when PSC limits were reached. In 2005, the trawl A season was closed when the halibut PSC limit was reached.

Table 3-9 Halibut prohibited species catch (PSC) (mt) by vessels targeting Pacific cod in the Western and Central Gulf of Alaska

Western Gulf										
Year	HAL CV	HAL CP	HAL Total	Trawl CV	Trawl CP	Trawl Total	Pot CV	Pot CP	Pot Total	Total
1995	0.2	87.6	87.8	122.3	12.7	135.0	2.2	*	2.2	225.0
1996	1.3	37.3	38.6	86.1	21.6	107.7	1.8	0.0	1.8	148.0
1997	*	41.1	41.1	90.5	0.7	91.3	1.1	0.0	1.1	133.4
1998	*	34.3	34.3	92.7	2.9	95.6	1.7	*	1.7	131.5
1999	*	142.3	142.3	376.8	31.9	408.6	0.4	3.4	3.8	554.8
2000	*	84.1	84.1	131.1	15.2	146.3	1.2	*	1.2	231.6
2001	0.3	122.0	122.3	77.9	32.9	110.9	0.9	0.4	1.3	234.4
2002	0.0	99.9	100.0	32.9	5.5	38.4	1.0	*	1.0	139.4
2003	0.9	98.3	99.3	43.9	21.6	65.5	5.7	*	5.7	170.5
2004	0.2	99.1	99.3	57.5	29.8	87.2	8.3	*	8.3	194.8
2005	6.3	33.6	39.9	24.6	*	24.6	7.5	*	7.5	71.9
2006	2.5	103.6	106.0	60.4	0.4	60.8	4.6	*	4.6	171.4
2007	9.0	84.8	93.8	41.9	9.7	51.6	5.2	*	5.2	150.6

Central Gulf										
Year	HAL CV	HAL CP	HAL Total	Trawl CV	Trawl CP	Trawl Total	Pot CV	Pot CP	Pot Total	Total
1995	254.0	16.5	270.5	294.2	42.7	336.8	15.3	0.0	15.3	622.7
1996	94.2	18.2	112.5	130.4	24.9	155.3	14.7	0.0	14.7	282.5
1997	70.2	*	70.2	446.6	65.7	512.3	8.4	0.0	8.4	590.8
1998	212.3	*	212.3	358.5	242.9	601.4	11.4	0.0	11.4	825.0
1999	167.5	9.2	176.7	678.0	147.5	825.5	12.3	24.7	37.1	1,039.3
2000	165.1	4.4	169.4	188.6	50.7	239.3	4.7	*	4.7	413.4
2001	143.9	*	143.9	529.6	149.7	679.3	2.7	0.5	3.2	826.4
2002	75.4	62.6	138.0	152.1	*	152.1	1.2	*	1.2	291.4
2003	74.6	10.8	85.4	367.1	*	367.1	3.4	0.0	3.4	455.9
2004	165.6	25.7	191.3	779.1	55.8	834.9	7.7	0.0	7.7	1,033.9
2005	157.6	*	157.6	594.1	33.1	627.2	25.4	0.0	25.4	810.1
2006	166.3	45.7	212.0	267.7	19.7	287.4	14.0	0.0	14.0	513.3
2007	158.7	33.0	191.8	428.2	*	428.2	12.8	*	12.8	632.7

Source: NMFS Catch Accounting PSC Database (2003-2007) and Blend PSC Database (1995-2002).

*Indicates data are confidential. Totals do not include confidential data.

3.1.4 Catch History in the Gulf of Alaska Pacific Cod Fisheries

The problem statement notes that one reason for allocating the Western and Central Gulf of Alaska Pacific cod TACs among sectors is that the fisheries are fully subscribed. Without sector allocations, future harvests by some sectors may increase and impinge on the historic levels of catch by other sectors. Currently, the Western and Central GOA Pacific cod TACs are apportioned between the inshore (90 percent) and offshore (10 percent) processing sectors. Inshore and offshore TACs are further apportioned between the A season (60 percent) and B season (40 percent). During some recent years, the GOA Pacific cod TACs have not been fully harvested. Inshore TACs have typically been fully harvested in the Central Gulf, but in the Western Gulf, only 68 percent of the inshore TAC was harvested in 2007 (see Table 3-10). All of the A season inshore TAC was harvested in 2007, but only 20 percent of the B season inshore TAC was harvested.

During recent years, a substantial proportion of the offshore TACs in both management areas have not been harvested. Inseason management has opened the offshore TACs concurrently with the inshore TACs, but has closed the offshore TACs when the BSAI Pacific cod A season fisheries have ended, to prevent the BSAI catcher processor fleet from directed fishing on the GOA offshore Pacific cod TACs. The reason for these closures is that the offshore TACs are relatively small and cannot support directed fishing by a large portion of the BSAI catcher processor fleet. In 2003, the offshore seasons were open to

this fleet, and there were substantial overages on the offshore A season TACs. Also, for trawl gear in the B season, high halibut PSC rates have either closed the trawl fisheries or only allowed for short openings. For hook-and-line gear in the B season, the fisheries have remained open until the halibut PSC limit is reached. Since 2006 the hook-and-line catcher processors have voluntarily stopped fishing before the hook-and-line PSC limit has been reached. This has allowed the remaining halibut PSC to support the hook-and-line catcher vessel fisheries. Therefore, NMFS has not announced directed fishing closures based on reaching the hook-and-line halibut PSC limit.

Table 3-10 Pacific cod catch and percent of the TAC harvested in the inshore and offshore sectors, 2001-2007

Area	Year	Inshore			Offshore		
		TAC	Catch	Percent harvested	TAC	Catch	Percent harvested
Western Gulf	2001	16,470	12,461	75.7	1,830	1,700	92.9
	2002	15,164	15,541	102.5	1,685	1,627	96.6
	2003	13,905	14,029	100.9	1,545	2,205	142.7
	2004	15,261	14,274	93.5	1,696	1,281	75.5
	2005	14,118	11,978	84.8	1,569	423	27.0
	2006	18,127	13,648	75.3	2,014	1,095	54.4
	2007	18,127	12,262	67.6	2,014	1,139	56.6
Central Gulf	2001	27,255	25,255	92.7	3,025	2,066	68.3
	2002	22,311	22,665	101.6	2,479	2,393	96.5
	2003	20,421	22,601	110.7	2,269	2,228	98.2
	2004	24,404	25,533	104.6	2,712	1,931	71.2
	2005	22,577	22,234	98.5	2,509	361	14.4
	2006	25,565	21,609	84.5	2,840	1,402	49.4
	2007	25,565	24,847	97.2	2,840	1,138	40.1

Source: NMFS Catch Accounting database (2003-2007) and Blend database (2001-2002).

Table 3-11 Pacific cod catch during the A and B seasons by the inshore and offshore sectors in the Western and Central Gulf, 2003-2007

Western Gulf												
Year	Inshore						Offshore					
	A season			B season			A season			B season		
TAC	Catch	Percent harvested	TAC	Catch	Percent harvested	TAC	Catch	Percent harvested	TAC	Catch	Percent harvested	
2003	8,343	10,057	120.5	5,562	3,972	71.4	927	2040	220.1	618	165	26.7
2004	9,157	10,536	115.1	6,104	3,738	61.2	1017	626	61.6	679	655	96.5
2005	8,471	10,298	121.6	5,647	1,686	29.9	941	123	13.1	628	300	47.8
2006	10,876	12,299	113.1	7,251	1,349	18.6	1208	666	55.1	806	429	53.2
2007	10,876	10,836	99.6	7,251	1,427	19.7	1208	643	53.2	806	497	61.7

Central Gulf												
Year	Inshore						Offshore					
	A season			B season			A season			B season		
TAC	Catch	Percent harvested	TAC	Catch	Percent harvested	TAC	Catch	Percent harvested	TAC	Catch	Percent harvested	
2003	12,253	15,679	128.0	8,168	6,922	84.7	1,361	1,440	105.8	788	908	115.2
2004	14,643	15,673	107.0	9,761	9,860	101.0	1,627	1,347	82.8	1,085	584	53.8
2005	13,547	12,688	93.7	9,660	9,660	100.0	1,414	91	6.4	1,003	270	26.9
2006	15,339	15,529	101.2	10,226	6,083	59.5	1,679	25	1.5	1,136	1,378	121.3
2007	15,339	15,234	99.3	10,226	9,613	94.0	1,704	43	2.5	1,136	1,096	96.5

Source: NMFS Annual Catch Reports, 2003-2007.

The A and B season TACs are not utilized equally (see Table 3-11). The A season TAC, which is harvested when Pacific cod are aggregated and roe peaks, is typically fully harvested. During recent years, A season catches have met or exceeded A season TACs in both the Western and Central Gulf. Most of these overages were the result of incidental catch after the A season closed to directed fishing, but prior to June 10, when the A season ends. Incidental catch between the A and B seasons is substantial, particularly by the inshore sector in the Central Gulf. Incidental catch made between the A and B season accounts to the B season TAC. During recent years, B season TACs have not been fully harvested. The trawl sector's B season typically ends in early October when the final trawl halibut PSC apportionment is used. During 2005-2007, the B seasons remained open to vessels using fixed gear until December 31, but inclement weather conditions, high operating costs, and difficulty finding fish limited B season harvests, particularly in the Western Gulf.

Table 3-12 Pacific cod A season closures for the Western and Central Gulf of Alaska, 2001-2007

Year	Western Gulf				Central Gulf			
	Inshore		Offshore		Inshore		Offshore	
	Date	Reason	Date	Reason	Date	Reason	Date	Reason
2001	27-Feb	TAC	24-May	TAC	4-Mar	TAC	24-May (TRW)	HAL
2002	26-Feb	TAC	9-Feb	TAC	9-Mar	TAC	25-Mar	TAC
2003	17-Feb	TAC	20-Mar	TAC	9-Feb	TAC	1-Feb	TAC
2004	24-Feb	TAC	8-Mar	TAC	31-Jan	TAC	2-Feb	TAC
2005	24-Feb	TAC	22-Feb	TAC	26-Jan	TAC	22-Feb	TAC
2006	23-Feb (TRW) ¹	HAL	19-Feb	TAC	23-Feb (TRW) ²	HAL	19-Feb	TAC
2007	8-Mar	TAC	14-Feb	TAC	27-Feb	TAC	14-Feb	TAC

1 Season closed to other gear groups on March 2 when TAC reached.

2 Season closed to other gear groups on Feb 28 when TAC reached.

Table 3-13 Pacific cod B season closures for the trawl and hook-and-line sectors in the Western and Central Gulf of Alaska, 2001-2007

Area	Year	Inshore				Offshore			
		Trawl		Hook-and-line		Trawl		Hook-and-line	
		Date	Reason	Date	Reason	Date	Reason	Date	Reason
Western Gulf	2001	21-Oct	HAL	21-Oct	HAL	4-Sep	HAL	4-Sep	HAL
	2002	13-Oct	HAL	3-Oct	TAC	23-Nov	TAC	3-Oct	TAC
	2003	12-Sep	HAL	not opened	TAC	25-Sep	TAC	not opened	TAC
	2004	1-Oct	HAL	1-Oct	HAL	2-Oct	HAL	2-Oct	HAL
	2005	1-Oct	HAL	1-Oct	HAL	31-Dec	n/a	31-Dec	n/a
	2006	8-Oct	HAL	8-Oct	HAL	31-Dec	n/a	31-Dec	n/a
	2007	31-Oct	HAL	31-Oct	HAL	31-Dec	n/a	31-Dec	n/a
Central Gulf	2001	21-Oct	HAL	21-Oct	HAL	4-Sep	HAL	4-Sep	HAL
	2002	not opened	TAC	8-Oct	TAC	26-Sep	TAC	8-Oct	TAC
	2003	3-Sep	TAC	14-Oct	TAC	3-Sep	TAC	14-Oct	TAC
	2004	1-Oct	HAL	1-Oct	HAL	2-Oct	HAL	2-Oct	HAL
	2005	1-Oct	HAL	1-Oct	HAL	31-Dec	n/a	31-Dec	n/a
	2006	8-Oct	HAL	8-Oct	HAL	31-Dec	n/a	31-Dec	n/a
	2007	31-Oct	HAL	31-Oct	HAL	31-Dec	n/a	31-Dec	n/a

Source: NMFS Alaska region season closures summary.

Short season lengths are another indication that the GOA Pacific cod fisheries are fully utilized. During recent years, the A seasons have closed approximately one month after the trawl gear opening on January 20 (see Table 3-12). In 2004 and 2005, the Central Gulf inshore A seasons closed just 11 days and 7 days, respectively, after the trawl season opened. Halibut PSC limits have occasionally limited A season harvests by the trawl sector. In 2006, the trawl sector had used its first seasonal halibut PSC apportionment by February 23. The second seasonal halibut PSC apportionment becomes available to the trawl sector on April 1. At that point, the A season TACs had been fully harvested by the fixed gear

sectors. All of the trawl fisheries in the GOA close on October 31, but the Pacific cod fisheries typically close to trawl gear in early October when the final halibut PSC seasonal apportionment has been used. Halibut PSC limits closed the trawl B seasons (both inshore and offshore) during 5 of the past 7 years in the Central Gulf, and closed the Western Gulf inshore season during all of the past 7 years (Table 3-13). Halibut PSC limits closed the hook-and-line B season during 2 of the past 7 years.

3.1.5 The harvest sector

The number of vessels participating in the directed Pacific cod fisheries in the Western and Central Gulf of Alaska during 1995-2007 is reported in Table 3-14. Participation by trawl catcher vessels has dropped substantially in both the Central and Western Gulf. Participation by trawl vessels has been decreasing since the BSAI pollock fisheries were rationalized under the American Fisheries Act. The 20 catcher processors listed in the AFA are restricted from harvesting any groundfish in the GOA, and the 9 catcher processors that were bought out by the AFA are no longer eligible to participate in Alaska fisheries. The GOA trawl catcher vessel fleet consolidated substantially following implementation of the AFA when vessels either sold out of the fisheries or leased their BSAI pollock quota. Pacific cod harvests by AFA catcher vessels are sideboarded in the GOA, with the exception of 16 vessels that are exempt from the sideboard. The number of trawl vessels fishing in the Central Gulf dropped from 123 vessels in 1998 to 36 vessels in 2007. In the Western Gulf, trawl CV participation dropped from 86 vessels in 1995 to 35 vessels in 2007.

There have been notable increases in participation in the several of the fixed gear sectors. For example, participation by hook-and-line catcher vessels <60 ft MLOA increased substantially in 2006 and 2007. Also, in the Central Gulf, the number of pot catcher vessels participating in the directed Pacific cod fishery has increased since 2005. In the Western Gulf, pot CV participation has declined somewhat during the past 2 years. In 2006, sideboards went into effect that limit Pacific cod harvests by vessels that received initial allocations of BSAI *C. opilio* quota. These sideboard provisions limit participation by some pot vessels that historically fished in the GOA. Specifically, the sideboard prohibits 137 vessels from fishing for GOA Pacific cod, and limits Pacific cod harvests by 85 additional vessels to a sideboarded amount. Few pot catcher processors have participated in the directed federal fishery in either the Western or Central Gulf, with the exception of 1999, when 10 pot CPs fished in the Central Gulf and 6 pot CPs fished in the Western Gulf. During recent years, the hook-and-line catcher processor fleet has fished in the BSAI Pacific cod fishery during the A season, and has moved into the GOA when the BSAI B season closes. Participation by hook-and-line catcher processors in the GOA Pacific cod fisheries varies annually, and depends in part on when the BSAI B season closes. Jig catcher vessel participation has increased in recent years in the Central Gulf, with as many as 29 vessels participating in the fishery. In the Western Gulf, jig participation peaked at 26 vessels in 2002 then dropped to just one vessel in 2006.

Note that when the License Limitation Program was implemented in 2000, vessels without LLP licenses were no longer eligible to participate in the federal groundfish fisheries subject to the LLP. However, vessels without a license may fish in parallel waters. The Council recently took final action on an FMP amendment that extinguishes BSAI and GOA trawl licenses that do not have recent landings in the federal and parallel waters groundfish fisheries. Currently, the Council is considering a similar amendment that would remove Western and/or Central Gulf area endorsements from fixed gear licenses that do not have recent groundfish landings in the parallel and federal waters fisheries. The trawl recency amendment used a very low landings threshold. Licenses only need 2 trawl landings in a management area (WG, CG, AI, or BS) during the period from 2000-2006 to qualify to retain the respective area endorsements. An additional provision allows catcher vessel licenses to retain both Western and Central Gulf endorsements if licenses have at least 20 landings in one of the 2 management areas. Finally, trawl licenses that have Central Gulf area endorsements and are qualified for the Rockfish Pilot Program (RPP) are exempt from

the recency criteria. The RPP exemption applies to both catcher vessel and catcher processor licenses. The purpose of the trawl recency action was to remove latent licenses from the fisheries. As a result, the action is unlikely to influence current participation levels in the GOA Pacific cod fisheries, but the action will limit future entry opportunities for licenses that are not currently active in the GOA.

Table 3-14 Number of vessels participating in the directed Pacific cod fisheries in the Western and Central Gulf of Alaska, 1995-2007

Western Gulf											
Year	HAL CP <125	HAL CP ≥125	HAL CV <60	HAL CV ≥60	Jig CV	POT CP	Pot CV <60	Pot CV ≥60	Trawl CV	TRW CP <125	TRW CP ≥125
1995	11	5	4	1	10	2	35	23	86	3	5
1996	12	3	8	1	7	0	34	3	54	3	12
1997	8	5	2	0	2	0	18	2	77	4	13
1998	4	0	1	1	2	0	32	21	66	4	0
1999	9	10	2	0	0	6	30	4	65	4	1
2000	10	2	2	0	2	2	37	44	51	3	1
2001	9	2	4	0	16	3	31	10	55	2	6
2002	7	4	10	3	26	2	33	15	44	2	4
2003	5	9	6	1	11	1	42	17	35	3	0
2004	3	4	11	3	22	1	53	28	29	3	0
2005	2	3	25	2	6	1	39	19	33	2	0
2006	7	5	17	3	1	1	33	18	36	2	1
2007	8	3	24	3	4	1	30	17	35	3	1

Central Gulf											
Year	HAL CP <125	HAL CP ≥125	HAL CV <60	HAL CV ≥60	Jig CV	POT CP	Pot CV <60	Pot CV ≥60	Trawl CV	TRW CP <125	TRW CP ≥125
1995	2	0	115	4	15	0	66	54	101	4	6
1996	4	0	132	6	13	0	48	39	107	5	9
1997	1	0	160	10	5	0	41	20	120	4	2
1998	0	2	127	7	15	0	37	23	123	4	13
1999	3	2	157	22	9	10	45	39	90	3	11
2000	3	0	142	6	16	4	56	58	53	3	6
2001	1	0	112	3	14	3	34	28	70	3	2
2002	0	4	90	8	6	3	28	17	52	2	1
2003	2	2	69	4	7	0	22	13	52	1	3
2004	1	2	75	14	29	0	22	13	46	3	2
2005	1	1	92	14	25	0	25	22	44	3	1
2006	1	5	115	15	24	0	36	23	36	4	3
2007	3	2	129	23	18	1	40	22	36	1	2

Source: NMFS Catch Accounting/Blend and ADFG fish tickets, 1995 – 2007.

3.1.5 Steller Sea Lion protection measures and distribution of Pacific cod catch between A and B seasons

In November 2000, NMFS determined that the pollock, Pacific cod, and Atka mackerel fisheries in the BSAI and GOA were likely to jeopardize the continued existence of the western population of Steller sea lions. NMFS completed a Steller Sea Lion Protection Measures Final Supplemental Environmental Impact Statement in November 2001 (NMFS 2001). Protection measures were implemented in 2001, including measures to temporally disperse fishing effort for Pacific cod. In the GOA, the Pacific cod fishing season was divided into two periods: 60 percent of the TAC is allocated to the A season (January 1 – June 10) and 40 percent to the B season (September 1 – December 31). Incidental catch of Pacific cod between the A and B seasons accounts to the B season TAC. The objective of seasonal apportionments was to limit the total amount of Pacific cod harvested in during the first half of the year.

One of the concerns noted during the development of the Steller sea lion SEIS was that management measures to protect Steller sea lions may impose a heavier burden on catcher vessels than on catcher processors. The catcher vessel fleet is comprised mostly of <60 ft LOA vessels, and fishing during the early months of the A season (January/February) may be more difficult for smaller vessels. All gear sectors typically harvest the majority of their catch during the A season (January 1 – June 10), when Pacific cod are aggregated and catch per unit effort is higher.

Table 3-15 shows the percentage of retained Pacific cod catch that is landed by each sector before June 10. Since 2001, nearly all sectors have landed a substantially smaller proportion of their annual catch prior to June 10, with a few exceptions. Vessels <60 ft LOA and larger vessels both land a smaller proportion of their annual catch during the A season. However, there are a few exceptions. Hook-and-line catcher vessels ≥60 ft LOA in the Central Gulf and trawl catcher vessels in the Western Gulf continue to land more than 95 percent of their retained catch before June 10. Most trawl catcher vessels only fish during the A season in the Western Gulf, when fish are aggregated and catch rates are high. In the Central Gulf, trawl vessels continue to fish during the B season, but halibut PSC limits typically curtail the trawl B season before the TACs are fully harvested.

If sector allocations are implemented, allocations would likely be apportioned between the A and B seasons. Sectors that have historically harvested most of their catch during the A season would only have access to 60 percent of their allocation during the A season, and would need to change their annual fishing operations in order to fully harvest their B season allocations. Halibut PSC may be a limiting factor in allowing the trawl sectors to fully harvest B season allocations.

Table 3-15 Percentage of Pacific cod caught before June 10 in the Western and Central Gulf of Alaska, averaged from 1995-2000 and 2001-2006

	Year	HAL CP	HAL CV <60	HAL CV ≥60	JIG	Pot CP	Pot CV <60	Pot CV ≥60	Trawl CP	TRW CV <60	TRW CV ≥60
Western Gulf	1995-2000	100%	81%	57%	70%	89%	99%	91%	86%	100%	99%
	2001-2006	72%	58%	29%	28%	57%	85%	57%	50%	97%	96%
Central Gulf	1995-2000	97%	98%	95%	93%	37%	99%	95%	55%	97%	84%
	2001-2006	76%	80%	96%	85%	67%	87%	73%	35%	78%	58%

Source: Weekly production reports and ADF&G fish tickets, 1995-2006.

3.1.5.1 Sideboards on Pacific cod harvests

In developing the BSAI crab rationalization program, the Council imposed sideboards on harvests by crab vessels in the Gulf of Alaska Pacific cod fisheries. Pot vessels generally participate in only the crab and Pacific cod fisheries. As a result, the only perceived increase in opportunity arising from the crab rationalization program was thought to be in the Pacific cod fisheries in the Gulf that are prosecuted in January, when the Bering Sea *C. opilio* fishery is typically prosecuted. Only recipients of initial allocations³ in the Bering Sea *C. opilio* fishery are subject to the sideboards. The sideboards limit vessels to their historic share of retained catch of Gulf of Alaska Pacific cod and other Gulf of Alaska groundfish during 1996-2000, excluding catch of fixed gear sablefish. Vessels that have limited history in the Gulf groundfish fisheries—less than 50 mt of catch during 1996 to 2000—are prohibited from directed fishing for Pacific cod in the Gulf. Vessels that landed less than 100,000 pounds of Bering Sea *C. opilio* and more than 500 mt of Pacific cod in the Gulf from 1996 to 2000 are exempt from the sideboards. Both vessels and LLP groundfish licenses associated with sideboarded vessels at the time sideboards were

³ Since allocations in the program are based on catch history associated with a license, the sideboard is constructed to limit catch using the license. This is done by sideboarding any vessel the catch of which led to a share allocation and any vessel named on the license that arose from the catch history of the vessel that led to that allocation.

implemented are subject to the sideboards. If a sideboarded license is transferred to a non-sideboarded vessel, and that vessel has no other groundfish license, that vessel is then subject to the Pacific cod sideboards.

Sideboards also cap harvests of GOA groundfish by AFA catcher vessels, with the exception of 16 AFA vessels that are exempt from the GOA sideboards. Vessels are exempted from the sideboard if they are less than 125 feet in length, landed less than 1,700 mt of BSAI pollock, on average, during 1995-1997, and made at least 40 GOA groundfish landings during 1995-1997. The rationale for the exemption was that these vessels had a high economic dependence on GOA groundfish fisheries. The Pacific cod sideboards limit non-exempt AFA vessels to their historic share of catch of GOA Pacific cod during 1995-1997. Halibut PSC catch by non-exempt AFA vessels is also capped at the historic percentage of halibut PSC catch relative to total catch of non-pollock groundfish species. Table 3-16 shows the percentage of the Western and Central Gulf Pacific cod TACs available to vessels subject to the crab and AFA sideboards, and the amount (mt) of these sideboards in 2007. Sideboards on Pacific cod harvests by AFA vessels went into effect in 2001; sideboards on BSAI crab vessels went into effect in 2006. Pacific cod harvests by sideboarded vessels are credited to the respective sectors for purposes of calculating sector allocations. If sector allocations are implemented, catch by sideboarded vessels would account to the respective sector allocations and would also be capped at the sideboard amounts.

Table 3-16 2007 Pacific cod sideboards for non-exempt AFA vessels and non-AFA crab vessels

			AFA Sideboard			Non-AFA Crab Sideboard	
			TAC	Percent of TAC	Amount (mt)	Percent of TAC	Amount (mt)
Western Gulf	A season	Inshore	10,876	14.23%	1,548	9.02%	981
		Offshore	1,208	10.26%	124	20.46%	247
Central Gulf	A season	Inshore	15,339	7.22%	1,107	3.83%	587
		Offshore	1,704	7.21%	123	20.74%	353
Western Gulf	B season	Inshore	7,251	14.23%	1,032	9.02%	654
		Offshore	806	10.26%	83	20.46%	165
Central Gulf	B season	Inshore	10,226	7.22%	738	3.83%	392
		Offshore	1,136	7.21%	82	20.74%	236

Source: NMFS 2008-2009 Harvest Specifications

Finally, Amendment 80 catcher processors are subject to Pacific cod sideboards in the GOA. Catch of Pacific cod is limited to the proportion of the Western and Central Gulf TACs caught by Amendment 80 vessels during 1998-2004. In the Central Gulf, Amendment 80 vessels are capped at 4.4% of the TAC, and in the Western Gulf, Amendment 80 vessels can catch up to 2.0% of the TAC. Most of the trawl catcher processors that have fished in the GOA during recent years are Amendment 80 vessels. The Western and Central GOA trawl catcher processor allocations could potentially be set lower than the Amendment 80 sideboard amounts. Sideboards limit the amount of catch by a sector, but do not guarantee that sector a specific amount of TAC (i.e., sideboards are not allocations).

3.1.6 License Limitation Program

Entry to the Pacific cod fisheries in federal waters has been restricted under the License Limitation Program (LLP) since 2000. All sectors that would receive Pacific cod allocations under the proposed action are subject to the LLP requirement when fishing in federal Gulf of Alaska Pacific cod fisheries. Vessels less than 26 feet in length and vessels fishing exclusively in parallel waters fisheries are not required to have an LLP license. All vessels subject to the LLP requirement must have a Western or Central Gulf area endorsement and the appropriate operation type designation (catcher vessel or catcher processor) and gear designation (trawl or non-trawl) to participate in the Gulf of Alaska Pacific cod

fisheries. The number of LLPs in the Western and Central Gulf and the gear and operation type designations on these licenses is reported in Table 3-17.

In April 2008, the Council took final action on 2 FMP amendments that will extinguish trawl licenses that do not have recent catch history in the GOA and BSAI groundfish fisheries. The Council is currently considering a similar action that would extinguish fixed gear LLP licenses with Western or Central Gulf area endorsements that do not have recent catch history in the GOA groundfish fisheries. The proposed amendment could also create Pacific cod endorsements on fixed gear licenses. Licenses would be required to carry Pacific cod endorsements, in addition to the appropriate area endorsements, to participate in the directed Pacific cod fisheries in federal waters of the Gulf of Alaska. Pacific cod endorsements could also have a specific gear designation (e.g., pot or hook-and-line), similar to the BSAI Pacific cod endorsements created under Amendment 67. Some licenses have catch history using more than one fixed gear type, and these licenses could potentially qualify for more than one gear-specific Pacific cod endorsement. Under Amendment 67, licenses could qualify for up to 2 BSAI Pacific cod endorsements (pot and hook-and-line). Pacific cod endorsements would limit the number of licenses eligible to fish the Western and Central Gulf Pacific cod sector allocations, and would effectively cap the number of participants in each sector. However, vessels without LLP licenses, and licenses without Pacific cod endorsements, could continue to participate in the parallel waters directed Pacific cod fisheries. Licenses would qualify for Pacific cod endorsements based on catch in the directed Pacific cod fisheries in federal and parallel waters.

Table 3-17 Number of valid LLPs in the Western and Central Gulf of Alaska, by operation type and gear endorsement

Gear Endorsement	Western Gulf		Central Gulf	
	Catcher Processors	Catcher Vessels	Catcher Processors	Catcher Vessels
Trawl	26 (19) ¹	160 (77) ¹	27 (20) ¹	176 (96) ¹
Fixed gear	31	266	51	884

¹The number of trawl licenses in parentheses indicates the estimated number of licenses that qualify under the BSAI and GOA trawl recency action, which the Council took final action on in April 2008.

Source: NMFS Restricted Access Management (RAM) groundfish license file, January 2008.

3.1.7 Incidental Catch and Discards of Pacific Cod

The Council requested that staff provide additional information on incidental catch and discards of Pacific cod in the Gulf of Alaska for the purpose of determining how incidental catch will be managed under sector allocations. However, it should be noted that under the existing set of options, sector allocations would be calculated based on retained catch of Pacific cod (discards excluded). For the purposes of this discussion, incidental catch is defined as Pacific cod caught while another species (e.g., flatfish) is being targeted. Targets are defined by NMFS as the predominant groundfish species harvested by a vessel during a given week. Blend/Catch Accounting data was used to calculate incidental catch and discards for both catcher vessels and catcher processors, because these data include observer estimated discards and also assign a weekly (trip) target. It should be noted that for the purposes of calculating sector allocations, catch during the directed Pacific cod fisheries was calculated by counting any Pacific cod caught while the directed federal and parallel waters season was open, including any incidental catch of Pacific cod while another species (e.g. pollock or IFQ halibut) was being targeted. Targeted catch (rather than directed catch) was used for this discussion because it simplifies the data analysis, and allows discards to be reported by target fishery.

In the Gulf of Alaska, inseason managers time the closure of the directed Pacific cod fisheries to leave enough of the TAC to support incidental catch in other directed fisheries. For example, inseason managers time the A season closure to leave a sufficient portion of the A season TAC available for

incidental catch in other fisheries during the remainder of the season. Incidental catch of Pacific cod continues to account to the A season TACs until the A seasons end on June 10. Any A season overage or incidental catch between the end of the A seasons (June 10) and the beginning of the B seasons (September 1) counts against the B season TACs.

Current Levels of Incidental Catch in the Gulf

Total incidental catch of Pacific cod in the Western and Central Gulf of Alaska, including both retained and discarded incidental catch, is reported by sector in Table 3-18. Incidental catch levels vary from year to year. Under current regulations, 20 percent of the TAC of each Gulf species (including Pacific cod) may be held in reserve to accommodate incidental catch during other directed fisheries.

In both the Western and Central Gulf, the average amount of incidental catch (mt) during 1995-2000 was almost identical to average incidental catch levels during 2001-2006. However, TACs have decreased, and incidental catch as a percentage of total catch has increased in recent years. Incidental catch in the Western Gulf increased from 3 percent of total catch during 1995-2000 to 4 percent of total catch during 2001-2006. In the Central Gulf, incidental catch increased from 11 percent of total catch during 1995-2000 to 18 percent of total catch during 2001-2006.

Incidental catch levels are relatively low in the Western Gulf. The trawl sectors primarily fish during the directed pollock and Pacific cod seasons in the Western Gulf, and bycatch of Pacific cod during the directed pollock season is relatively low. In the Western Gulf, approximately half of incidental catch occurs during the A season (prior to June 10), and half occurs between the A and B seasons (June 10-September 1). In the Central Gulf, incidental catch levels are substantially higher than in the Western Gulf, and are driven primarily by the trawl sectors. The hook-and-line sectors also have some incidental catch. Note that halibut targeted catch (including bycatch of other groundfish species during the halibut IFQ fishery) was not included in the Blend data (1995-2002), and the apparent increase in incidental catch of cod by the hook-and-line sectors in Table 2 is a result of the inclusion of halibut targeted bycatch in the Catch Accounting data (2003-present). In the Central Gulf, about 40 percent of incidental catch occurred during the A season during 2001-2006, and 60 percent occurred during the B season.

Table 3-18 Total incidental catch (both retained and discarded; mt) of Pacific cod in the Western and Central Gulf of Alaska during the A (Jan 1–Jun 10) and B (Jun 10–Dec 31)* seasons, averaged from 1995-2000 and 2001-2006

	Year	HAL CP		HAL CV		Trawl CP		Trawl CV		Incidental catch as percent of total catch
		A	B	A	B	A	B	A	B	
Western Gulf	1995-2000	26	17	6	20	231	130	112	53	3%
	2001-2006	*	*	16	32	185	153	35	98	4%
Central Gulf	1995-2000	2	7	46	73	604	668	1,419	1,638	11%
	2001-2006	20	0	74	71	277	481	1,402	2,114	18%

Source: Blend (1995-2002) and Catch Accounting (2003-2006) databases.

*Incidental catch from June 10 – Sept 1 is counted against the B season TAC.

The majority of incidental catch occurs in fisheries primarily or exclusively prosecuted by the trawl sector (see Table 3-19). In the Western Gulf, the target fisheries with the most incidental catch of Pacific cod during 2001-2006 include arrowtooth flounder (22 percent), flathead sole (14 percent), midwater pollock (13 percent), halibut (12 percent), and rockfish (11 percent). In the Central Gulf, the fisheries with the most incidental catch during 2001-2006 include shallow water flatfish (37 percent), rockfish (27 percent), and arrowtooth flounder (12 percent). In the Western Gulf, incidental catch in the arrowtooth flounder fishery was much higher in 2001-2006 than in 1995-2000, but incidental catch decreased in the midwater

pollock and rex sole fisheries. In the Central Gulf, incidental catch in the rockfish fishery was higher during 2001-2006 than in 1995-2000, but decreased in the midwater pollock fishery and several of the flatfish fisheries.

Note that under the proposed sector allocations, incidental catch allocated to catcher vessels participating in the Rockfish Pilot Program fishery would be deducted from the Central Gulf trawl catcher vessel allocation. A maximum of 2.09 percent of the Central Gulf TAC is allocated to cover incidental catch of Pacific cod by catcher vessels participating in the rockfish program. Allowing incidental catch of Pacific cod to be retained increases the overall benefits from other directed fisheries that cannot avoid incidental catch of cod. Allowing vessels to retain Pacific cod also provides harvesters with incentives to participate in several lower-valued fisheries that might otherwise go unharvested if harvesters could not retain higher valued incidentally caught cod.

Table 3-19 Incidental catch of Pacific cod (mt) in the Western and Central Gulf of Alaska reported by target fishery, and percent of total incidental catch by each target fishery

Target	Western Gulf				Central Gulf			
	1995-2000 (average)		2001-2006 (average)		1995-2000 (average)		2001-2006 (average)	
	Incidental Catch	Percent of incidental catch	Incidental Catch	Percent of incidental catch	Incidental Catch	Percent of incidental catch	Incidental Catch	Percent of incidental catch
Arrowtooth Flounder	64	11%	134	22%	506	11%	547	12%
Atka Mackerel	14	2%	0	0%	10	0%	0	0%
Deep-water Flatfish	--	--	--	--	176	4%	43	1%
Flathead Sole	73	12%	83	14%	179	4%	127	3%
Halibut*	--	--	75	12%	--	--	73	2%
Other Species	1	0%	1	0%	29	1%	77	2%
Pollock, bottom	41	7%	51	8%	346	8%	339	8%
Pollock, midwater	128	22%	79	13%	231	5%	58	1%
Rex Sole	111	19%	49	8%	555	12%	275	6%
Rockfish	50	8%	67	11%	724	16%	1,201	27%
Sablefish	68	11%	56	9%	120	3%	49	1%
Shallow-water Flatfish	43	7%	10	2%	1,582	35%	1,654	37%
Totals	593	100%	604	100%	4,458	100%	4,442	100%

Source: Blend (1995-2002) and Catch Accounting (2003-2006) databases. * Blend data did not assign a halibut target.

Discarded Incidental Catch

Pacific cod is an Improved Retention/Improved Utilization Species. Thus, all catch must be retained when the fishery is open for directed fishing, and all catch up to the maximum retainable allowance (MRA) must be retained when the fishery is closed to directed fishing. Only regulatory discards of Pacific cod are allowed.

Regulatory discards occur for two reasons. First, Pacific cod must be discarded when catch of Pacific cod during other directed fisheries exceeds the MRA. The MRA limits the amount of non-directed species catch that may be retained to a percentage of directed species catch. For Pacific cod, the MRA with respect to all directed species, with the exception of arrowtooth flounder, is 20 percent. The MRA for Pacific cod in the directed arrowtooth flounder fishery in the GOA is 5 percent. When Pacific cod is not open for directed fishing, a vessel may retain Pacific cod up to the amount of the MRA.⁴ Any cod caught in excess of the MRA must be discarded. Second, discards are required if Pacific cod has been put on PSC status, which typically occurs when total catch approaches the overfishing limit (OFL). In the Gulf

⁴ Pacific cod catch is also retained in the halibut and sablefish IFQ program. Vessels fishing IFQ are required to retain Pacific cod up to the MRA, except if Pacific cod is on PSC status.

of Alaska, Pacific cod has occasionally been placed on PSC status (Table 3-20). During years when cod was placed on PSC status, the percentage of incidental catch that was discarded was often higher than normal. Inseason managers avoid placing cod on PSC status by closing the directed A season when there is still sufficient TAC remaining to accommodate the incidental catch needs in other directed fisheries during the remainder of the A season.

Discarded incidental catch of Pacific cod is reported by sector in Table 3-20. Virtually none of the incidental catch by the pot and jig sectors is discarded, and these sectors were not included in the table. In the Western Gulf, the discard rate of incidentally caught Pacific cod decreased from 40 percent during 1995-2000 to 23 percent during 2001-2006. In the Central Gulf, the discard rate decreased from 41 percent to 28 percent during the same time periods. Total discards (mt) also decreased substantially in both the Western and Central Gulf. The percent of total catch that was discarded has stayed about the same (1 percent in the Western Gulf, 5 percent in the Central Gulf), because TACs (and total catch) have decreased in recent years.

Table 3-20 Amount (mt) of incidental catch discarded by each sector, percent of incidental catch discarded by each sector, and percent of total catch that is discarded by all sectors

Western Gulf											
Year	HAL CP		HAL CV		Trawl CP		Trawl CV		Total		Percent of TOTAL catch discarded
	Mt	Percent discarded	Mt	Percent discarded	Mt	Percent discarded	Mt	Percent discarded	Mt	Percent discarded	
1995	59	100%	11	62%	151	70%	61	32%	282	58% ¹	1%
1996	88	96%	12	76%	363	81%	58	28%	521	68% ¹	3%
1997	43	83%	15	67%	338	57%	24	18%	419	52% ¹	2%
1998	4	37%	36	84%	65	26%	3	4%	109	28%	1%
1999	4	18%	29	77%	29	13%	7	6%	66	18%	0.3%
2000	2	7%	3	19%	87	21%	4	2%	96	13% ¹	0.4%
2001	1	2%	6	37%	44	10%	0	0%	51	7%	0.4%
2002	8	12%	7	48%	82	30%	*	*	96	21%	1%
2003	30	31%	53	64%	304	58%	10	8%	397	48%	2%
2004	145	85%	3	9%	47	12%	1	2%	196	30%	1%
2005	55	64%	43	51%	44	17%	0	0%	142	25%	1%
2006	12	24%	6	10%	13	8%	*	*	31	8%	0.2%
Avg 95-00	33	57%	18	64%	172	44%	26	15%	249	40%	1%
Avg 01-06	42	36%	20	36%	89	23%	2	2%	153	23%	1%

Central Gulf											
Year	HAL CP		HAL CV		Trawl CP		Trawl CV		Total		Percent of TOTAL catch discarded
	Mt	Percent discarded	Mt	Percent discarded	Mt	Percent discarded	Mt	Percent discarded	Mt	Percent discarded	
1995	1	13%	27	26%	817	62%	425	28%	1,270	43% ¹	3%
1996	8	99%	47	73%	1,943	81%	3,398	79%	5,396	80% ¹	11%
1997	1	81%	51	36%	563	61%	2,168	55%	2,784	55%	6%
1998	<1	6%	70	47%	111	10%	831	32%	1,012	27%	2%
1999	*	*	84	46%	69	7%	482	20%	634	18%	1%
2000	*	*	12	16%	127	13%	965	27%	1,103	24%	3%
2001	*	*	16	17%	52	12%	1,213	32%	1,281	29%	5%
2002	0	0%	13	16%	133	14%	2,892	52%	3,039	47%	12%
2003	*	*	72	28%	335	28%	1,226	32%	1,632	31% ¹	7%
2004	*	*	8	7%	62	17%	767	24%	839	23%	3%
2005	32	56%	1	1%	158	23%	491	22%	682	22%	3%
2006	11	60%	26	12%	152	16%	451	18%	641	17%	3%
Avg 95-00	2	36%	48	41%	605	39%	1,378	40%	2,034	41%	5%
Avg 01-06	10	40%	23	14%	149	18%	1,174	30%	1,355	28%	5%

¹ Pacific cod placed on PSC status during these years, and regulatory discards were required.

Source: Blend (1995-2002) and Catch Accounting (2003-2006) databases.

3.1.8 The processing sector

The number of shorebased processors, motherships, and catcher processors that received deliveries of Pacific cod from the Western and Central Gulf of Alaska Pacific cod fisheries are reported in Table 3-21. The table does not include State waters Pacific cod landings. The number of catcher processors participating in the GOA Pacific cod fisheries has declined substantially since 1995. The 20 catcher processors listed in the AFA are restricted from harvesting any groundfish in the GOA, and the 9 catcher processors that were bought out by the AFA are no longer eligible to participate in Alaska fisheries. Beginning in 2008, groundfish harvests by Amendment 80 vessels are sideboarded in the GOA. In the Central Gulf, Amendment 80 vessels are capped at 4.4 percent of the TAC, and in the Western Gulf, Amendment 80 vessels may catch up to 2.0 percent of the TAC. Most of the trawl catcher processors that have participated in the GOA Pacific cod fisheries during recent years are Amendment 80 vessels, and if these vessels harvest the sideboards cooperatively, the number of trawl catcher processors fishing in the GOA may decline.

Table 3-21 Number of processors receiving landings of Pacific cod from the Western and Central Gulf of Alaska fisheries, and retained catch (mt) from 1995-2007

Western Gulf

Year	Shoreside		Motherships		Catcher Processors		Total At-sea	Grand Total	Percent processed at-sea
	No.	Mt	No.	Mt	No.	Mt	Mt	Mt	
1995	9	12,998	5	2,234	32	6,323	8,557	21,555	41%
1996	7	15,709	5	120	37	5,156	5,276	20,985	25%
1997	9	19,454	3	385	30	4,132	4,517	23,971	19%
1998	14	*	1	*	23	3,476	3,476**	21,077	17%**
1999	8	*	2	*	39	7,163	7,163**	23,497	31%**
2000	7	*	3	*	29	5,650	5,650**	21,926	27%**
2001	11	8,862	0	0	32	5,678	5,678	14,540	41%
2002	10	10,107	0	0	31	7,254	7,254	17,361	43%
2003	8	11,006	0	0	31	4,685	4,685	15,691	31%
2004	9	11,644	0	0	26	3,676	3,676	15,320	25%
2005	6	11,165	0	0	24	1,096	1,096	12,261	9%
2006	8	*	1	*	26	2,909	2,909**	13,850	21%**
2007	6	*	1	*	25	3,907	3,907**	13,183	31%**

** When mothership landings are confidential, the total and percent at-sea only includes catcher processor landings.

Central Gulf

Year	Shoreside		Motherships		Catcher Processors		Total At-sea	Grand Total	Percent processed at-sea
	No.	Mt	No.	Mt	No.	Mt	Mt	Mt	
1995	15	40,433	4	1,471	32	2,206	3,677	44,110	9%
1996	14	37,034	8	2,006	27	3,424	5,430	42,464	13%
1997	16	*	1	*	23	830	830**	41,562	2%**
1998	15	35,940	4	344	24	4,623	4,967	40,907	13%
1999	21	*	1	*	35	4,846	4,846**	43,106	12%**
2000	14	*	1	*	22	2,506	2,506**	32,011	9%**
2001	13	24,368	0	0	16	2,838	2,838	27,206	12%
2002	12	20,667	0	0	19	2,603	2,603	23,270	13%
2003	12	21,207	0	0	21	2,687	2,687	23,894	13%
2004	11	24,117	0	0	15	2,222	2,222	26,339	9%
2005	15	21,027	0	0	18	986	986	22,013	5%
2006	12	20,616	0	0	20	1,774	1,774	22,390	9%
2007	12	22,881	0	0	15	2,297	2,297	25,178	10%

Source: Catch Accounting/Blend for motherships and catcher processors; ADFG Fish Tickets for Shoreside Plants.

** When mothership landings are confidential, the total and percent at-sea only includes catcher processor landings.

Catcher vessels deliver almost all Western and Central GOA Pacific cod catch to shorebased processors. The number of shorebased processors receiving landings of Western and Central Gulf Pacific cod has declined somewhat since 1995. Mothership activity has declined substantially. No motherships have been active in the Central Gulf Pacific cod fisheries since 2000. Similarly, in the Western Gulf, no motherships had been active since 2000, but in 2006 and 2007 there was one mothership taking deliveries. Total landings of federal and parallel waters Pacific cod received by GOA processors has declined as federal TACs have declined and as State waters Pacific cod fisheries have been allocated an increasing proportion of the Western and Central Gulf ABCs.

Catcher processors and motherships participating in the offshore processing component are limited to processing 10 percent of the Western and Central Gulf TACs. Catcher processors and motherships may elect to participate in the inshore processing sector if they are <125 ft LOA and process less than 126 mt of pollock and Pacific cod in the aggregate. Most motherships have participated in the offshore processing component. When catcher processors and motherships participating in the inshore processing component are taken into consideration, the proportion of landings to at-sea processors has often been substantially greater than 10 percent of total catch. In the Western Gulf, the total proportion of landings made to at-sea processors has often been more than 30 percent of total landings, and has been as high as 43%. In the Central Gulf, at sea landings are typically 10 percent or less of retained catch.

3.1.9 Ex-vessel prices and gross revenues

Preliminary CFEC gross revenues data from 2007 indicate that ex-vessel prices in the GOA Pacific cod fisheries increased substantially during 2006 and 2007 (Table 3-22). Ex-vessel prices for fixed gear landings averaged \$0.499 per pound in 2007, an increase of more than \$0.10 per pound since 2006. Ex-vessel prices for trawl landings averaged \$0.461 in 2007, an increase of \$0.09 per pound since 2006. These 2007 ex-vessel prices are preliminary and may not include all post-season bonuses and adjustments. Participants in the 2008 GOA Pacific cod fisheries report prices up to \$0.63 per pound, including bonuses. Gross revenues for all catcher vessel landings of GOA Pacific cod totaled \$34.4 million in 2007, a 27 percent increase from 2006 revenues (Table 3-23). A summary of market conditions for Pacific cod is found in Appendix C. Extensive information on economic conditions in the GOA Pacific cod fisheries can be found in the Economic SAFE Report (Hiatt, 2007).

Table 3-22 Ex-vessel prices (dollars) per pound in the Gulf of Alaska Pacific cod fisheries

Year	Fixed gear	Trawl gear
2001	\$0.299	\$0.258
2002	\$0.287	\$0.234
2003	\$0.304	\$0.282
2004	\$0.267	\$0.251
2005	\$0.297	\$0.269
2006	\$0.396	\$0.369
2007	\$0.499*	\$0.461*

Source: ADFG Fish Tickets and CFEC gross revenues data. * 2007 prices are based on preliminary revenues data

Table 3-23 Ex-vessel gross revenues from the GOA Pacific cod fisheries (millions of dollars)

Year	Pot	Trawl	Hook-and-line	Jig	Total
2001	3.5	11.8	4.2	0.1	19.6
2002	3.9	7.2	4.4	0.1	15.6
2003	7.7	10.0	2.7	0.04	20.4
2004	8.2	8.4	3.6	0.2	20.4
2005	9.7	7.6	3.1	0.1	20.5
2006	12.6	8.7	5.7	0.1	27.1
2007	14.1	12.7	7.5	0.05	34.4

Source: ADFG Fish Tickets and CFEC gross revenues data.

3.1.10 First wholesale prices and revenues

First wholesale prices of Pacific cod products also increased substantially in 2006, particularly for products produced by the at-sea processing sector (Table 3-24). The all products price is a weighted average of the prices for all products produced from Pacific cod. Table 3-25 shows the product mix from Pacific cod harvested in the Gulf of Alaska, and includes production by both at-sea processors and shorebased plants. Catcher processors produce mostly eastern and western cut headed and gutted products and several ancillary products. Shorebased processors produce fillets and headed and gutted products, along with a wide variety of ancillary products. During 2001-2006, headed and gutted fish comprised the majority of products for at-sea processors, while fillets made up a larger fraction of the product mix for shoreside processors (Hiatt et al., 2007).

Table 3-24 First wholesale price (dollars per pound) of Pacific cod products by processing sector, includes BSAI and GOA fisheries

Year	Whole fish		Head & gut		Fillets		Other products		All products	
	At-sea	Shoreside	At-sea	Shoreside	At-sea	Shoreside	At-sea	Shoreside	At-sea	Shoreside
2001	0.46	0.51	1.09	0.87	1.49	1.86	1.39	1.04	1.11	1.24
2002	0.29	0.41	0.97	0.99	1.58	2.28	1.03	0.79	0.98	1.31
2003	0.41	0.56	1.13	0.98	2.29	2.18	0.89	0.56	1.14	1.26
2004	0.43	0.54	1.09	1.04	2.20	2.13	1.02	0.80	1.09	1.26
2005	0.56	0.58	1.29	1.50	2.07	2.72	1.32	0.81	1.29	1.65
2006	0.67	0.79	1.67	1.38	3.37	3.12	1.31	0.94	1.66	1.76

Source: 2006 Economic SAFE (Hiatt et al., 2007).

Table 3-25 Products produced from Pacific cod harvested in the Gulf of Alaska, 2001-2006

Year	Whole fish		Head & gut		Fillets		Other products		Total
	Mt	Percentage	Mt	Percentage	Mt	Percentage	Mt	Percentage	Mt
2001	1.8	8.5%	9.0	42.8%	6.0	28.6%	4.3	20.2%	21.1
2002	1.1	5.0%	7.1	33.8%	6.7	32.0%	6.1	29.2%	21.0
2003	2.2	9.7%	4.5	19.7%	8.6	38.0%	7.4	32.6%	22.6
2004	0.8	3.5%	10.3	45.3%	6.5	28.8%	5.1	22.3%	22.6
2005	0.9	4.9%	6.4	35.1%	5.9	32.4%	5.0	27.6%	18.2
2006	0.6	2.5%	7.1	32.2%	8.1	36.8%	6.3	28.5%	22.1

Source: 2006 Economic SAFE (Hiatt et al., 2007).

3.1.12 Revenues by participants in the GOA Pacific cod fisheries

Gross revenues in the groundfish fisheries by catcher vessels with GOA Pacific cod landings in parallel and federal waters are summarized in Table 3-26. Revenues are reported based on the sector that a vessel participated in during a given year in the GOA Pacific cod fisheries. The sectors with the highest revenues from the GOA Pacific cod fisheries during 2001-2006, including State waters landings, were trawl (\$53.7 million), <60 LOA pot (\$46.9 million), ≥60 LOA pot (\$28.3 million), and <60 ft LOA hook-and-line (\$21.6 million). Table 3-27 shows the percentage of gross revenues from GOA Pacific cod and other fisheries for vessels that participated in the GOA Pacific cod fisheries during 1995-2000 and 2001-2006. Pot vessels <60 ft LOA had the highest percentage of revenues from the GOA Pacific cod fisheries (35 percent). Pacific cod surpassed salmon as the most important source of revenues for this sector during 2001-2006. For pot vessels ≥60 ft LOA, Pacific cod was a more important source of revenues during 2001-2006 (24 percent of revenues) than during 1995-2000 (10 percent), and revenues from crab decreased. Similarly, for jig vessels, revenues from Pacific cod increased during 2001-2006, and salmon revenues decreased. Gross revenues from GOA Pacific cod were a relatively small proportion of revenues for hook-and-line (9 to 10 percent) and trawl catcher vessels (15 percent) during both time periods. The majority of hook-and-line catcher vessel gross revenues were from the IFQ halibut and

sablefish fisheries. The majority of trawl revenues were from the BSAI and GOA pollock and flatfish fisheries.

Table 3-26 Gross revenues (millions of dollars) from the groundfish fisheries by catcher vessels participating in the GOA Pacific cod fisheries

Fishery	HAL CV <60		HAL CV >=60		Jig CV		Pot CV <60		Pot CV >=60		Trawl CV		ALL SECTORS	
	1995-2000	2001-2006	1995-2000	2001-2006	1995-2000	2001-2006	1995-2000	2001-2006	1995-2000	2001-2006	1995-2000	2001-2006	1995-2000	2001-2006
BSAI Other	3.62	7.90	3.65	1.30	0.02	0.01	0.64	0.71	0.10	2.11	279.27	132.53	287.29	144.56
BSAI Pacific Cod	0.41	2.12	3.53	0.04	0.27	0.20	0.22	6.89	10.67	14.11	45.45	40.40	60.54	63.77
GOA Other	2.80	1.52	0.13	0.10	0.90	0.05	0.19	0.00	0.03	0.00	125.37	130.76	129.41	132.44
GOA Pacific Cod	19.44	21.60	2.45	2.10	0.20	0.65	22.39	21.47	23.60	24.37	93.72	53.71	161.79	123.90
Other	2.32	1.64	0.14	0.14	0.50	0.49	0.22	0.01	0.55	0.03	2.47	1.80	6.19	4.11
State GOA P. Cod	0.00	0.00	0.00	0.00	1.29	3.68	16.18	25.39	2.69	3.93	0.00	0.00	20.16	32.99
Grand Total	28.58	34.79	9.90	3.68	3.18	5.08	39.83	54.47	37.63	44.55	546.28	359.20	665.39	501.77
BSAI Other	13%	23%	37%	35%	1%	0%	2%	1%	0%	5%	51%	37%	43%	29%
BSAI Pacific Cod	1%	6%	36%	1%	8%	4%	1%	13%	28%	32%	8%	11%	9%	13%
GOA Other	10%	4%	1%	3%	28%	1%	0%	0%	0%	0%	23%	36%	19%	26%
GOA Pacific Cod	68%	62%	25%	57%	6%	13%	56%	39%	63%	55%	17%	15%	24%	25%
Other	8%	5%	1%	4%	16%	10%	1%	0%	1%	0%	0%	1%	1%	1%
State GOA P. Cod	0%	0%	0%	0%	41%	72%	41%	47%	7%	9%	0%	0%	3%	7%

Table 3-27 Percentage of ex-vessel gross revenues from GOA Pacific cod and other fisheries by catcher vessels that participated in the GOA Pacific cod fisheries during 1995-2006

Fishery	Hook-and-line CV		Jig CV		Pot <60 CV		Pot >60 CV		Trawl CV	
	95-00	01-06	95-00	01-06	95-00	01-06	95-00	01-06	95-00	01-06
Gulf Pacific Cod	9.4%	8.9%	13.0%	22.3%	31.8%	34.9%	10.4%	23.6%	15.2%	15.6%
Gulf Other Groundfish	24.9%	27.1%	2.2%	1.3%	7.8%	11.6%	3.1%	1.8%	23.3%	35.5%
BSAI Pacific Cod	0.6%	1.8%	0.9%	0.8%	0.1%	5.0%	6.0%	8.6%	6.3%	13.2%
BSAI Other Groundfish	1.5%	2.7%	0.1%	0.0%	0.7%	0.5%	0.4%	1.2%	42.0%	29.0%
Halibut	37.4%	41.1%	8.4%	13.7%	13.1%	12.3%	7.4%	7.1%	2.9%	3.5%
Crab	8.1%	7.2%	5.4%	3.6%	1.7%	3.7%	72.5%	57.6%	4.5%	1.4%
Salmon	16.5%	10.0%	67.4%	56.3%	38.7%	27.8%	0.0%	0.0%	5.1%	1.5%
Other Non-groundfish	1.7%	1.4%	2.6%	2.0%	6.1%	4.0%	0.3%	0.2%	0.7%	0.4%

Source: ADFG fish tickets and CFEC gross revenues data, 1995-2006.

First wholesale revenues for catcher processors that participated in the GOA Pacific cod fisheries are summarized in Table 3-28. First wholesale revenues from halibut, crab, salmon, and other non-groundfish catch for these vessels were not available for this analysis. The table shows that the GOA Pacific cod fisheries are a relatively small proportion of total production by trawl catcher processors. Trawl catcher processors mostly catch GOA Pacific cod incidentally while participating in other directed fisheries, and revenues from GOA Pacific cod comprised only 1 percent of first wholesale revenues during 2001-2006. Revenues for hook-and-line catcher processors were mainly from the BSAI Pacific cod fishery during 2001-2006 (82 percent). Gulf of Alaska Pacific cod and sablefish each comprised 9 percent of first wholesale revenues for hook-and-line catcher processors during 2001-2006. Relatively few pot catcher processors participate in the GOA and BSAI Pacific cod fisheries. During 2001-2006, the majority of first wholesale revenues were from the GOA Pacific cod fisheries (68 percent), and the remainder of revenues were from the BSAI Pacific cod fishery.

Table 3-28 First wholesale revenues from Alaska fisheries by catcher processors participating in the GOA Pacific cod fisheries during 2001-2006

Gear	Area	Fishery	Number of vessels	Total catch (mt)	Total revenues	Percent of revenues
Hook-and-line CPs	BSAI	Atka Mackerel	8	8	\$4,909	0%
		Flatfish	30	6,244	\$4,483,059	1%
		Pacific Cod	34	232,770	\$282,121,120	77%
		Pollock	34	8,209	\$6,275,126	2%
		Rockfish	29	308	249,187	0%
		Sablefish	20	945	\$4,681,280	1%
		BSAI Total		248,485	\$297,814,682	82%
	GULF	Atka Mackerel	3	1	\$986	0%
		Flatfish	23	323	\$358,847	0%
		Pacific Cod	33	26,749	\$31,271,457	9%
		Pollock	28	111	\$42,457	0%
		Rockfish	25	844	\$763,599	0%
		Sablefish	19	7,148	\$34,256,872	9%
		GULF Total		35,176	\$66,694,219	18%
BSAI and GULF Total			283,661	\$364,508,901	100%	
Pot CPs	BSAI	Atka Mackerel	1	*	*	*
		Flatfish	1	*	*	*
		Pacific Cod	3	1,439	\$1,489,190	32%
		Pollock	2	*	*	*
		Sablefish	1	*	*	*
	BSAI Total			*	*	32%
	GULF	Atka Mackerel	2	*	*	*
		Pacific Cod	6	2,828	\$3,153,216	68%
		Rockfish	1	*	*	*
		GULF Total		2,828	\$3,153,268	68%
BSAI and GULF Total			4,274	\$4,648,667	68%	
Trawl CPs	BSAI	Atka Mackerel	20	228,946	\$148,745,652	19%
		Flatfish	22	373,660	\$297,487,330	38%
		Pacific Cod	22	110,012	\$131,020,996	17%
		Pollock	22	60,413	\$47,685,964	6%
		Rockfish	20	37,458	\$29,749,227	4%
		Sablefish	19	721	\$3,532,277	0%
		BSAI Total		811,210	\$658,221,446	84%
	GULF	Atka Mackerel	16	1,791	\$1,079,160	0%
		Flatfish	22	51,408	\$48,828,975	6%
		Pacific Cod	21	8,973	\$10,616,356	1%
		Pollock	20	1,693	\$633,220	0%
		Rockfish	21	54,344	\$51,697,577	7%
		Sablefish	21	2,815	\$13,367,086	2%
		GULF Total		121,024	\$126,222,374	16%
BSAI and GULF Total			932,234	\$784,443,820	100%	

Source: Retained catch data from Catch Accounting/Blend database, 2001-2006.
First wholesale price per ton from Economic SAFE (Hiatt, 2007).

3.2 Analysis of the Components and Options

This section provides an overview of the expected effects of the proposed Pacific cod sector allocations. Data are presented to show the range of potential sector allocations based on the components and options currently under consideration. Following this overview is a discussion of the potential economic and socioeconomic effects which may occur as a result of allocating the GOA Pacific cod TACs to the harvest sectors. This discussion also addresses the potential interactions of this action with the proposed fixed gear recency action, which could add Pacific cod endorsements to fixed gear licenses. Pacific cod endorsements could limit the number of licenses eligible to fish during the directed Pacific cod fisheries in the GOA. Finally, effects on harvesters, processors, and communities are analyzed, followed by a description of the cumulative effects of the proposed amendment and other recent actions, and an analysis of the net benefits to the Nation.

Alternative 1 – No Action

Under the no action alternative, the Western and Central GOA Pacific cod TACs would not be allocated to the various sectors. The fisheries would continue to be managed as a limited access race for fish. If this alternative is selected, some sectors may increase their catch shares in the GOA Pacific cod fisheries in the future and erode the historic catch shares of other sectors. Increased participation may result in negative economic impacts on current participants in the fisheries. The future distribution of catch shares among the sectors in the absence of this action cannot be predicted, and depends on future market conditions, the size of Pacific cod TACs and other groundfish TACs, opportunities to participate in other fisheries, the future regulatory environment, and operating costs in the fisheries. Consequently, this analysis does not provide a quantitative estimate of the potential economic impacts of the no action alternative.

Current distribution of catch

Retained catch of Pacific cod by the various sectors during 1995-2007 is reported in Appendix A. The tables report (1) all retained catch of Pacific cod in parallel and federal waters, and (2) retained catch in the directed Pacific cod fisheries in parallel and federal waters. Catch and participation in the inshore and offshore processing components is also reported. The tables show that the distribution of retained catch among the sectors has changed substantially over time. In general, the fixed gear sectors have harvested a larger proportion of the catch during recent years, and the trawl sector has harvested less of the catch. However, there is also substantial year-to-year variability in catch shares. Under the no action alternative, the sectors would continue to race each other for shares of the GOA Pacific cod TACs, and there will likely continue to be substantial annual variability in the distribution of catch among the sectors.

Alternative 2 – Pacific Cod Sector Allocations

This section describes the impacts of the proposed action on the distribution of the Western and Central GOA Pacific cod TACs among the various sectors that participate in the fisheries. The tables show the ranged of potential sector allocations based on 2 definitions of qualifying catch: (1) all retained catch of Pacific cod in the parallel and federal fisheries, and (2) retained catch of directed Pacific cod in the parallel and federal fisheries. Both catch definitions exclude catch of Pacific cod from the State waters fisheries.

The proposed sector allocations would divide the Western and Central Gulf of Alaska Pacific cod TACs among the various gear sectors based on the historic distribution of catch. The Western and Central Gulf A season TACs are fully utilized, and vessels race for shares of the TACs. Sector allocations may reduce

competition among sectors for the A season TACs, but may not reduce competition among vessels within each sector or slow down the fisheries. During recent years, the GOA Pacific cod B season TACs have not been fully harvested. Trawl vessels, and to a lesser extent, hook-and-line vessels, race against each other for shares of the GOA halibut PSC apportionments during the B season, and halibut PSC limits often constrain B season catch by these sectors. During years when halibut PSC closures have not limited participation by trawl and hook-and-line vessels, the B season TACs have been fully fished. Sector allocations would protect historic B season shares during these years.

3.2.1 Options for Sector Definitions

Under the proposed action, the Council is considering options to make separate allocations of Pacific cod to hook-and-line catcher vessels, hook-and-line catcher processors, pot catcher vessels, pot catcher processors, trawl catcher vessels, trawl catcher processors, and jig catcher vessels. The Council is also considering suboptions to divide the hook-and-line and trawl catcher processor allocations by vessel length (CPs <125 ft and \geq 125 ft) and suboptions to divide the pot and hook-and-line catcher vessel allocations by vessel length (CVs <60 ft and \geq 60 ft). Dividing sector allocations by vessel length may protect harvest shares of smaller catcher processors and catcher vessels. Finally, the Council is considering a suboption to combine the pot and hook-and-line catcher vessel allocations. It should be noted that the Council could choose any of these individual suboptions to divide sectors by vessel length, or could choose to combine all vessels within these sectors or across sectors.

The Council considered, but rejected, options to establish separate allocations for trawl and hook-and-line catcher processors that have historically fished off the inshore TACs. Establishing distinct inshore catcher processor allocations would protect harvest shares of smaller catcher processors, if combined with a provision to limit entry to the inshore processing component. Prior to removing the option to create distinct inshore catcher processor allocations, the Council reviewed data which showed that during most years, nearly all catcher processors less than 125 feet in length elected to fish inshore. Therefore, if catcher processor allocations are based on vessel length (vessels less than and greater than 125 feet in length), these allocations would be nearly identical to allocations based on catch by the inshore and offshore processing components.

The inshore/offshore processing allocations could potentially be eliminated and replaced with allocations to the harvest sectors. If this occurs, catcher processor and catcher vessel harvests will be constrained by their respective sector allocations. However, there would be no longer be a limit on the amount of catch processed on a weekly basis by motherships (equivalent to the current inshore definition) or on the total catch processed by motherships.

Under current regulations, the inshore processing component includes three categories of processors:

- (1) Shoreside processors
- (2) Vessels less than 125 ft LOA that hold an inshore processing endorsement on their Federal Fisheries Permit, and that process no more than 126 mt per week (round weight) or an aggregated amount of pollock and Pacific cod.
- (3) Stationary floating processors that hold an inshore processing endorsement on the Federal processor permit, and that process pollock and/or Pacific cod harvested in a directed fishery for those species at a single geographic location in Alaska State waters during a given year.

The offshore component includes all vessels not included in the definition of the inshore component that process groundfish harvested in the GOA. The inshore processing component is allocation 90 percent of the Western and Central Gulf Pacific cod TACs, and the offshore component is allocated 10 percent of the Pacific cod TACs. The inshore/offshore processing allocations were established under Amendment

23 to the GOA FMP and became effective on June 1, 1992. The processing allocations developed out of concern over one processing sector preempting the other. The problem statement adopted by the Council stated that specific processing allocations to the inshore and offshore sectors would resolve the preemption problem and allow operators to better plan their annual harvesting and processing activities. The primary purpose of Amendment 23 was to protect the inshore component from preemption by the offshore fleet.

Shoreside processors currently process nearly all Pacific cod harvested by catcher vessels in the Western and Central Gulf of Alaska. Few motherships have participated in the GOA Pacific cod fisheries during recent years (see Table 3-19). In 2006 and 2007, a single mothership operated in the Western Gulf. Under the current inshore/offshore regulations, the offshore component is limited to processing 10 percent of the Western and Central GOA Pacific cod TAC, which may limit the potential for motherships to operate in the GOA. There is little incentive for motherships to operate inshore due to the weekly processing limit (126 mt per week of pollock and Pacific cod) combined with the restriction on vessel length.

Catcher processors and motherships must make an annual election to participate in either the inshore or offshore processing components. Some vessels <125 ft LOA have moved between the inshore and offshore components over the years. During recent years, several catcher processors and motherships have participated in the directed Pacific cod fisheries in the BSAI and GOA without a Federal Fisheries Permit (FFP) and have fished only in parallel waters. Because these processors did not obtain FFPs, they were not required to choose a processing component. In practice, NMFS has assigned the catch processed by these vessels to either the inshore or offshore component based on the vessel's size and processing activity, and has deducted this catch from the appropriate TAC.

Currently, deliveries to offshore motherships by catcher vessels account to the offshore TACs. Under sector allocations, these deliveries would account to the allocations of the respective catcher vessel sectors making the deliveries. Catcher processors could potentially act as both catcher processors and motherships and accept deliveries from catcher vessels. If the inshore and offshore processing allocations are eliminated and replaced with harvest sector allocations, the Council may wish to consider measures to ensure stability in the distribution of catch among the processing sectors.

Finally, the fixed gear LLP recency action currently being considered by the Council may extinguish fixed gear licenses that do not have recent catch history in the GOA groundfish fisheries, and may also create Pacific cod endorsements on fixed gear licenses to limit entry into the directed Pacific cod fisheries in the Western and Central Gulf of Alaska. Pacific cod endorsements could also restrict licenses to using the specific fixed gear type (e.g., pot or hook-and-line) and operation type (catcher processor or catcher vessel) specified on the endorsement. The pot, hook-and-line, and jig catcher vessel sectors could be subject to the endorsement requirement. Pot and hook-and-line catcher processors could also be subject to the Pacific cod endorsement requirement, and there is an option to create vessel length designations on hook-and-line catcher processor endorsements. The Council may wish to make the sector allocation definitions consistent with Pacific cod endorsement sector definitions. Pacific cod endorsements could specify both the gear and operation type that may be used.

3.2.2 Options for Defining Qualifying Catch

The Council is currently considering two options for defining qualifying catch:

- (1) All retained catch from the federal and parallel fisheries, including incidental catch of Pacific cod in other target fisheries.
- (2) All retained catch from the *directed* federal and parallel Pacific cod fisheries.

The tables in Appendix A report annual catch by each sector in the Western and Central Gulf of Alaska Pacific cod fisheries during 1995-2007. Retained catch and retained directed catch are presented in separate tables. Note that sectors are not mutually exclusive, and some vessels have catch history in more than one sector. These tables also show each sector's annual harvest share as a percentage of the total retained catch by all sectors.

Since 1995, there have been some notable shifts in the proportion of catch taken by the various sectors. In general, the proportion of Western and Central Gulf Pacific cod caught by trawl catcher vessels has declined, while the proportion caught by pot catcher vessels has increased. This trend is particularly apparent in the Western Gulf. From 1995-2005, trawl catcher vessels harvested the largest share (47 percent) of Pacific cod in the Western Gulf, followed by pot catcher vessels (26 percent), and hook-and-line catcher processors (22 percent). From 2000 to 2006, pot catcher vessels harvested a larger share (41 percent) than trawl catcher vessels (31 percent). Similarly, in the Central Gulf, trawl catcher vessels harvested the largest share (51 percent) of Pacific cod during 1995-2005, but the trawl share decreased to 45 percent from 2000-2006. Catch by hook-and-line vessels has also increased in recent years. The hook-and-line catcher vessel share increased from 17 percent during 1995-2005 to 22 percent during 2000-2006. Jig catcher vessels typically harvested less than 1 percent of the total catch of Pacific cod in the Western and Central Gulf. Jig catch has generally been increasing since 1995.

In developing catch history estimates for recent sector allocations, the Council at times has elected to exclude meal from estimates of catch history. Meal has typically been excluded when a certain segment would be disadvantaged by the inclusion of meal in calculations. Specifically, small catcher processors without meal plants could be disadvantaged. However, Weekly Production Reports indicate that in the Gulf of Alaska no catcher processors produced meal from Pacific cod during 1995 to 2006. Pacific cod is a relatively high value product, and the majority of cod is processed into headed and gutted products or fillets. Fish tickets may designate catch as 'destined for meal production,' but this estimate is not particularly reliable and may underestimate the amount of catch that is actually used for meal production. Catch destined for meal production is a relatively minor component of the total retained catch by catcher vessels. For example, in the Central Gulf, approximately 1.0 percent of retained catch by trawl catcher vessels was destined for meal production between 1995 and 2005. From 2000 to 2006, approximately 1.7 percent of Central Gulf trawl catcher vessel catch was destined for meal production. In general, catch destined for meal production comprised less than 1 percent of total retained catch for other catcher vessel sectors. Based on these data and public testimony, the Council rejected options to exclude catch destined for meal production from the definition of qualifying catch.

Estimates of retained directed catch of Pacific cod (Tables A-2 and A-4) exclude incidental catch of cod after the directed A season closes and before the directed B season opens on September 1. Pacific cod was designated an Increased Retention/Increased Utilization species in 1998 under Amendment 49 to the Gulf of Alaska FMP. Vessels are required to retain any Pacific cod that they catch incidentally while participating in other directed fisheries, up to the maximum retainable amount (MRA). The MRA for Pacific cod is 20 percent for most directed fisheries in the Gulf of Alaska. In the Central Gulf, trawl catcher vessels participate in the flatfish and rockfish fisheries and catch a substantial proportion (typically 20 to 25 percent during recent years) of their annual Pacific cod catch as incidental catch while participating in these other directed fisheries. Under the Central Gulf Rockfish Pilot Program, catcher vessels targeting rockfish currently receive an allocation of 2.09 percent of the Central Gulf Pacific cod TAC to accommodate incidental catch needs. This percent allocation would be deducted off the top of the Central Gulf Pacific cod sector allocation to trawl catcher vessels. Catcher processors participating in the Rockfish Pilot Program do not receive an incidental catch allocation of Pacific cod, but are limited by an MRA of 4 percent. This incidental catch would not be deducted off the top of the trawl catcher processor allocation, but would count against the catch processor allocation on an inseason basis. If

directed catch is used by the Council to allocate GOA Pacific cod among the sectors, a separate incidental catch allowance will need to be set aside to accommodate the incidental catch needs of each sector. The Council discussed options for management of incidental catch at its December 2007 meeting, and that discussion is summarized below.

3.2.3 Management of Incidental Catch

At its October 2007 meeting, the Council requested that staff discuss management tools and incentives to reduce incidental catch of Pacific cod (and discards) in the Gulf of Alaska in the context of sector allocations. The Council received a staff discussion paper that addressed these issues at its December 2007 meeting. At that time, the Council added a provision to **Component 3** of the motion that directs NMFS to manage each sector's incidental catch needs out of its own allocation.

If Pacific cod sector allocations are implemented, each sector will receive a fixed percentage of the Western and Central Gulf TACs, and both directed and incidental catch by a sector would count against that sector's allocation. Each sector would be managed to its allocation so that a sector's incidental catch would not impose a cost on other sectors. Management of incidental catch would be very similar to the status quo, but would be on a sector basis. For example, managers would time the closure of each sector's directed A season to leave a sufficient portion of that sector's allocation to accommodate incidental catch by that sector in other directed fisheries during the remainder of the A season. In determining how much quota to leave for incidental catch needs, inseason managers would take into account each sector's interest in prosecuting other directed fisheries, the TACs in those fisheries, and the CPUE of Pacific cod during the directed season. Incidental catch would continue to count toward the A season allocations until the A season ends on June 10. Any A season overage or incidental catch between the end of the A season (June 10) and the beginning of the B season (September 1) would count toward the B season allocations.

The alternative to managing incidental catch out of each sector's allocation is to set aside an incidental catch allowance (ICA) off the top of the TACs. Setting aside ICAs may create incentives for sectors to increase incidental catch levels. Inseason management tends to set ICAs conservatively to avoid complicating the management of other directed fisheries and to minimize regulatory discards. If the ICA is fully utilized, NMFS may increase the ICA during the following year. This may create an incentive for sectors to use the entire ICA to increase the following year's ICA. Increases in the ICA would erode catch shares of sectors with little incidental catch and effectively increase the quota for sectors that take the most incidental catch.

Reserving a single ICA off the top of the TAC also gives managers less flexibility to respond inseason to conditions in the fisheries. If the ICA is too large, unused quota has to be reallocated at some point during the season. If the ICA is too small, it may constrain participation in other directed fisheries or cause Pacific cod to be placed on PSC status, where all incidental catch of cod would be discarded. Setting aside an ICA also complicates the harvest specifications process and may make the fishery more difficult to manage.

Allowing NMFS to manage each sector's allocation individually, by estimating incidental catch needs inseason and timing the directed season closure, has several advantages over setting a single ICA to cover all sectors. The primary advantage of this approach is that it does not penalize sectors with little incidental catch or create incentives for a sector to increase its incidental catch. If individual sectors are managed independently and a sector increases its incidental catch during one fishing year, inseason management would reserve more of that sector's allocation for incidental catch during the following year. This increase would not affect allocations to other sectors.

This approach also provides the most flexibility to inseason managers to manage the incidental catch needs of each sector conservatively and minimize discards. Under this option, NMFS will be able to time the closure of each sector's directed fishery to leave enough cod available to meet incidental catch needs. Total catch is likely to stay within or close to the ABC, and Pacific cod is unlikely to be placed on PSC (discard) status. In the BSAI cod fishery, Pacific cod is not necessarily placed on PSC status if the ICA is exceeded, and retention of incidentally caught Pacific cod may exceed the ICA. This places the burden of determining the appropriate ICA on inseason managers, rather than penalizing the sector for higher than expected incidental catch. This management strategy minimizes discards, because Pacific cod is not automatically placed on PSC status if the ICA has been fully harvested. This approach is straightforward to implement and manage. It is relatively simple to give each sector a single allocation of Pacific cod based on historic catch levels that is sufficient to accommodate incidental catch needs.

3.2.4 Comparison of catch history using different data sets

In developing catch histories for recent sector allocations, the Council has typically used Fish Tickets for catcher vessels and Weekly Production Reports (WPRs) for catcher processors. An alternative is to use the NMFS Blend (1995-2002) and Catch Accounting (2003-present) databases, which incorporate observer data as well as Fish Tickets and WPRs. NMFS uses the Blend and Catch Accounting databases to manage the fishery inseason, and these databases comprise the official catch record. In **Appendix B**, estimates of total retained catch based on the Blend and Catch Accounting databases are compared to catch estimates based on Fish Tickets and WPRs. In general, ADFG Fish Tickets are a more complete record of catcher vessel catch than the Blend database, particularly in the years prior to implementation of the AFA. As a result, catch estimates based on fish tickets are generally higher than those from the Blend database.

Catch estimates based on WPRs are generally lower than those in the Blend and Catch Accounting databases. Discrepancies between WPRs and Blend/Catch Accounting data may be the result of underreporting on WPRs, the use of product recovery rates to back-calculate round weights for catch recorded on WPRs, and the incorporation of observer estimates in Blend/Catch Accounting data. The advantage of using WPRs for allocations is that certain product types, such as meal, can be excluded from catch estimates. The Blend and Catch Accounting databases do not contain a record of products produced. However, in the Gulf of Alaska no catcher processors produced meal from Pacific cod during 1995-2006. For this reason, the Council elected to use Blend and Catch Accounting data rather than WPRs to calculate qualifying catch for catcher processors.

3.2.5 Options for Calculating Sector Allocations

Options include two qualifying periods:

- Qualifying years 1995-2005: average of best 5 or 7 years
- Qualifying years 2000-2006: average of best 3 or 5 years

The range of potential percent sector allocations of the Western and Central GOA Pacific cod TACs are summarized in Tables 3-29 and 3-30. The qualification period that includes earlier years (1995-2005) generally favors the trawl catcher vessel sector, particularly in the Western Gulf. The qualification period that only includes more recent years (2000-2006) generally favors the pot catcher vessel sector, and, to a lesser extent, the hook-and-line sectors. Using each sector's best years reduces the disparities among the options somewhat, but there are still strong differences among the options depending on the range of qualifying years selected by the Council. For example, depending on which definition of qualifying catch is used, the trawl catcher vessel allocation could range from 30.2 to 47.2 percent of the Western Gulf TAC and 38.1 to 47.8 percent of the Central Gulf TAC. Similarly, the pot catcher vessel allocation could

range from 27.3 to 42.0 percent of the Western Gulf TAC and 24.6 to 30.3 percent of the Central Gulf TAC.

The Council has indicated its intent to reduce the Central Gulf trawl catcher vessel allocation by the percentage of the Pacific cod TAC allocated to the Central Gulf Rockfish pilot program. A fixed percentage of the Central Gulf Pacific cod TAC is currently allocated to catcher vessels participating in the Rockfish Pilot Program to meet incidental catch needs. Currently, this allocation is 2.09 percent of the Central Gulf Pacific cod TAC. The percent allocation to the trawl catcher vessel sector would simply be reduced by the percent allocation to the catcher vessels participating in the Rockfish Pilot Program during the tenure of that program.

There are suboptions to establish separate allocations for hook-and-line and trawl catcher processors based on vessel length (<125 ft and \geq 125 ft). There are also suboptions to establish separate allocations for hook-and-line and pot catcher vessels based on vessel length (<60 ft and \geq 60 ft). In some cases, these divisions would result in manageable allocations. For example, if the pot catcher vessel allocation is split by vessel length, it would be divided fairly evenly between <60 ft and \geq 60 ft LOA vessels in both the Western and Central Gulf. This division would ensure that larger pot vessels would not encroach on historic catch shares of smaller vessels. For informational purposes, pot catcher vessel catch is reported by vessels <50 ft LOA, 50-59 ft LOA, and \geq 60 ft LOA in Appendix A, Tables A-11 and A-12.

In other cases, these divisions result in allocations that may be too small to allow NOAA fisheries to open directed fisheries for some sectors. In general, four or fewer trawl catcher processors <125 feet LOA have Pacific cod catch in the Western and Central Gulf during recent years, and catch by these smaller catcher processors has comprised approximately 1 percent of all retained catch. The entire trawl CP allocation would amount to approximately 3 to 6 percent of the Central Gulf TAC and 1 to 3 percent of the Western Gulf TAC. Dividing these trawl CP allocations by vessel length may make managing them impracticable, and may preclude NMFS from opening directed fisheries for the sectors. Most of the trawl catcher processors that have fished in the GOA during recent years are Amendment 80 vessels. Amendment 80 vessels are subject to Pacific cod sideboards in the GOA. Catch of Pacific cod is limited to the proportion of the Western and Central Gulf TACs caught by Amendment 80 vessels during 1998-2004. In the Central Gulf, Amendment 80 vessels are capped at 4.4 percent of the TAC, and in the Western Gulf, Amendment 80 vessels may catch up to 2.0 percent of the TAC. The Western and Central GOA trawl catcher processor allocations could potentially be set lower than the Amendment 80 sideboard amounts. Sideboards limit the amount of catch by a sector, but do not guarantee that sector a specific amount of TAC (i.e., sideboards are not allocations).

Dividing the Western Gulf hook-and-line CP allocation by vessel length would likely result in manageable allocations. The majority of hook-and-line CP catch in the Western Gulf has been by vessels less than 125 feet LOA, but the allocation to vessels \geq 125 ft LOA would likely be sufficient (approximately 3 to 5 percent of the TAC) to support a directed fishery. In the Central Gulf, hook-and-line catcher processors <125 feet LOA would receive less than 1 percent of the TAC, and large CPs would receive 2 to 4 percent of the TAC. These allocations are quite small. Smaller allocations mean that inseason management needs to be more conservative to ensure that each sector stays within its allocation.

Table 3-29 Potential percent allocations of the Western and Central Gulf Pacific cod TACs

Western Gulf									
	Period		HAL CP	HAL CV	Jig CV	POT CP	Pot CV	Trawl CV	TRW CP
All cod	1995-2005	Best 7 years	19.8	0.6	0.5	2.2	27.3	47.1	2.5
	1995-2005	Best 5 years	18.5	0.7	0.5	2.5	30.0	45.4	2.4
	2000-2006	Best 5 years	21.7	0.6	0.7	2.3	40.5	31.8	2.6
	2000-2006	Best 3 years	21.4	0.8	0.8	2.7	41.4	30.2	2.7
Directed cod	1995-2005	Best 7 years	19.6	0.5	0.5	2.3	28.3	47.2	1.7
	1995-2005	Best 5 years	18.5	0.5	0.6	2.6	31.0	45.1	1.7
	2000-2006	Best 5 years	21.7	0.5	0.7	2.4	41.2	32.3	1.2
	2000-2006	Best 3 years	21.5	0.7	0.8	2.8	42.0	30.8	1.3

Central Gulf									
	Period		HAL CP	HAL CV	Jig CV	POT CP	Pot CV	Trawl CV	TRW CP
All cod	1995-2005	Best 7 years	2.8	17.2	0.2	2.1	24.6	47.8	5.3
	1995-2005	Best 5 years	3.4	17.5	0.2	2.0	25.3	45.9	5.6
	2000-2006	Best 5 years	4.2	20.7	0.3	1.2	25.2	44.0	4.4
	2000-2006	Best 3 years	4.7	19.4	0.4	1.4	27.9	41.8	4.4
Directed cod	1995-2005	Best 7 years	3.1	18.5	0.2	2.6	25.9	45.6	4.2
	1995-2005	Best 5 years	3.8	18.9	0.2	2.4	26.5	43.6	4.6
	2000-2006	Best 5 years	4.6	22.6	0.3	1.8	27.9	39.7	3.1
	2000-2006	Best 3 years	5.2	21.1	0.4	1.5	30.3	38.1	3.4

Table 3-30 Potential percent allocations of the Western and Central Gulf Pacific cod TACs under suboptions to split sectors by vessel length (LOA)

Western Gulf													
	Period		HAL CP <125	HAL CP ≥125	HAL CV <60	HAL CV ≥60	Jig CV	Pot CP	Pot CV <60	Pot CV ≥60	Trawl CV	Trawl CP <125	Trawl CP ≥125
All cod	1995-2005	Best 7 years	16.5	3.7	0.4	0.2	0.5	2.2	13.5	13.7	46.6	1.3	1.5
	1995-2005	Best 5 years	15.6	3.8	0.5	0.2	0.5	2.5	14.3	15.5	44.3	1.2	1.6
	2000-2006	Best 5 years	17.5	4.6	0.6	0.0	0.6	2.2	18.5	22.4	31.1	1.4	1.2
	2000-2006	Best 3 years	17.7	4.9	0.7	0.0	0.8	2.6	19.4	22.2	29.0	1.3	1.3
Directed cod	1995-2005	Best 7 years	16.6	3.4	0.4	0.1	0.5	2.3	13.9	14.4	46.7	0.9	0.9
	1995-2005	Best 5 years	15.8	3.7	0.4	0.1	0.5	2.6	14.9	16.0	44.0	1.0	1.0
	2000-2006	Best 5 years	17.7	4.5	0.5	0.0	0.7	2.3	18.8	22.8	31.5	1.0	0.3
	2000-2006	Best 3 years	17.8	4.8	0.7	0.0	0.8	2.7	19.8	22.6	29.6	1.0	0.3

Central Gulf													
	Period		HAL CP <125	HAL CP ≥125	HAL CV <60	HAL CV ≥60	Jig CV	Pot CP	Pot CV <60	Pot CV ≥60	Trawl CV	Trawl CP <125	Trawl CP ≥125
All cod	1995-2005	Best 7 years	0.8	2.1	15.7	1.5	0.2	2.1	11.6	13.0	47.5	1.5	4.2
	1995-2005	Best 5 years	0.9	2.7	16.0	1.6	0.2	2.0	11.5	13.6	45.5	1.5	4.5
	2000-2006	Best 5 years	0.7	3.6	18.7	2.1	0.3	1.2	10.9	14.3	43.7	1.8	2.8
	2000-2006	Best 3 years	0.8	4.1	17.7	2.1	0.4	1.4	11.3	16.2	41.2	1.8	3.0
Directed cod	1995-2005	Best 7 years	0.8	2.7	16.9	1.5	0.2	2.5	12.1	13.7	45.1	0.9	3.6
	1995-2005	Best 5 years	0.9	3.0	17.3	1.6	0.2	2.3	12.0	14.3	43.2	1.0	4.0
	2000-2006	Best 5 years	0.7	4.0	20.5	2.2	0.3	1.8	12.1	15.8	39.5	1.0	2.2
	2000-2006	Best 3 years	0.8	4.6	19.4	2.2	0.4	1.5	12.3	17.6	37.6	1.0	2.6

In both the Western and Central Gulf, hook-and-line catcher vessels <60 ft LOA have historically taken a higher proportion of the catch than larger vessels. However, in the Western Gulf, the entire hook-and-line catcher vessel allocation would amount to less than 1 percent of the TAC, and dividing this allocation by vessel length would likely mean that NMFS would not open a directed fishery for the ≥60 feet LOA sector. In the Central Gulf, hook-and-line CVs <60 feet in length would receive approximately 15

percent to 20 percent of the TAC, but ≥ 60 ft LOA vessels would receive only 1 to 2 percent of the TAC. An alternative way of dividing this sector would be to split the allocation between vessels < 50 ft LOA and ≥ 50 ft LOA. The number of vessels that are between 50 and 60 ft LOA participating in the directed fishery in the Central Gulf has increased during recent years (see Table 3-31), and there is potential for more growth in this sector, because vessels < 60 ft LOA are not required to carry federal observers. In the Central Gulf, the majority of the hook-and-line fleet's catch history has been harvested by vessels < 50 ft LOA. If the hook-and-line allocation is split at 60 feet, this may leave the < 50 ft LOA fleet vulnerable to an influx of effort. Dividing the Central Gulf hook-and-line CV sector at 50 ft rather than at 60 ft may help protect historic catch shares of the smaller vessel fleet. Also, this division may make these allocations more manageable. Vessels ≥ 50 ft LOA would receive an allocation of approximately 5 to 7 percent of the Central Gulf TAC, rather than the 1 to 2 percent that would be allocated to vessels ≥ 60 ft LOA.

Finally, there is a suboption to create a combined pot and hook-and-line catcher vessel allocation. Separate calculations of this allocation are not provided in this analysis. However, the tables in Appendix A (Tables A-1 through A-4) present annual catch estimates by sector, and these estimates may be combined across sectors to calculate percent allocations for any combination of sectors. In general, in the Western Gulf the hook-and-line catcher vessel sector would receive less than 1 percent of the Western Gulf TAC, and pot catcher vessels would receive 27 to 42 percent of the TAC. If these sectors were combined, the total allocation would be approximately 28 to 43 percent of the Western Gulf TAC (results may differ slightly if annual catch by the two sectors is first combined, then ranked, rather than simply adding the allocations of the individual sectors). In the Central Gulf, the combined pot and hook-and-line allocation would range from 42 to 51 percent of the TAC.

Table 3-31 Number of vessels and retained catch of Pacific cod (mt) by hook-and-line catcher vessels in the Central Gulf reported by vessel length (LOA), 1995-2007

Year	HAL CV <50				HAL CV 50-59				HAL CV ≥ 60			
	All cod		Directed cod		All cod		Directed cod		All cod		Directed cod	
	Vessels	Catch	Vessels	Catch	Vessels	Catch	Vessels	Catch	Vessels	Catch	Vessels	Catch
1995	280	3,280	107	3,168	42	451	8	415	57	815	4	759
1996	133	3,129	115	3,110	24	912	17	909	17	451	6	445
1997	218	5,141	134	5,074	51	1,005	26	964	39	255	10	217
1998	184	4,705	114	4,630	47	631	13	560	39	479	7	436
1999	195	4,553	116	4,462	64	1,120	41	1,060	52	483	22	426
2000	235	4,578	121	4,491	59	1,138	21	1,100	48	814	6	781
2001	182	4,433	95	4,358	55	958	17	924	37	292	3	267
2002	132	5,551	68	5,501	44	1,052	22	1,020	34	264	8	227
2003	114	2,708	57	2,556	41	525	12	503	32	353	4	304
2004	109	3,994	62	3,912	44	741	13	703	39	688	14	654
2005	104	3,118	68	3,099	50	633	24	616	37	379	14	352
2006	129	3,839	82	3,805	47	1,548	33	1,526	32	795	15	759
2007	134	4,207	91	4,156	67	1,645	38	1,584	38	490	23	458

Source: ADFG Fish Tickets.

If a combined pot and hook-and-line sector allocation is created, a parallel option under the fixed gear recency action could be to give qualifying vessels a fixed gear Pacific cod endorsement rather than a gear specific (i.e., pot or hook-and-line) endorsement. This endorsement would allow vessels to fish during the directed Pacific cod fishery using either pot or hook-and-line gear, and this catch would be deducted from the combined pot and hook-and-line allocation. A combined allocation may be desirable if participants in these two sectors are likely to cross over and use the other gear type. However, the data indicate that while some vessels have switched gear types over the years, few vessels fish for Pacific cod using both pot and hook-and-line gear during a given fishing year. Creating a combined allocation (and no provision to limit entry to the sectors) could result in opportunistic movement between gear types, and

increased competition not only for the Pacific cod resource, but also for the hook-and-line halibut PSC apportionment, to the detriment of historic participants.

3.2.6 Jig Allocation

The Council is considering options to set aside 1, 3, 5, or 7 percent of the Western and Central GOA Pacific cod TACs for the jig catcher vessel sector, with a stairstep provision to increase the jig allocation by 1, 2, or 3 percent if 90 percent of the federal jig allocation in a management area is harvested in any given year. It should be noted that under the current options for a stairstep increase in the jig allocation, there is no ceiling on the jig allocation. However, there is an option to step down the jig allocation by 1 percent per year if 90 percent of the allocation is not harvested during 3 consecutive years. In the current set of options, the jig allocation could be set aside from the A season TAC, the B season TAC, or divided between the A and B season TACs. However, it is important to note that the jig sector is not exempt from Steller Sea Lion protection measures, and apportioning the jig allocation in a manner that is different from the status quo 60/40 seasonal split of the GOA Pacific cod TACs would likely require analysis. Under Amendment 85, the BSAI Pacific cod allocation to catcher vessels <60 ft LOA using pot and hook-and-line gear is not apportioned seasonally. This sector receives an initial allocation of 2 percent of the TAC, and also receives a rollover of any unused jig quota. The jig allocation is 1.4 percent of the BSAI TAC and this allocation is seasonally apportioned.

During recent years, the jig sector has harvested less than 1 percent of the Western and Central GOA Pacific cod TACs (see Appendix A). In 2006, the jig sector harvested 0.4 percent of the retained catch of Pacific cod in the Central Gulf. Only one jig vessel participated in the Western Gulf cod fishery in 2006. In 2005, jig vessels caught 0.4 percent of the total retained catch in the Western Gulf. Based on 2006 and 2007 catch levels, the jig sector would not fully use a 1 percent allocation, and would not be eligible for an increased allocation unless catch levels increased substantially.

However, jig catch has fluctuated considerably, and during recent years (2001, 2002, and 2004) the jig share exceeded 1 percent of the total retained catch in the Western Gulf. Under options being considered by the Council, these catch levels would trigger a stairstep increase in the Western Gulf jig allocation to 2 percent or more of the TAC. The Council heard public testimony expressing concern that increases in the jig quota could result in stranded quota during years when jig catch is low. Consequently, the Council's motion includes an option to step down the jig allocation by 1 percent if it is not 90 percent harvested during three consecutive years, but the jig allocation would not fall below its initial level.

Options for management of the jig allocation

Several concerns regarding management of the jig fishery have been expressed during public testimony and Council deliberations:

- State GHUs have been underharvested in recent years, and jig harvests have been particularly low, resulting in stranded State waters quota.
- Under the proposed GOA Pacific cod sector allocations, there may be timing conflicts between the federal and State seasons if the federal jig and pot seasons no longer close on the same date.
- Under the proposed sector allocations, the jig sector may be allocated a relatively small proportion of the TAC, and managing a small allocation may be difficult. Consolidating the federal and State jig allocations and managing them jointly may facilitate more efficient and effective management of the fishery while maximizing access to the resource.

The Council requested that staff work with ADFG and NMFS to discuss options for creating a workable jig fishery that minimizes the amount of stranded quota in both the federal and State waters jig fisheries.

Options for management of the jig fishery could include:

- Option 1** State managed fishery, where the State would manage the federal jig allocation out to 200 miles under delegated management authority.
- Option 2** Federally managed fishery, where NMFS would manage the federal jig allocation (in combination with the current State waters jig allocation).
- Option 3** Separate federal and State waters seasons (status quo).

Most (more than 90 percent) of jig catch is typically harvested during the State waters fisheries, and the majority of jig landings occur during March through May. Most jig vessels with Pacific cod catch during the federal seasons in the GOA do not have LLP licenses and only have parallel waters landings (see Table 3-32). Nearly all catch by jig vessels was from the parallel waters, even for vessels that hold a valid LLP license. This indicates that LLP licenses may not be the most important factor limiting jig vessels from fishing in federal waters. Inclement weather during the federal directed Pacific cod seasons and small vessel size may be more important in limiting jig effort in federal waters. The proposed fixed gear recency action currently includes an option to exempt jig vessels from the LLP requirement. This exemption alone may not result in a significant increase in jig participation in the federal Pacific cod fisheries. However, if jig vessels were able to fish in federal waters during March through May, jig effort and catch may increase.

Table 3-32 Number of jig vessels with groundfish and Pacific cod catch in the Western and Central Gulf, and number of vessels that hold LLP licenses

Year	Central Gulf				Western Gulf			
	All groundfish		Pacific cod		All groundfish		Pacific cod	
	LLP	No LLP	LLP	No LLP	LLP	No LLP	LLP	No LLP
2000	13	20	5	12	3	3	3	1
2001	7	18	4	11	3	14	3	14
2002	10	12	3	4	10	23	9	21
2003	6	14	5	7	4	7	4	7
2004	10	34	7	28	8	15	8	15
2005	6	31	6	22	1	6	1	5
2006	9	19	7	17	1	1	0	1
2007	7	20	6	12	2	2	2	2

Source: ADFG fish tickets and RAM groundfish LLP license file, January 2008.

Note: ‘No LLP’ includes vessels that did not have a groundfish LLP license at the time of landing. It does not include vessels that held LLPs, but did not have the appropriate area endorsement or gear designation.

OPTION 1 Delegating management authority to the State

In several cases, federal management authority for a species or species complex has been transferred to the State of Alaska, and the species or species complex has been removed from the federal Fisheries Management Plan (FMP). Removing a species or species complex from an FMP and transferring management authority to the State requires an FMP amendment. Such transfers have typically occurred for species that primarily occur in nearshore waters. For example, management of black and blue rockfish was transferred to the State and these species were removed from the GOA FMP, under Amendment 46 to the Gulf of Alaska Groundfish FMP. Similarly, management of dark rockfish will be transferred to the State, and dark rockfish will be removed from the respective federal FMPs, under proposed Amendment 73 to the BSAI FMP and Amendment 77 to the GOA FMP. Under these plan amendments, black, blue, and dark rockfish are managed exclusively by the State. In 2008 the Council is considering an action to defer management of all octopus species to the State.

In other cases, federal management authority for a species or species complex has been delegated to the State of Alaska and the species has remained in the FMP. For example, management authority for the demersal shelf rockfish species complex in southeast Alaska was delegated to the State of Alaska in 1986 under GOA Amendment 14, and the State's management authority was clarified in 1990 under GOA Amendment 21. However, this species complex is retained in the federal FMP and federal TACs are set during the harvest specifications process. If a species is retained in the federal FMP, the State is required to comply with federal requirements for management of that species. These requirements may impose additional costs on management agencies.

The BSAI crab fisheries are managed jointly by the State of Alaska and the federal government through the federal BSAI Crab FMP. The shared management structure was developed to allow both the State and federal agencies to contribute to decision making on issues for which each agency has management expertise. The BSAI Crab FMP establishes three categories of management measures. The three category structure was created to clearly delineate management responsibility between the State and Federal government. **Category 1** measures are fixed in the FMP and are under Council control. These include management measures required by the Magnuson-Stevens Act. Changes to Category 1 measures require an FMP amendment. **Category 2** measures are frameworked in the FMP, but are deferred to the State. The FMP framework guides State decision making so that it complies with the Magnuson-Stevens Act. Changes to framework language in the FMP require an amendment, but the Board of Fish has the discretion to revise management measures within the framework of the FMP. **Category 3** measures are under the discretion of the State. These management measures are not frameworked in the FMP.

Management measures are designed to meet the BSAI Crab FMP's management goals and objectives and the Magnuson-Stevens Act National Standards. The FMP defers most fishery management decisions to the State, but reserves some management decisions for the Council and NOAA fisheries, such as setting OFLs and ABCs. It also establishes a system for federal review and appeals of State management actions.

The GOA Pacific cod jig fishery could be managed jointly by the State of Alaska and the federal government under the GOA groundfish FMP. NOAA General Counsel indicated in a letter to the Council in February 2008 (attached as Appendix D) that management authority for the GOA Pacific cod jig fisheries in federal waters could be delegated to the State of Alaska. For this to occur, State and federal management responsibilities would need to be delineated in the FMP. Additional management measures would likely be required in the jointly managed fisheries that are not required in the State waters Pacific cod fisheries. For example, vessels fishing in federal waters would need to obtain Federal Fisheries Permits and comply with federal reporting requirements. Vessels using jig gear are not required to have an endorsement on their Federal Fisheries Permit to participate in the directed Pacific cod fisheries in the GOA. Consequently, vessels using jig gear are exempt from the Vessel Monitoring System (VMS) requirement (679.7(a)(18)).

Category 1 measures for the jig cod fishery could include legal gear, permit requirements, federal observer requirements, limited access provisions, and the license limitations program (LLP). **Category 2** measures could include guideline harvest levels (GHLs), inseason adjustments to GHLs, fishing seasons, pot limits, registration areas, closed areas. Finally, **Category 3** measures could include gear placement and removal, gear storage, vessel tank inspections, gear modifications, and State observer requirements.

Advantages to Option 1

- Creating a single, consolidated jig quota may be more efficient to manage, may minimize the amount of stranded quota, and may increase attainment of OY (National Standard 1).
- Potentially avoids timing conflicts that could occur with separate federal and State jig seasons.

- Provides jig sector the opportunity to fish in federal waters during months when weather conditions are more favorable.

Disadvantages to Option 1

- May increase ADFG management costs and staff burden.
- Delineating State and federal management responsibilities may complicate management of the fisheries.

OPTION 2 Federally-managed jig fishery

Under this option, the federal jig allocations would be combined with the State jig allocations and these combined quotas would be managed as a single jig quota in each of the respective GOA management subareas. Implementing this option would require action by the Board of Fish to allow NOAA fisheries to manage catch accounting of the State waters allocation to the jig sector. State and federal jig seasons could then be combined. This is perhaps the simplest option from a management perspective. The federal management measures to allow this option to occur are already in place. There would be no timing conflicts between the federal and State seasons, because the jig allocation would be managed as a single quota. This option also has the potential to minimize the amount of stranded jig quota. If the combined state and federal jig allocation is fully harvested during a given year, the allocation could be increased during the subsequent year. Any unused quota could be rolled over to other sectors participating in the federal and parallel waters Pacific cod fisheries if NOAA fisheries determined that this quota would otherwise remain unharvested. If exemptions from the LLP requirement are adopted for either all jig vessels or for jig vessels less than a specified vessel length (e.g., vessels less than 58 feet in length), these exemptions would allow for additional entry level opportunities that would allow the jig sector to grow.

Currently, the federal jig season opens on January 1 and closes when the A season TAC has been harvested. The State waters jig season opens approximately 1 week after the federal A season closes, and closes when the State waters GHL has been fully harvested, or on September 1. The federal B season currently opens on September 1 and closes when the B season TAC has been harvested. During recent years, the State GHL and federal B season TACs have not been fully harvested, and the jig season has essentially been open year-round. However, jig vessels are not able to fish in federal waters during the State waters season. If the federal and State jig allocations are combined and managed as a single quota, the jig season could open on January 1 and remain open until the jig allocation is fully harvested. Vessels could fish in both inside and outside waters during the entire year. On a fixed date (e.g., September 1) any quota projected by NOAA fisheries to be unused by the jig sector could be made available to other sectors. The key difference between the status quo (separate federal and State seasons, open essentially year-round to jig vessels) and the federally managed option, which could also be open year-round, is that under the federally managed option, jig vessels could fish in outside waters during the entire year. Another key difference is that by consolidating the State and federal jig allocations into a single quota, the staircase up (and down) provisions outlined by the Council could be applied to this quota, providing the jig sector the flexibility to grow, but ensuring that unused quota would be made available to other sectors during the fishing season.

Advantages to Option 2

- Creating a single, consolidated jig quota may be more efficient to manage, may minimize the amount of stranded quota, and may increase attainment of OY (National Standard 1).
- Provides jig sector the opportunity to fish in federal waters during months when weather conditions are more favorable.
- Avoids timing conflicts between State and federal seasons.

Disadvantages to Option 2

- Elements of the current State waters fishery may not be permissible under the Magnuson-Stevens Act (e.g., superexclusive registration areas, vessel size restrictions)
- Pot vessels only participating in the State waters fishery may no longer have access to any rolled over jig quota.

OPTION 3 Separate State and Federal Jig Seasons

Under this option there would continue to be separate State waters and federal jig fisheries. The State allocations to the jig sector currently include 50 percent of the Kodiak GHL, 25 percent of the Cook Inlet GHL, 15 percent of the South Alaska Peninsula GHL, and 10 percent of the Chignik GHL. In sum, these allocations amount to 8.06 percent of the Central Gulf ABC and 3.75 percent of the Western Gulf ABC. Under current State regulations, jig allocations may be rolled over to the pot sector on August 15 (Chignik) and September 1 (Kodiak and Cook Inlet). If federal Pacific cod sector allocations are implemented, the jig sector could receive a base allocation of 1, 3, 5, or 7 percent of the Western and Central GOA TACs. To prevent gear conflicts and to simplify catch accounting, the federal and State waters seasons would likely need to occur during distinct seasons. Jig catch during the State waters fisheries would be accounted for by ADFG and would count toward the GHLs. Jig catch in the parallel and federal waters fisheries would be accounted for by NOAA fisheries and would count toward the federal jig allocations.

Jig vessels fishing in federal waters are required to hold a Federal Fisheries Permit and a groundfish LLP license with appropriate gear, area, and operation type endorsements, and must comply with federal reporting requirements. Vessels fishing exclusively in parallel waters are not required to hold a Federal Fisheries Permit (FFP) or a groundfish LLP license, and are not required to comply with federal reporting requirements. Jig vessels are exempt from some of the federal requirements that apply to other vessels fishing in federal waters. Currently, these include an exemption from the Vessel Monitoring System (VMS) requirement in federal waters and an exemption from participating in the federal observer program. Under the proposed fixed gear recency action, the Council is considering options to (1) exempt jig vessels from the groundfish LLP requirement, and (2) exempt jig vessels from being required to carry fixed gear Pacific cod endorsements to participate in the directed cod fisheries in the GOA, if such endorsements are added to fixed gear LLP licenses.

Possible options for structuring the federal and State jig seasons include:

- (1) The federal season could continue to be split into an A and B season. The A season would open on January 1, and if the A season allocation has not been fully fished by a given date (e.g., March 1) any remaining quota could be made available to other sectors. If only a small amount of quota remains, it will not likely be practicable for inseason management to re-open the federal A season to other sectors. Unused A season quota would more likely be rolled over to the B season.
- (2) The State waters fisheries could open on a fixed date (e.g., March 1).
- (3) The federal jig B season could open on September 1 (or on an earlier date, if the State waters GHL is fully harvested), and remain open until the jig allocation is fully used.

Advantages to Option 3

- Distinct federal and State management measures would continue to exist.
- Pot vessels participating exclusively in the State waters fishery may continue to have access to rolled over jig quota.

Disadvantages to Option 3

- Any unused federal A season jig quota rolled over to the B season may end up as stranded quota. Unused State waters quota may also be stranded.
- Weather may limit participation during the federal and parallel waters fisheries- federal waters would be closed to jig vessels during March-August.

3.2.7 Rollover provisions for unused quota

Rollover provisions would make unused quota available to other sectors. The Council initially outlined options to roll over unused quota on specific dates. At its October 2007 meeting, the Council elected to remove this language from the motion, and replaced it with options that defer management of rollovers of unused quota to NMFS inseason management. During the fishing year, NMFS would make any portion of an allocation determined by NMFS to remain unharvested during the remainder of the fishing year available as soon as practicable to either: (1) other respective catcher vessel or catcher processor sectors first, and then to all sectors as necessary to harvest available TAC, or (2) all sectors. The rationale for deferring management of rollovers to NMFS was based on inseason management's experience in managing BSAI Pacific cod rollovers. Allowing NMFS flexibility in managing rollovers makes it less likely that quota will be stranded.

3.2.8 Allocation of the hook-and-line halibut PSC apportionment

The Council is considering options to allocate Gulf of Alaska hook-and-line halibut PSC to the hook-and-line catcher vessel and catcher processor sectors. Currently, hook-and-line catcher vessels and catcher processors share an annual limit of 290 mt of halibut PSC in the Gulf of Alaska (excluding 10 mt allocated to the demersal shelf rockfish fishery), which is divided into 3 seasonal apportionments.

Options for allocating hook-and-line halibut PSC include:

Option 1 No change in current apportionments of GOA halibut PSC

Option 2 Allocate halibut PSC to catcher processors and catcher vessels in proportion to the total Western and Central Gulf Pacific cod allocations to each sector

Option 3 Other apportionment (selected by the Council)

Under either Option 1 or 2, NMFS would make any unused halibut PSC available to the other sector as soon as practicable. A suboption, applicable to any of the options, would be to change the seasonal apportionments of halibut PSC. Currently, hook-and-line halibut PSC is apportioned into three seasons (see Table 3-3). The majority (86 percent) of PSC is apportioned to the first season (Jan 1– June 10). Only 2 percent (5 mt) is apportioned to the second season (June 10–September 1), and 12 percent (35 mt) is apportioned to the third season (Sept 1–Dec 31). However, if there is unused PSC during the first or second seasons, this PSC is rolled over to the following season, so the second and third season apportionments may be larger than these initial apportionments. During recent years, halibut PSC closures have occurred during the third season. The GOA Pacific cod hook-and-line fisheries were closed when the halibut PSC limit was reached in 2001 (on Sept 4) and 2004 (on Oct 2).

Halibut PSC by the hook-and-line sectors is estimated by federal observers. Vessels ≥ 125 ft LOA are 100 percent observed, vessels 60 – 125 ft LOA are 30 percent observed, and vessels < 60 ft LOA are not observed. During 2004-2006, observer coverage levels on hook-and-line catcher processors 60–125 ft LOA ranged from 7 to 73 percent (Table 3-33). Overall, 61 and 86 percent of hook-and-line catcher processor catch was observed during 2004 and 2006. Observer coverage on hook-and-line catcher vessels 60–125 ft LOA delivering shoreside during 2004-2006 ranged from 13 to 43 percent. However, observed vessels comprised a small proportion of the hook-and-line catcher vessel fleet. Overall observer coverage for hook-and-line catcher vessels delivering shoreside ranged from 2 to 4 percent during 2004-2006.

Table 3-33 Observer coverage in the Pacific cod target fisheries in the GOA during 2004-2006, including total catch (mt), observed catch (mt), and percent of catch observed for each sectors

Catcher processors and Motherships

		2004			2005			2006		
Gear	Length (feet)	Total (mt)	Observed (mt)	Percent observed	Total (mt)	Observed (mt)	Percent observed	Total (mt)	Observed (mt)	Percent observed
Hook-and-line	60-125	2,394	509	21%	*	*	7%	2,243	1,631	73%
	≥ 125	2,419	2,419	100%	300	300	100%	2,152	2,152	100%
Total		4,813	2,928	61%	300	300	100%	4,395	3,783	86%
NP Trawl	60-125	891	0	0%	--	--	85%	--	--	0%
	≥ 125	--	--	100%	0	0	0%	0	0	0%
Total		891	0	0%	0	0	0%	0	0	0%

Shoreside Processors

		2004			2005			2006		
Gear	Length (feet)	Total (mt)	Observed (mt)	Percent observed	Total (mt)	Observed (mt)	Percent observed	Total (mt)	Observed (mt)	Percent observed
Hook-and-line	< 60	5,182	0	0%	4,541	0	0%	6,295	0	0%
	60-125	752	99	13%	520	226	43%	805	179	22%
Total		5,934	99	2%	5,061	226	4%	7,101	179	3%
NP Trawl	< 60	1,664	0	0%	3,560	0	0%	5,245	0	0%
	60-125	12,626	3,716	29%	8,159	2,577	32%	5,585	1,334	24%
Total		14,290	3,716	26%	11,719	2,577	22%	10,830	1,334	12%

Source: NMFS Alaska Region, April 2008

The proposed options to allocate hook-and-line halibut PSC to catcher vessels and catcher processors may increase the ability of the sectors to plan their fishing year. The options would accommodate the differences in the annual fishing operations of the hook-and-line catcher vessel and catcher processor fleets in the Gulf of Alaska. The hook-and-line catcher vessel fleet is mostly based in the Central Gulf and participates in the Pacific cod and IFQ halibut and sablefish fisheries. Much of this fleet operates year-round in the GOA. Most of the freezer longliner fleet fishes for Pacific cod in the BSAI, then moves into the Gulf of Alaska after the BSAI Pacific cod seasons close. In 2005, the BSAI Pacific cod B season closed on December 12. The freezer longliner fleet had planned to fish for Pacific cod in the Gulf of Alaska during the remainder of December, because B season Pacific cod TAC was still available. However, NMFS inseason management was concerned that there was not sufficient halibut PSC remaining in the GOA to support the BSAI freezer longliner fleet. As a result, the BSAI freezer longliners did not fish in the GOA during the B season in 2005. In both 2006 and 2007, the freezer longliners set up an informal ‘PSC co-op’ with NMFS inseason management during the B season. Under this arrangement, the third seasonal apportionment of halibut PSC was informally divided between catcher processors and catcher vessels. This arrangement allowed the freezer longliners to fish the GOA Pacific cod B season during 2006 and 2007, and also ensured that hook-and-line catcher vessels had

adequate halibut PSC to allow this fleet to fish until the end of the year. In both 2006 and 2007, the B season remained open to all hook-and-line vessels until December 31. Allocating halibut PSC to the sectors would prevent one sector from pre-empting the other sector's fishing season by using a greater than expected proportion of the hook-and-line halibut PSC limit.

In the Council's current motion, Component 7 includes 3 options for allocating GOA hook-and-line halibut PSC. Option 2 would allocate PSC to hook-and-line CVs and CPs in proportion to the total Western and Central Gulf Pacific cod allocations to each sector. To calculate PSC allocations, the Western and Central Gulf percent sector allocations, under each of the 8 options for calculating sector allocations, were first scaled to the relative size of the Western and Central GOA TACs, based on 2008 harvest specifications. Then each sector's percent allocations were combined across the management areas and scaled to 100 percent. The potential halibut PSC allocations, under each of the eight options for calculating sector allocations, are shown in Table 3-34.

Under Option 2, the hook-and-line CV sector would receive an allocation of 147.5 to 156.8 mt of halibut PSC, somewhat less than this sector has used in recent years. During 2004-2007, hook-and-line CVs used more than 160 mt per year of halibut PSC (see Table 3-9 for a summary of annual halibut PSC by sector). Hook-and-line CPs would be allocated 133.2 to 142.5 mt of PSC, which is also somewhat less than this sector's highest annual PSC of 163 mt in 2002. During 1995-2007, hook-and-line CVs used an average of 148 mt of halibut PSC, and hook-and-line CPs used an average of 101 mt of PSC in the GOA Pacific cod target fisheries, but PSC by each sector varies substantially from year to year.

Table 3-34 Potential halibut PSC allocations to hook-and-line catcher vessels and catcher processors based on Component 7, Option 2

	Period		CV Allocation	CP Allocation	CV amount (mt)*	CP amount (mt)*
All cod	1995-2005	Best 7 years	51.8%	48.2%	150.3	139.7
	1995-2005	Best 5 years	52.7%	47.3%	152.9	137.1
	2000-2006	Best 5 years	52.7%	47.3%	152.8	137.2
	2000-2006	Best 3 years	50.9%	49.1%	147.5	142.5
Directed cod	1995-2005	Best 7 years	53.2%	46.8%	154.4	135.6
	1995-2005	Best 5 years	54.0%	46.0%	156.5	133.5
	2000-2006	Best 5 years	54.1%	45.9%	156.8	133.2
	2000-2006	Best 3 years	52.0%	48.0%	150.9	139.1

* Based on 290 mt of non-DSR halibut PSC apportioned to GOA hook-and-line vessels

3.2.9 Seasonal apportionments of allocations

If Pacific cod sector allocations are implemented, each sector's allocation would likely be apportioned between the A season (60 percent) and B season (40 percent). The start dates for each season could remain the same as the status quo (January 1 for the fixed gear sectors, and January 20 for the trawl sectors during the A season; and September 1 for all sectors during the B season), or they could potentially be changed. Changing the seasonal allocations and season start dates would likely require analysis. Specifically, changing the seasonal allocations would require review to assess consistency with Steller Sea Lion protection measures and the revised Biological Opinion.

3.2.10 Limiting Access to Pacific Cod Sector Allocations and Potential Interactions with Fixed Gear Recency Action

If Pacific cod endorsements are added to Western and Central GOA fixed gear licenses, these endorsements would limit entry to the directed Pacific cod fisheries in each management area. Specific

gear designations could be included on these endorsements to limit the number of licenses eligible to participate in each sector. Several tables in EA/RIR/IRFA for the GOA fixed gear recency action provide estimates of the number of licenses that could receive Pacific cod gear and operation type endorsements. If sector allocations are implemented, these licenses would be eligible to fish off the respective gear and operation type allocations. However, there are several gaps in the limited entry provisions of the LLP that would allow vessels to fish off sector allocations without an LLP license or Pacific cod endorsement.

First, vessels are not required to hold an LLP license to fish in the parallel waters fisheries. If sector allocations are implemented, vessels without LLP licenses, or without Pacific cod endorsements on their licenses, could be restricted from fishing in federal waters during the directed Pacific cod fisheries, but could continue to fish in the parallel waters fisheries. In years when fish are concentrated in inside waters, or when conditions in other fisheries are unfavorable, participation by vessels without LLP licenses may increase in the parallel waters fisheries. In the Gulf of Alaska, the presence of a local fleet that can readily access the parallel waters fisheries makes it more likely that during certain years, vessels without LLP licenses will fish for Pacific cod in parallel waters. During recent years, vessels without LLP licenses fishing during the parallel waters seasons have harvested a relatively small proportion of catch in each management area. Table 3-35 shows the average number of vessels without LLPs that fished for Pacific cod during the parallel waters seasons in 2002-2007, retained catch, and percent of catch within each sector by these vessels. These numbers are an estimate, and are intended to provide the Council with some perspective on the extent of participation in the Pacific cod fisheries by vessels without LLP licenses. The table only includes catch by vessels that did not have an LLP license at the time a landing was made. It does not include catch by vessels that had a LLP license, but did not have a fixed gear designation or the appropriate area endorsement on that license. For example, a vessel with only a Central Gulf endorsement on its license may have fished in parallel waters in the Western Gulf. There was likely additional catch by vessels that have LLPs, but lack the appropriate endorsements and designations. This information is more challenging to summarize, because there are vessels with up to 4 stacked licenses, and in some cases, some licenses have the appropriate endorsements and designations and others do not. This information will be provided in the next version of this analysis.

The table also provides some insight into the level of participation within each sector by vessels without licenses. If Pacific cod sector allocations are implemented, and Pacific cod endorsements are added to fixed gear licenses, vessels without licenses, or without Pacific cod endorsements on their licenses, will continue to be eligible to fish in the parallel waters. Most hook-and-line catcher vessels that do not have LLPs and that have retained catch of Pacific cod from the parallel waters fisheries were participating in the IFQ fisheries at the time they made these Pacific cod landings. Under the LLP, vessels participating in the IFQ fisheries that do not have LLP licenses are allowed to retain incidental catch of Pacific cod. This provision in the LLP is consistent with National Standard 9 of the Magnuson-Stevens Act, and was intended to reduce the waste that occurs when discards of groundfish are required. In the Central Gulf, an average of 63 hook-and-line vessels per year during 2002-2007 that did not have LLP licenses had at least one landing of Pacific cod, but catch by these vessels amounted to only 2 percent of the catch by hook-and-line catcher vessels in the Central Gulf. Overall, vessels without LLP licenses harvest a small proportion of the retained catch of Pacific cod in the Central Gulf (2 percent) and Western Gulf (5 percent). The majority of this catch was by pot vessels. Hook-and-line vessels without LLPs harvested 11 percent of the Western Gulf hook-and-line catch during 2002-2007, but hook-and-line catcher vessels typically catch less than 1 percent of the Western Gulf catch. The majority of the jig catch in each management area is harvested by vessels without LLP licenses, but these vessels generally harvest less than 1 percent of the Western and Central Gulf catch. The majority of this catch was by pot vessels fishing without LLPs in the Western and Central Gulf.

Table 3-35 Average number of vessels fishing in the parallel waters fisheries without an LLP license, retained catch (mt), and percent of retained catch of Pacific cod within each sector by vessels without LLPs during 2002-2007

		HAL CV		Jig CV		Pot CV		Trawl CV		All sectors
Year		Vessels	Catch	Vessels	Catch	Vessels	Catch	Vessels	Catch	Catch
Central Gulf	2002-2007 average	63	106	15	45	5	211	1	*	362
Western Gulf	2002-2007 average	11	16	9	50	7	629	1	*	695

		HAL CV	Jig CV	Pot CV	Trawl CV	All sectors
Year		Percent of sector catch	Percent of sector catch	Percent of sector catch	Percent of sector catch	Percent of total catch
Central Gulf	2002-2007 average	2%	69%	3%	*	2%
Western Gulf	2002-2007 average	11%	64%	9%	*	5%

Source: ADFG Fish Tickets and RAM groundfish license file, January 2008.

Notes: Excludes State waters fisheries. Includes IFQ fisheries. Only includes vessels that did not have an LLP license at the time a landing was made; does not include vessels that had licenses, but did not have the appropriate area endorsement or gear designation. *Withheld due to confidentiality.

Second, Pacific cod endorsements could restrict vessels to using a specific gear type in the directed Pacific cod fisheries, but may not prevent vessels with licenses with catcher processor endorsements from fishing off catcher vessel allocations. Under Amendment 67, gear and operation type endorsements limit entry into the gear sectors, and only licenses with catcher processor endorsements are eligible to fish off the catcher processor allocations. However, licenses with catcher processor endorsements can also fish off the catcher vessel allocations for their respective gear type, by delivering shoreside or to a mothership. Historically, few catcher processors in the GOA have acted as catcher vessels, but sector allocations could potentially create an incentive for catcher processors to opportunistically fish as catcher vessels. If this activity becomes more common than it has been in the past, it could potentially erode the catch shares of vessels that can only act as catcher vessels and who contributed history to the catcher vessel allocations.

Under previous amendments (e.g., Amendment 85), catch is counted against sector allocations based on vessel activity. If a vessel catches and processes its own catch, that catch is deducted from the catcher processor allocation. If a vessel delivers its catch shoreside or to a mothership, that catch is deducted from the catcher vessel allocation. If the Council perceives that catcher processors may opportunistically fish off catcher vessel Pacific cod allocations in the GOA, it could modify the eligibility to fish off the sector allocations. Under this approach, instead of accounting for catch based on mode of operation, NOAA fisheries would account for catch based on the mode of operation on a license's Pacific cod endorsement. Currently, the Catch Accounting system does not track catch by LLP licenses. Modifying the Catch Accounting system to track licenses and license endorsements would require substantial programming effort. However, given the small number of catcher processor licenses which would likely qualify for a Pacific cod endorsement in the Western or Central GOA, this modification to the Catch Accounting system may be practicable. Licenses may only be transferred once per year. The Catch Accounting system would link catch by each vessel holding a Pacific cod catcher processor endorsement to the appropriate sector allocation account. In this way, vessels holding Pacific cod catcher processor endorsements could only fish off the catcher processor allocations, regardless of their mode of operation. Revisions to the Catch Accounting system could be minimized by continuing to base other aspects of the Catch Accounting system (e.g., estimates of bycatch, discards, and PSC) on the actual mode of operation of the vessel.

3.2.11 Harvest Cooperative Formation

Long term allocations of the Western and Central GOA Pacific cod TACs to the sectors and provisions that limit entry to the directed Pacific cod fisheries may provide opportunities for the formation of harvest cooperatives. Individual sectors may be more likely to form cooperatives if all eligible participants are easily identified through a restrictive license limitation program, and if separate allocations are made to each sector. Pacific cod endorsements on fixed gear licenses would limit entry to the directed Pacific cod fisheries in federal waters, but would not restrict vessels without LLP licenses, or without Pacific cod endorsements on licenses, from participating in the directed Pacific cod fisheries in parallel waters. NOAA Fisheries does not currently have a mechanism to allocate catch history to cooperatives in the GOA Pacific cod fisheries. All vessel owners within a sector would need to voluntarily join a cooperative and abide by its bylaws, or additional regulations would need to be implemented to provide NOAA fisheries with the necessary authority to allocate Pacific cod to individual cooperatives.

In the GOA Pacific cod fisheries, the hook-and-line catcher processor sector may be the sector that is most likely to form a harvest cooperative. Most of the freezer longliner fleet fishes for Pacific cod in the BSAI, then moves into the Gulf of Alaska after the BSAI Pacific cod seasons close. In 2005, the BSAI freezer longliner fleet did not fish in the GOA during the B season, because NMFS inseason management was concerned that there was not sufficient halibut PSC to support this fleet. As a result, in both 2006 and 2007, the freezer longliners set up an informal 'PSC co-op' with NMFS inseason management during the B season. Under this arrangement, the third seasonal apportionment of halibut PSC was informally divided between catcher processors and catcher vessels. The freezer longliners then further divided the catcher processor PSC among vessels fishing the B season. This informal cooperation in sharing PSC suggests that this sector has the potential to establish a formal harvest cooperative.

The freezer longliner fleet is relatively small, and the proposed fixed gear recency action could potentially limit the number of participants in this sector by adding gear-specific Pacific cod endorsements to fixed gear licenses. There are currently 53 fixed gear catcher processor licenses with Central and/or Western Gulf area endorsements; 49 of these licenses have Central Gulf endorsements and 31 licenses have Western Gulf endorsements. A total of 17 Western Gulf licenses and 12 Central Gulf licenses have at least one hook-and-line landing in the directed Pacific cod fisheries during 2000-2006 and could potentially qualify for Pacific cod hook-and-line catcher processor endorsements. If the landings or catch thresholds are set higher, even fewer licenses would qualify for Pacific cod endorsements. If Pacific cod sector allocations are implemented, total catch by hook-and-line catcher processors would be capped at the allocations. If vessels in this sector form a harvest cooperative subsequent to the implementation of sector allocations, this sector could potentially take advantage of increased production efficiencies of fishing cooperatively, but would not be able to increase the sector's overall harvest shares of the Western and Central GOA TACs. However, if vessels fish the catcher processor allocations cooperatively, some vessels in this fleet could opportunistically act as catcher vessels and fish off the hook-and-line catcher vessel allocations. Again, if the Council perceives this to be a potential problem, NOAA fisheries could account for catch based on the operation type on a license's Pacific cod endorsement, rather than based on the vessel's activity.

3.3 Analysis of the Alternatives

3.3.1 Effects on harvesters

Under the status quo alternative, vessel participation levels are likely to continue to vary annually with changes in the GOA Pacific cod fisheries, market conditions, the regulatory environment, and opportunities to participate in other fisheries. The numbers of vessels participating in each sector are

summarized in Table 3-14. There has been a general trend toward fleet consolidation that would likely continue. Since 1995, the proportion of catch taken by the various sectors has changed, in some cases substantially (see Appendix A). In general, the proportion of the Central and Western Gulf Pacific cod TACs caught by trawl catcher vessels has declined, while the proportion of the TACs caught by pot catcher vessels has increased. The fixed gear sectors have an earlier A season start date (January 1) than the trawl sector (January 20), and with smaller ABCs during recent years, the fixed gear sectors have harvested a larger proportion of the catch. Catch by hook-and-line catcher processors has also increased in recent years. As BSAI Pacific cod TACs decline, hook-and-line catcher processor catch in the GOA may continue to increase as vessels enter the fisheries earlier in the season. Under the status quo alternative, these trends may continue.

Under the no action alternative, the sectors would continue to race each other for shares of the TACs, particularly during the A season, and the relative catch levels of each sector would vary from year to year, depending on fishing conditions and incentives to participate in other fisheries. Product quality likely suffers as a result of the race for fish. Overfilling nets and holds can affect fish quality, and catcher processors must process fish quickly to maintain quality. Larger vessels that can process fish quickly may have an advantage over smaller vessels.

Under the proposed action, harvest sectors would receive allocations based on historic catch levels. Allocations would be based on one of several options specified by the Council for calculating catch history, and would differ substantially depending on the range of qualifying years selected by the Council. In the Western Gulf, trawl catcher vessels would receive a substantially larger allocation if 1995-2005 is selected as the qualifying period instead of 2000-2006. For pot catcher vessels in the Western Gulf, the opposite is true. In the Central Gulf, trawl vessels have generally caught less Pacific cod during recent years, while the fixed gear sectors have increased their catch. Allocating fixed shares to each sector would reduce this annual variability and may allow participants to better plan their fishing year, but will also decrease the flexibility of sectors to respond to changes in fishing and market conditions.

Under existing options, there is potential for growth in entry-level opportunities within the jig sector. The jig allocation could potentially be increased if it is fully harvested. Options include a provision for increasing the percentage of TAC allocated to jig vessels if the jig allocation is at least 90 percent harvested during a given year. During recent years, less than 1 percent of the Western and Central Gulf TACs were harvested by jig vessels. Under current options, the jig allocation could increase on a stairstep basis by 1 percent to 3 percent per year, starting at 1 percent, if at least 90 percent of the allocation is harvested in a given year. Under the current set of options, there is no ceiling on the jig allocation.

During recent years, the jig sector has not fully fished its State waters Pacific cod quota in the Gulf of Alaska, and few vessels have elected to participate in the federal fisheries. Low participation levels in both the federal and State waters fisheries may be the result of difficulty finding Pacific cod in inside waters and high operating costs. In addition, inclement weather may limit jig vessel participation during the federal A season. When the B season opens on September 1, adverse weather conditions may again limit participation by smaller vessels. If jig vessels were given a fixed allocation that could be fished during March through May in both parallel and federal waters, when weather and fishing conditions are more favorable, the number of jig participants and amount of jig catch may increase.

Growth in the number of vessels participating in the trawl, hook-and-line, and pot sectors is also possible. There are numerous 'latent' fixed gear LLP licenses with Western and Central Gulf area endorsements that do not have recent landings in the federal groundfish fisheries. Recent increases in ex-vessel prices of Pacific cod have the potential to attract latent effort to re-enter the fisheries. The Council is currently considering extinguishing fixed gear LLP licenses that do not have recent groundfish landings in the Gulf

of Alaska. At its April 2008 meeting, the Council took final action on the trawl recency amendment, which extinguishes trawl licenses that do not have recent landings in the BSAI and GOA groundfish fisheries. This action will reduce the number of trawl catcher vessel licenses eligible to fish in the Western and Central Gulf by approximately 50 percent, and will reduce the number of trawl catcher processor licenses by approximately 25 percent.

The proposed fixed gear recency action would potentially limit the re-entry of latent fixed gear effort into the GOA Pacific cod fisheries by extinguishing licenses that do not have recent groundfish catch history. The Council is also considering options to add Pacific cod endorsements to fixed gear licenses with Western or Central Gulf endorsements. Vessels could be required to hold a Pacific cod endorsement to participate in the directed Pacific cod fisheries using pot, hook-and-line, and jig gear. However, small vessels (<26 feet MLOA) and vessels fishing exclusively in parallel waters are exempt from the LLP requirement and would not be required to hold a Pacific cod endorsement to participate in the directed Pacific cod fisheries. Sector allocations, in combination with the trawl and fixed gear recency actions, may stabilize participation in the fisheries. Under the current set of options, season opening dates would not change, and seasons are likely to remain short, so any new participants in the GOA Pacific cod fisheries would likely have to forgo participation in other fisheries. Fleet consolidation may continue, but in the absence of the cooperative formation, the number of vessels participating is not likely to decrease dramatically. While sector allocations may reduce competition among sectors in the Gulf of Alaska Pacific cod fisheries, participants within each sector are likely to continue to race each other for shares of the TACs. Poor fish handling practices will likely continue, and product quality will continue to suffer.

3.3.2 Effects on processors

Under the status quo alternative, the race for fish during the A season would likely continue, and the pace of processing at shorebased plants, catcher processors, and motherships would not slow down. The GOA Pacific cod TACs would continue to be allocated 90 percent to the inshore processing sector and 10 percent to the offshore sector. During recent years, the majority of catcher vessel landings have been received by shorebased plants, and there has been little mothership participation in the GOA Pacific cod fisheries. Catcher processors less than 125 ft LOA would continue to have the option to fish the inshore TACs, and the proportion of the Western and Central Gulf TACs that is harvested by catcher processors would likely continue to vary, depending on when BSAI Pacific cod seasons close and the availability of halibut PSC to support the hook-and-line and trawl sectors.

Under the proposed action, the pace of the fisheries is not likely to slow down, and processors will continue to receive deliveries within compressed seasons. Allocations to the processing sectors could be replaced by allocations to the harvest sectors. If the inshore/offshore processing allocations are eliminated, harvests by catcher processors would be constrained by their respective sector allocations, but there would be no longer be a limit on the amount of catch processed at sea by motherships. Currently, motherships greater than 125 feet in length, or which process more than 126 mt (round weight) of pollock and Pacific cod per week, must elect to participate in the offshore sector, and the amount of catch processed by the offshore sector is capped at 10 percent of the Western and Central Gulf TACs. Few motherships have participated in the GOA Pacific cod fisheries during recent years, and most catcher vessels deliver their catch to shorebased plants. However, if the offshore sector is no longer capped at processing 10 percent of the Pacific cod TACs, mothership participation in the GOA may increase. Catcher processors could also potentially act as motherships and take deliveries from catcher vessels. Deliveries to catcher processors that are acting as motherships would account to the catcher vessel sector of the harvesting vessel, whereas currently, this catch accounts to either the inshore or offshore TAC, depending on the processing component of the mothership.

3.3.3 Effects on management, monitoring, and enforcement

Under the no action alternative, the GOA Pacific cod fisheries would continue to be managed as a limited access race for fish, with fleet-wide TACs in the Western, Central, and Eastern Gulf. The GOA Pacific cod TACs are allocated to the inshore processing component (90 percent) and the offshore component (10 percent). The TACs are also apportioned between the A season (60 percent) and B season (40 percent). When inshore/offshore and seasonal apportionments are taken into consideration, there are currently 8 distinct Pacific cod TACs in the Western and Central Gulf. Halibut PSC is currently managed on a Gulf-wide basis, with separate allocations to the trawl and hook-and-line sectors. Trawl and hook-and-line PSC limits are divided into seasonal apportionments.

If sector allocations are implemented, NOAA fisheries will need to monitor as many as 10 sector allocations in the Western and Central Gulf. Each sector allocation would be further divided into A and B season allocations. Substantial staff resources would be required at the front end to revise the catch accounting system. Inseason monitoring of sector allocations, and management of incidental catch and rollovers of unused quota would also require additional staff resources. Under the proposed action, incidental catch of Pacific cod would continue to be managed on an inseason basis, similar to the status quo. Halibut PSC could continue to be managed on a Gulf-wide basis, with separate allocations for the trawl and hook-and-line sectors, or the hook-and-line PSC limit could be allocated to catcher vessels and catcher processors.

3.3.4 Effects on communities

Fisheries impact communities through the economic and socioeconomic activities generated by participants in the different harvesting and processing sectors, and through supporting industries. Several measures of the importance of fisheries to a community are participation by vessel owners and permit holders residing in that community, gross revenues from the fisheries to those vessel owners and permit holders, and landings to shorebased processors in the community. Estimates of the number of vessel owners and permit holders participating in the GOA Pacific cod fisheries by residence were generated to provide perspective on the level of participation in the status quo GOA Pacific cod fisheries by residents of Alaska and other states. Gross revenues from GOA Pacific cod landings were calculated for Alaska communities with more than 3 vessels participating in the fisheries during a given year. This information is used to examine the potential impacts of GOA Pacific cod sector allocations on the distribution of Pacific cod catch (and revenues) to communities. These community-level estimates should be interpreted with caution, because available data may not fully reflect the actual residence of participants. For example, a vessel owner or permit holder may not reside in the community that is used as a registered mailing address, or may only reside in that community on a seasonal basis. Impacts of the proposed sector allocations are likely to depend on the relative size of the local and regional economy. Small communities could be greatly impacted by a small increase in participation in the fisheries that would have a negligible impact on a larger community.

Catcher processors are not discussed in this section, because most of this fleet is based in the Seattle area. The catcher processor fleet is a relatively small part of the large and diverse economy of Seattle. Although the GOA Pacific cod fisheries may be important to the Seattle-based participants in these fisheries, the effects of these fisheries are largely overshadowed by both the large fishing and processing industry in Seattle and the general Seattle economy as a whole. The relative contribution of GOA fisheries to first wholesale revenues for the catcher processor fleet is summarized in Table 3-27. During 2000-2006, revenues from the GOA Pacific cod fisheries comprised approximately 9 percent of hook-and-line catcher processor revenues and 1 percent of trawl catcher processor revenues.

In-depth profiles of Gulf of Alaska fishing communities may be found in Community Profiles for North Pacific Fisheries (NMFS 2005). This document includes profiles of 136 fishing communities in Alaska. The profiles provide demographic information on each community, and describe the history, geography, and local economy of each community. In addition, they provide detailed descriptions of each community's involvement in the North Pacific fisheries, including data on the number and type of fishing permits held by residents, and participation by those permit holders in the different fisheries. Finally, each profile provides information on subsistence and sport fishing activities in each community. The profiles may be found at:

<http://www.afsc.noaa.gov/REFM/Socioeconomics/Projects/CPU.php>

The State of Alaska's Community Information Summaries, which are compiled by the Alaska Department of Commerce, Community, and Economic Development (DCCED), include information on community location, population, taxes, climate, history, culture, demographics, utilities, schools, health care, economy, and transportation. The summaries may be found at:

http://www.commerce.state.ak.us/dca/commdb/CF_CIS.htm

Catcher vessel participation by community and harvest sector

The Council requested additional information on the potential impacts of Pacific cod sector allocations on the distribution of catch among residents of Gulf of Alaska communities and among residents of Alaska and other states. Participants in the Western and Central GOA Pacific cod fisheries reside in communities in Alaska, Oregon, Washington, and other states. Table 3-36 shows the number of vessels participating in each harvest sector during 1995-2000 and 2001-2006, and the percent of retained catch of Pacific cod within each sector, reported by vessel owner residence.

In most catcher vessel sectors, the majority of catch was harvested by vessel owners who are Alaska residents. Across all sectors, during 2001-2006, 59 percent of Central Gulf catch and 61 percent of Western Gulf catch was harvested by vessels owned by Alaska residents. In both management areas, most (88 to 99 percent) of catch by <60 ft LOA pot and hook-and-line vessels during 2001-2006 was made by vessels owned by Alaska residents. A substantial proportion of trawl catch was made by vessels owners from outside of Alaska in the Central Gulf (66 percent) and Western Gulf (44 percent) during 2001-2006. In the Western Gulf, 61 percent of >60 ft LOA pot catch was made by vessel owners from outside of Alaska.

The proposed Pacific cod sector allocations could be based on catch history during 1995-2005 or 2000-2006. Under either option, there may be modest distributional effects among residents of different states. The extent of these effects depends not only on the range of qualifying years selected, but the number of years within each time period used to calculate allocations. During recent years, the fixed gear sectors have harvested a higher proportion of the catch than the trawl sectors. If the Council chooses to base allocations on catch during 2000-2006, more catch will be distributed to pot and hook-and-line vessels, and if the period from 1995-2005 is selected, more catch will be distributed to trawl catcher vessels. Most of the fixed gear catch during recent years has been made by vessels owned by Alaska residents, with the exception of catch by >60 ft LOA pot vessels in the Western Gulf.

Table 3-36 Number of catcher vessels in each sector that participated in the Western and Central Gulf Pacific cod fisheries (parallel and federal seasons only) during 1995-2000 and 2001-2006, and percent of retained Pacific cod catch within each sector, reported by vessel owner residency

Western Gulf

	HAL CV <60		HAL CV ≥60		Jig CV		Pot CV <60		Pot CV ≥60		Trawl CV		Total
	Vessels	Percent catch	Vessels	Percent catch	Vessels	Percent catch	Vessels	Percent catch	Vessels	Percent catch	Vessels	Percent catch	Percent catch
1995-2000													
Anchor Point	1	*	0	0%	0	0%	0	0%	0	0%	0	0%	*
Cordova	0	0%	0	0%	0	0%	0	0%	1	*	1	*	*
Homer	7	6%	3	*	0	0%	1	*	1	*	1	*	2%
King Cove	1	*	0	0%	2	*	21	49%	2	*	10	14%	17%
Kodiak	12	6%	6	6%	2	*	0	0%	6	14%	8	3%	3%
Other Alaska	10	31%	4	1%	13	32%	14	*	7	3%	6	*	7%
Sand Point	8	7%	0	0%	8	36%	22	21%	1	*	21	28%	26%
Seward	2	*	1	*	1	*	0	0%	0	0%	0	0%	*
All Alaska	41	51%	14	10%	26	95%	58	91%	18	31%	46	53%	55%
Oregon	0	0%	3	*	1	*	0	0%	7	13%	14	1%	2%
Other State	2	*	4	*	1	*	1	*	4	10%	7	4%	4%
Washington	10	*	15	87%	1	*	11	*	42	47%	87	42%	40%
Total	53	100%	36	100%	29	100%	70	100%	71	100%	154	100%	100%
2001-2006													
Anchor Point	1	*	0	0%	0	0%	0	0%	0	0%	0	0%	*
Cordova	1	*	1	*	0	0%	0	0%	1	*	0	0%	*
Homer	13	25%	4	26%	4	*	0	0%	2	*	1	*	2%
King Cove	3	1%	0	0%	3	10%	16	26%	2	8%	8	18%	17%
Kodiak	16	21%	4	13%	6	11%	9	8%	15	24%	3	*	11%
Other Alaska	20	32%	3	8%	16	23%	17	24%	6	4%	5	6%	11%
Sand Point	10	7%	0	0%	22	30%	22	32%	1	*	18	30%	21%
Seward	1	*	1	*	1	*	0	0%	0	0%	0	0%	*
All Alaska	64	89%	13	49%	52	78%	62	90%	27	39%	34	56%	61%
Oregon	1	*	6	*	1	*	0	0%	7	*	8	0%	2%
Other State	2	*	1	*	1	*	1	*	1	*	3	8%	3%
Washington	20	10%	13	45%	9	14%	12	*	19	55%	40	36%	34%
Total	87	100%	33	100%	63	100%	75	100%	54	100%	85	100%	100%

Central Gulf

	HAL CV <60		HAL CV ≥60		Jig CV		Pot CV <60		Pot CV ≥60		Trawl CV		Total
	Vessels	Percent catch	Vessels	Percent catch	Vessels	Percent catch	Vessels	Percent catch	Vessels	Percent catch	Vessels	Percent catch	Percent catch
1995-2000													
Anchor Point	26	7%	1	*	7	2%	1	*	0	0%	0	0%	1%
Cordova	11	*	5	1%	0	0%	4	2%	4	*	1	*	1%
Homer	138	30%	10	7%	18	29%	17	3%	9	6%	2	*	6%
King Cove	0	0%	0	0%	0	0%	0	0%	1	*	8	1%	1%
Kodiak	156	27%	31	41%	24	36%	57	62%	43	49%	32	25%	34%
Other Alaska	192	25%	19	13%	25	28%	34	28%	10	10%	9	3%	11%
Sand Point	1	*	0	0%	0	0%	0	0%	0	0%	21	6%	3%
Seward	20	4%	4	*	0	0%	2	*	1	*	0	0%	1%
All Alaska	532	94%	70	63%	73	95%	115	96%	68	67%	72	35%	57%
Oregon	24	2%	16	1%	2	*	2	*	14	20%	22	30%	20%
Other State	23	1%	3	0%	0	0%	4	*	5	10%	4	2%	3%
Washington	53	3%	28	35%	2	*	4	1%	12	3%	85	33%	20%
Total	632	100%	117	100%	77	100%	125	100%	99	100%	183	100%	100%
2001-2006													
Anchor Point	13	4%	0	0%	0	0%	1	*	0	0%	0	0%	1%
Cordova	4	0%	0	0%	0	0%	0	0%	1	*	0	0%	0%
Homer	91	42%	6	0%	4	*	8	8%	4	*	1	*	10%
Kodiak	116	20%	29	80%	44	68%	38	75%	24	62%	20	30%	38%
Other Alaska	119	21%	8	0%	18	25%	14	*	5	5%	5	4%	9%
Sand Point	0	0%	0	0%	0	0%	0	0%	0	0%	10	*	0%
Seward	13	0%	3	0%	1	*	0	0%	1	*	0	0%	0%
All Alaska	345	88%	46	81%	65	94%	60	99%	35	68%	36	34%	59%
Oregon	13	2%	15	*	0	0%	0	0%	7	31%	22	44%	27%
Other State	12	3%	2	*	4	5%	1	*	1	*	2	*	4%
Washington	27	8%	21	10%	4	0%	1	*	2	*	35	*	9%
Total	397	100%	84	100%	73	100%	62	100%	45	100%	95	100%	100%

Source: ADFG Fish Tickets *Data withheld due to confidentiality

The distribution of Pacific cod catch among Alaska communities is also reported in Table 3-36. In the Western Gulf, a total of 48 percent of trawl catch and 58 percent of <60 ft LOA pot catch was harvested by residents of Sand Point and King Cove during 2001-2006. The majority of ≥ 60 ft LOA pot catch was harvested by residents from Washington state (55 percent), but Kodiak residents harvested 24 percent of the catch. Overall, a substantial proportion of Western Gulf catch was harvested by residents of Sand Point (21 percent), King Cove (17 percent), and Kodiak (11 percent), and this was mostly comprised of trawl and pot catch. Consequently, the different potential allocations to the pot and trawl sectors may not result in a distribution of catch out of these communities, although a larger allocation to ≥ 60 ft LOA pot vessels may benefit Kodiak residents.

Vessels owned by Kodiak residents harvested 38 percent of the overall Central Gulf Pacific cod catch, and the majority of the pot, jig, and >60 ft LOA hook-and-line catch during 2001-2006. Vessels owned by Homer and Anchor Point residents harvested 46 percent of the <60 ft LOA hook-and-line catch, and 11 percent of the overall Central Gulf catch. If the Council chooses to base allocations on recent catch history (2000-2006), a larger proportion of the Central Gulf TACs will be distributed to the pot and hook-and-line sectors. These allocations may distribute more catch to residents of Alaska communities, who catch the majority of the Central Gulf fixed gear catch.

Deliveries to shorebased processors

Most Pacific cod harvested by catcher vessels during 2001-2006 was delivered to shoreside processors in Kodiak, King Cove, Sand Point, and Dutch Harbor. Only a small proportion of catch was delivered to motherships or inshore floating processors (Table 3-37). In the Western Gulf, and to a lesser extent in the Central Gulf, some catcher vessels deliver Pacific cod to floating processors, but the proportion of catch delivered to floating processors has declined in recent years. During 1995-2000, an estimated 8 percent of catcher vessel harvests from the Western Gulf and 3 percent of harvests from the Central Gulf were delivered to floating processors, and during 2001-2006 deliveries to floating processors declined to 6 percent and less than 1 percent of harvests from each management area, respectively. It is important to note that these estimates include deliveries to inshore floating processors that may be located in or near GOA communities during part or all of the fishing season. The State of Alaska's Intent to Operate data often does not currently capture the precise location where inshore floating processors are located when deliveries are received. This is a data gap that needs to be addressed if the Council wishes to have more precise information on deliveries to floating processors operating in or near coastal communities.

Most Western Gulf Pacific cod catch is delivered to shorebased plants in King Cove, Sand Point, and Dutch Harbor. The amount of catch delivered to King Cove and Sand Point cannot be reported, because each of these communities only has a single processing facility. An estimated 11 percent of Western Gulf catch was delivered to Dutch Harbor during 2001-2006, but this catch is only a small fraction of the seafood processed there.

Most Central Gulf Pacific cod catch is delivered to shorebased plants in Kodiak, and smaller amounts are delivered to processors in Homer and Seward. During 1995-2000, deliveries were more widely distributed among Central Gulf communities. Specifically, the proportion of catch delivered to Homer and Seward was much larger during 1995-2000 than during 2001-2006. During 1995-2000, 75 percent of Central Gulf catch was delivered to Kodiak, 7 percent was delivered to Homer, and 5 percent was delivered to Seward. During 2001-2006, 96 percent of Central Gulf catch was delivered to Kodiak, and only 3 percent of catch was delivered to Homer. Processors in Homer and Seward mainly receive deliveries from <60 ft LOA pot and hook-and-line vessels. Because nearly all of the Pacific cod harvested in the Central Gulf is delivered to Kodiak, allocating the Central Gulf TAC to the sectors is unlikely to have a substantial effect on the distribution of landings among communities. During 1991-2000, Pacific cod production comprised 8 percent to 31 percent of revenues for Kodiak processors

(EDAW, 2005). In 2006, GOA Pacific cod comprised 16 percent of the revenues and pounds processed by Kodiak processors. During recent years, between 8-10 shorebased plants in Kodiak have processed Pacific cod.

Table 3-37 Percent of retained Pacific cod harvested by catcher vessels delivered to shorebased processors in Alaska communities and to floating processors, during 1995-2000 and 2001-2006.

Western Gulf		1995-2000					2001-2006					
Community	HAL CV	Jig CV	Pot CV <60	Pot CV ≥60	Trawl CV	All sectors	HAL CV	Jig CV	Pot CV <60	Pot CV ≥60	Trawl CV	All sectors
Akutan	*	*	*	*	*	*	*	*	*	*	*	*
Cordova	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Dutch Harbor	23%	9%	0%	53%	4%	11%	39%	2%	0%	33%	1%	11%
False Pass	*	*	*	*	*	*	*	*	*	*	*	*
Floating Processor	61%	23%	10%	8%	7%	8%	0%	3%	4%	10%	5%	6%
Homer	*	0%	0%	0%	0%	*	1%	0%	0%	0%	0%	*
King Cove	*	*	*	*	*	*	*	*	*	*	*	*
Kodiak	*	0%	0%	0%	*	*	*	0%	*	*	0%	*
Other Alaska	*	0%	0%	0%	0%	*	*	0%	0%	0%	0%	*
Sand Point	*	*	*	*	*	*	*	*	*	*	*	*
Seward	*	0%	0%	0%	0%	*	*	0%	0%	0%	0%	*

Central Gulf		1995-2000					2001-2006					
Community	HAL CV	Jig CV	Pot CV <60	Pot CV ≥60	Trawl CV	All sectors	HAL CV	Jig CV	Pot CV <60	Pot CV ≥60	Trawl CV	All sectors
Akutan	0%	0%	*	0%	*	*	*	*	*	*	*	*
Cordova	0%	0%	2%	1%	1.2	1%	0%	0%	0%	0%	0%	0%
Dutch Harbor	0%	0%	0%	0%	*	*	0%	0%	0%	*	0%	*
False Pass	*	*	*	*	*	*	*	*	*	*	*	*
Floating Processor	0%	0%	1%	1%	4%	3%	0%	*	*	*	0%	*
Homer	16%	27%	13%	16%	0%	7%	2%	0%	13%	6%	0%	3%
King Cove	*	*	*	*	*	*	*	*	*	*	*	*
Kodiak	58%	58%	81%	82%	76%	75%	96%	100%	84%	90%	99%	96%
Other Alaska	*	0%	0%	0%	0%	*	*	0%	0%	0%	0%	*
Sand Point	*	*	*	*	*	*	*	*	*	*	*	*
Seward	26%	14%	1%	1%	2%	5%	2%	0%	0%	3%	0%	1%

Source: ADFG fish tickets. *Data withheld due to confidentiality.

Note: Only includes parallel and federal waters fisheries.

Gross revenues from the GOA Pacific cod fisheries by community

This section examines revenues from the GOA Pacific cod fisheries residing in Alaska communities. The analysis includes Alaska communities with more than 3 vessel owners or permit holders with landings from the GOA Pacific cod fisheries and the 21 communities in the Gulf of Alaska that are eligible for the Community Quota Entity (CQE) program (see Table 3-37). CQE eligible communities have fewer than 1,500 residents, lack direct road access, have direct access to saltwater, and have historic participation in the halibut and sablefish fisheries. These communities were identified in Amendment 66 to the GOA FMP. Seventeen of the 21 CQE communities in Southcentral and Southwest Alaska are profiled in the Community Profiles databases, and all of the communities are included in the State of Alaska's Community Information Summaries.

The number of vessel owners and permit holders from Alaska communities with landings in the Western and Central GOA Pacific cod fisheries, and gross revenues from those landings during 1995-2000 and 2001-2006, are reported in Table 3-38. Also reported is the percentage of annual gross revenues from all Alaska fisheries comprised by the Western and Central Gulf Pacific cod fisheries (excluding State waters

fisheries). Residents from 11 of the 21 Southwest and Southcentral Alaska CQE communities had landings in the Western and Central GOA Pacific cod fisheries, either as vessel owners or permit holders, during 2001-2006. Alaska communities with the highest proportion of gross revenues from the Western and Central GOA Pacific cod fisheries during 2001-2006, based on vessel owner residency, include Willow, Delta Junction, King Cove, and False Pass. More than 20 percent of gross revenues for vessel owners in these communities were from the Western and Central GOA Pacific cod fisheries. Western and Central GOA Pacific cod comprised more than 10 percent of gross revenues for vessel owners from Sand Point. The majority of revenues to vessel owners from these communities were from fixed gear catch, although residents of Sand Point and King Cove also had substantial trawl landings. The permit holder data shows similar patterns. Three CQE communities that do not have vessel owners participating in the Western or Central GOA Pacific cod fisheries had permit holders who participated in the fisheries (Karluk, Old Harbor, and Ouzinkie). The Karluk and Ouzinkie data is confidential (only a single permit holder from each community participated during 2001-2006). Revenues to permit holders from Old Harbor were nearly 9 percent of total revenues from all fisheries during 2001-2006. Continued access to the GOA Pacific cod resource is particularly important to residents of these communities, because a large proportion of fisheries revenues are from the GOA Pacific cod fisheries.

Table 3-38 Communities eligible for the Community Quota Entity (CQE) program in Southwest and Southcentral Alaska

Name	Population ¹	Management Area
Akhiok	80	Central Gulf
Chenega Bay	86	Central Gulf
Chignik	79	Central Gulf
Chignik Lagoon	103	Central Gulf
Chignik Lake	145	Central Gulf
Halibut Cove	35	Central Gulf
Ivanof Bay	22	Western Gulf
Karluk	27	Central Gulf
King Cove	792	Western Gulf
Larsen Bay	115	Central Gulf
Nanwalek	177	Central Gulf
Old Harbor	237	Central Gulf
Ouzinkie	225	Central Gulf
Perryville	107	Western Gulf
Port Graham	171	Central Gulf
Port Lions	256	Central Gulf
Sand Point	952	Western Gulf
Seldovia	286	Central Gulf
Tatitlek	107	West Yakutat
Tyonek	193	Central Gulf
Yakutat	680	Central Gulf

¹2000 U.S. Census estimates.

Table 3-39 Number of vessels participating in the Western and Central GOA Pacific cod fisheries, gross revenues, and percent of total annual gross revenues from all Alaska fisheries comprised by GOA Pacific cod, reported by vessel owner residency.

Community	CQE	Fishery	1995-2000				2001-2006			
			Number of vessels	Total revenues	Catch (mt)	Percent of total revenues	Number of vessels	Total revenues	Catch (mt)	Percent of total revenues
Anchor Point		CG Fixed	24	1,445,801	2,354	10.5%	13	955,847	1,343	5.2%
Anchorage		CG Fixed	18	900,755	1,617	0.8%	11	133,082	189	0.1%
Anchorage		CG Trawl	5	751,167	1,431	0.6%	2	*	*	*
Anchorage		WG Fixed	11	315,567	632	0.3%	10	745,721	1,319	0.8%
Anchorage		WG Trawl	2	*	*	*	0	0	0	0.0%
Chenega Bay	Y	CG Fixed	1	*	*	*	0	0	0	0.0%
Chignik	Y	CG Fixed	1	*	*	*	0	0	0	0.0%
Chignik	Y	WG Fixed	0	0	0	0.0%	2	*	*	*
Chignik Lagoon	Y	CG Fixed	2	*	*	*	2	*	*	*
Chignik Lagoon	Y	WG Fixed	2	*	*	*	1	*	*	*
Cordova		CG Fixed	15	728,643	1,263	0.6%	1	*	*	*
Cordova		CG Trawl	1	*	*	*	0	0	0	0.0%
Cordova		WG Fixed	1	*	*	*	2	*	*	*
Cordova		WG Trawl	1	*	*	*	0	0	0	0.0%
Delta Junction		CG Fixed	9	1,765,074	2,827	31.6%	7	1,944,015	2,631	26.9%
Dutch Harbor		CG Fixed	1	*	*	*	0	0	0	0.0%
Dutch Harbor		WG Fixed	6	132,161	231	0.6%	6	110,093	177	1.1%
False Pass		WG Fixed	1	*	*	*	6	818,891	1,434	20.7%
Homer		CG Fixed	108	7,761,497	12,341	4.2%	70	9,843,910	13,562	4.8%
Homer		CG Trawl	2	*	*	*	1	*	*	*
Homer		WG Fixed	5	18,765	35	0.0%	12	338,888	456	0.2%
Homer		WG Trawl	1	*	*	*	1	*	*	*
King Cove	Y	CG Fixed	1	*	*	*	0	0	0	0.0%
King Cove	Y	CG Trawl	8	397,700	1,160	1.1%	0	0	0	0.0%
King Cove	Y	WG Fixed	24	2,009,702	4,527	5.5%	20	3,805,941	6,658	13.0%
King Cove	Y	WG Trawl	10	5,163,006	12,288	14.1%	8	2,239,556	4,145	7.7%
Kodiak		CG Fixed	161	26,877,921	46,151	6.1%	137	21,577,043	29,430	4.5%
Kodiak		CG Trawl	32	15,220,097	30,911	3.5%	20	12,464,356	20,839	2.6%
Kodiak		WG Fixed	15	601,849	986	0.1%	35	3,672,632	6,572	0.8%
Kodiak		WG Trawl	8	824,172	2,211	0.2%	3	*	*	*
Larsen Bay	Y	CG Fixed	4	116,288	208	6.3%	4	33,879	49	3.7%
Nikolaevsk		CG Fixed	11	532,929	761	6.8%	6	661,865	928	7.5%
Nikolaevsk		WG Fixed	1	*	*	*	1	*	*	*
Ouzinkie	Y	CG Fixed	6	168,034	302	6.1%	0	0	0	0.0%
Port Lions	Y	CG Fixed	5	29,271	56	0.8%	3	*	*	*
Sand Point	Y	CG Fixed	1	*	*	*	0	0	0	0.0%
Sand Point	Y	CG Trawl	21	2,704,304	7,709	3.7%	10	43,532	65	0.1%
Sand Point	Y	WG Fixed	28	822,531	1,684	1.1%	44	3,581,618	6,350	5.8%
Sand Point	Y	WG Trawl	21	10,092,172	24,431	13.7%	18	3,916,266	7,011	6.3%
Seldovia	Y	CG Fixed	7	3,252,133	5,558	17.6%	3	*	*	*
Seward		CG Fixed	15	815,447	1,348	2.7%	7	96,983	139	0.3%
Seward		WG Fixed	1	*	*	*	1	*	*	*
Sitka		CG Fixed	8	864,974	1,533	0.5%	4	61,716	102	0.0%
Sitka		WG Fixed	3	*	*	*	1	*	*	*
Unalaska		WG Fixed	5	39,928	68	0.5%	4	341,777	422	4.0%
Wasilla		CG Fixed	9	347,594	629	1.7%	7	68,896	96	0.4%
Wasilla		WG Fixed	1	*	*	*	2	*	*	*
Wasilla		WG Trawl	1	*	*	*	0	0	0	0.0%
Willow		CG Fixed	7	1,217,740	1,691	26.2%	6	1,616,693	2,260	27.7%
Willow		WG Fixed	2	*	*	*	3	*	*	*

Source: ADFG Fish Tickets and CFEC vessel owner and gross revenues data.

Note: Only includes parallel and federal waters fisheries.

Table 3-40 Number of permits participating in the Western and Central GOA Pacific cod fisheries, gross revenues, and percent of total annual gross revenues from all Alaska fisheries comprised by GOA Pacific cod, reported by permit holder residency.

Community	CQE	Fishery	1995-2000				2001-2006			
			Num. of permits	Total revenues	Catch (mt)	Percent of total revenues	Num. of permits	Total revenues	Catch (mt)	Percent of total revenues
Anchor Point		CG Fixed	36	1,765,585	2,868	9.3%	13	787,335	1,045	7.3%
Anchor Point		WG Fixed	2	*	*	*	1	*	*	*
Chignik	Y	WG Fixed	0	0	0	0.0%	2	*	*	*
Chignik Lagoon	Y	CG Fixed	3	*	*	*	2	*	*	*
Chignik Lagoon	Y	WG Fixed	1	*	*	*	1	*	*	*
Cordova		CG Fixed	13	449,977	784	0.3%	0	0	0	0.0%
Cordova		CG Trawl	3	*	*	*	0	0	0	0.0%
Cordova		WG Fixed	1	*	*	*	1	*	*	*
Cordova		WG Trawl	1	*	*	*	0	0	0	0.0%
Delta Junction		CG Fixed	0	0	0	0.0%	5	1,464,760	1,944	24.1%
Dutch Harbor		CG Fixed	1	*	*	*	4	341,419	496	2.4%
Dutch Harbor		WG Fixed	6	14,532	25	0.1%	10	157,331	282	1.1%
False Pass		WG Fixed	1	*	*	*	10	1,003,001	1,794	14.5%
Homer		CG Fixed	132	10,642,044	17,046	5.0%	88	11,893,987	16,402	5.3%
Homer		CG Trawl	2	*	*	*	2	*	*	*
Homer		WG Fixed	5	51,838	78	0.0%	17	903,018	1,151	0.4%
Homer		WG Trawl	2	*	*	*	1	*	*	*
Karluk	Y	CG Fixed	0	0	0	0.0%	1	*	*	*
Kasilof		CG Fixed	4	50,838	90	0.3%	1	*	*	*
Kenai		CG Fixed	10	69,217	104	0.2%	1	*	*	*
Kenai		CG Trawl	1	*	*	*	1	*	*	*
Kenai		WG Fixed	2	*	*	*	1	*	*	*
King Cove	Y	CG Trawl	8	359,168	1,048	0.8%	0	0	0	0.0%
King Cove	Y	WG Fixed	33	2,400,817	5,427	5.1%	26	4,230,294	7,362	11.3%
King Cove	Y	WG Trawl	14	5,161,194	12,259	11.0%	9	2,265,965	4,200	6.1%
Kodiak		CG Fixed	192	31,863,260	54,735	6.0%	150	22,666,177	31,071	4.3%
Kodiak		CG Trawl	53	22,500,055	46,700	4.2%	36	19,652,860	33,153	3.7%
Kodiak		WG Fixed	18	443,516	706	0.1%	38	2,722,832	4,957	0.5%
Kodiak		WG Trawl	11	841,940	2,258	0.2%	10	94,668	174	0.0%
Larsen Bay	Y	CG Fixed	8	175,944	289	4.4%	4	25,556	37	1.3%
Nikolaevsk		CG Fixed	12	451,691	722	8.1%	8	708,638	1,000	11.2%
Nikolaevsk		WG Fixed	1	*	*	*	1	*	*	*
Old Harbor	Y	CG Fixed	18	1,587,776	2,799	10.8%	7	747,864	1,038	8.7%
Ouzinkie	Y	CG Fixed	8	139,472	239	5.0%	1	*	*	*
Petersburg		CG Fixed	0	0	0	0.0%	1	*	*	*
Petersburg		CG Trawl	1	*	*	*	1	*	*	*
Petersburg		WG Fixed	0	0	0	0.0%	1	*	*	*
Petersburg		WG Trawl	0	0	0	0.0%	2	*	*	*
Port Lions	Y	CG Fixed	10	526,948	1,018	7.6%	4	46,294	83	0.8%
Sand Point	Y	CG Fixed	2	*	*	*	0	0	0	0.0%
Sand Point	Y	CG Trawl	31	3,392,085	9,745	3.4%	11	46,494	72	0.1%
Sand Point	Y	WG Fixed	44	1,353,621	2,647	1.4%	60	4,358,252	7,800	5.8%
Sand Point	Y	WG Trawl	33	13,582,980	32,726	13.7%	22	5,026,755	8,908	6.7%
Seldovia	Y	CG Fixed	7	3,375,317	5,731	15.4%	4	1,094,642	1,530	6.9%
Seward		CG Fixed	25	989,446	1,659	2.9%	9	266,946	331	0.8%
Seward		WG Fixed	1	*	*	*	0	0	0	0.0%
Sitka		CG Fixed	5	704,703	1,284	0.5%	2	*	*	*
Unalaska		CG Fixed	1	*	*	*	0	0	0	0.0%
Unalaska		CG Trawl	0	0	0	0.0%	1	*	*	*
Unalaska		WG Fixed	7	75,737	103	0.4%	5	348,687	433	1.6%
Unalaska		WG Trawl	1	*	*	*	0	0	0	0.0%
Wasilla		CG Fixed	8	738,867	1,250	3.4%	4	18,632	27	0.1%
Wasilla		WG Fixed	1	*	*	*	1	*	*	*
Wasilla		WG Trawl	0	0	0	0.0%	2	*	*	*
Willow		CG Fixed	4	651,469	849	21.7%	4	1,184,960	1,625	26.1%
Willow		WG Fixed	2	*	*	*	1	*	*	*

Source: ADFG Fish Tickets and CFEC permit and gross revenues data.

Note: Only includes parallel and federal waters fisheries.

3.3.5 Interactions with other actions

Several reasonably foreseeable Council actions have the potential to limit or expand effort by individuals or sectors in the GOA Pacific cod fishery. The trawl and fixed gear LLP recency actions have the potential to limit future effort in the GOA cod fisheries by extinguishing latent licenses. Revisions to the GOA Pacific cod sideboards have the potential to expand opportunities for participation in the GOA Pacific cod fisheries. The Council recently took final action on the trawl LLP recency action, which will extinguish trawl licenses that do not have at least 2 landings in the groundfish fisheries during 2000-2006. Extinguishing latent trawl licenses is unlikely to affect the number of vessels or licenses actively participating in either the trawl or fixed gear Pacific cod fisheries in the Gulf of Alaska, because licenses with recent participation in the fisheries will not be extinguished. However, if the Council chooses to allocate Pacific cod to sectors based on catch history during 1995-2005, some license holders who contributed history to the trawl allocation would not be eligible to fish that allocation if they did not have any trawl landings during 2000-2006. During 1995-1999, the number of trawl vessels participating in the GOA Pacific cod fisheries and total catch by those vessels was substantially higher than trawl participation and catch during 2000-2006. If sector allocations are based on catch history from 1995-2005, and the trawl recency action extinguishes licenses not active in the fisheries since 2000, the result will be an allocation based on the catch history of a large number of trawl vessels and a smaller pool of vessels eligible to fish that allocation.

The Council is also considering an amendment that would extinguish latent fixed gear licenses in a manner analogous to the trawl recency action. This action would extinguish fixed gear licenses that do not meet a minimum landings threshold during a series of recent years. As part of the fixed gear recency action, the Council is also considering options to add GOA Pacific cod endorsements to fixed gear licenses, similar to the BSAI fixed gear licenses implemented under Amendment 67 in 2003. Such endorsements would further limit entry to the GOA Pacific cod fisheries and would create a defined group of licenses eligible to fish off each of the fixed gear Pacific cod allocations in federal waters, although vessels could continue to fish during the parallel waters seasons without an LLP license. Pacific cod sector allocations could be based on catch history during either 1995-2005 or 2000-2006. If earlier catch history is included, some license holders who contributed history to the fixed gear allocations would not be eligible to fish those allocations in federal waters, if the fixed gear recency action is implemented and those licenses do not have groundfish landings since 2000 or 2002. If Pacific cod sector allocations are based on catch history from the same time period used for the fixed gear and trawl recency actions, the participants who created the catch history would be eligible to fish those allocations.

The proposed amendment to revise the GOA Pacific cod sideboards for BSAI crab vessels has the potential to increase the number of vessels that are exempt from the sideboards, and may also increase the amount of Pacific cod that sideboarded participants are allowed to catch during the B season. This action could potentially increase the number of vessels racing for the Pacific cod TACs. During recent years, the B season TACs have not been fully harvested, and allowing additional vessels to catch more fish would not have reduced the TAC available to non-sideboarded participants. However, in some years B season TACs have been fully utilized, and allowing additional participation would in effect dilute catch (and revenues) among a larger pool of participants.

3.3.6 Net Benefits to the Nation

Overall, this action is likely to have a limited effect on net benefits realized by the Nation. Under the status quo (Alternative 1), the Western and Central GOA Pacific cod TACs will continue to be allocated to the inshore and offshore processing sectors, and the harvest sectors will continue to race for shares of the catch. There are substantial numbers of latent licenses eligible to participate in the GOA groundfish fisheries, and no licenses are required to fish in parallel waters. Vessels not currently active in the

fisheries have the potential to enter the fisheries in the future and increase overall effort in the fisheries. This increase in effort could contribute to losses of production efficiency. Costs could rise slightly if participants perceive a need to increase effort to secure their historic catch shares. The increase in effort could contribute to more aggressive fishing and processing practices, both of which contribute to lower quality and less value added production. The extent of these potential effects is very difficult to predict and depends on several factors, including future TAC levels, market conditions, and operating costs.

Under the proposed action (Alternative 2), the Western and Central GOA Pacific cod TACs would be allocated to the various harvest sectors based on catch history or other criteria. As a result, each sector's catch would be constrained by its allocation, and individual sectors would be shielded from increased effort by other sectors. However, sector allocations alone are not likely to slow down the race for fish, reduce bycatch, or increase production efficiency. Vessels within each sector would compete against each other for shares of the sector allocations, and new vessels could enter the fisheries and increase the race for fish within each sector. If sector allocations are implemented in tandem with the fixed gear recency action, and Pacific cod endorsements are added to fixed gear licenses, such endorsements would limit entry into the directed Pacific cod fisheries for vessels using fixed gear. Sector allocations, combined with provisions to limit entry into the sectors, could contribute to slowing down the GOA Pacific cod fisheries. However, if TACs continue to decline and market conditions for Pacific cod continue to improve, the pace of the fisheries is unlikely to slow down.

Implementation of the action alternative would require NOAA fisheries to monitor catch by up to 10 harvest sectors, and possibly to monitor newly established halibut PSC allocations. These new allocations, combined with any modifications to the current inshore/offshore processing allocations, would require NOAA fisheries to incur up-front costs to modify the catch accounting system, and ongoing costs to monitor the allocations.

The main economic benefit from the proposed action is that it has the potential to stabilize the distribution of catch shares of the GOA Pacific cod TACs among the harvest sectors. If combined with a provision to limit entry to the directed Pacific cod fisheries for vessels using fixed gear, the action also has the potential to benefit fixed gear license holders who have recent participation in the fisheries and qualify for Pacific cod endorsements.

4 Initial Regulatory Flexibility Analysis (IRFA)

The Regulatory Flexibility Act (RFA), first enacted in 1980, and codified at 5 U.S.C. 600-611, 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 significant adverse 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. When an agency publishes a proposed rule, it must either, (1) "certify" that the action will not have a significant adverse effect on a substantial number of small entities, and support such a certification declaration with a "factual basis", demonstrating this outcome, or, (2) if such a certification cannot be supported by a factual basis, prepare and make available for public review an

Initial Regulatory Flexibility Analysis (IRFA) that describes the impact of the proposed rule on small entities.

Based upon a preliminary evaluation of the proposed program alternatives, it appears that “certification” would not be appropriate. Therefore, this IRFA has been prepared. Analytical requirements for the IRFA are described below in more detail.

The IRFA must contain:

1. A description of the reasons why action by the agency is being considered;
2. A succinct statement of the objectives of, and the legal basis for, the proposed rule;
3. A description of, 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);
4. A description of the projected reporting, record keeping, 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;
5. An identification, to the extent practicable, of all relevant Federal rules that may duplicate, overlap, or conflict with the proposed rule;
6. 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 adverse 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:
 - a. The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities;
 - b. The clarification, consolidation or simplification of compliance and reporting requirements under the rule for such small entities;
 - c. The use of performance rather than design standards;
 - d. An exemption from coverage of the rule, or any part thereof, for such small entities.

The “universe” of entities to be considered in an IRFA generally includes only those small entities that can reasonably be expected to be directly regulated by the proposed action. If the effects of the rule fall primarily on a distinct segment of the industry, or portion thereof (e.g., user group, gear type, geographic area), that segment would be considered the universe for purposes of this analysis.

In preparing an IRFA, an agency may provide either a quantifiable or numerical description of the effects of a proposed rule (and alternatives to the proposed rule), or more general descriptive statements if quantification is not practicable or reliable.

4.1 Definition of a Small Entity

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

Small businesses: Section 601(3) of the RFA defines a “small business” as having the same meaning as a “small business concern,” which is defined under Section 3 of the Small Business Act. A “small business” or “small business concern” includes any firm that is independently owned and operated and not dominate in its field of operation. The U.S. Small Business Administration (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% participation by foreign business entities in the joint venture.”

The SBA has established size criteria for all major industry sectors in the U.S., including fish harvesting and fish processing businesses. A business “involved in fish harvesting” is a small business if it is independently owned and operated and not dominant in its field of operation (including its affiliates), and if it has combined annual receipts not in excess of \$4.0 million for all its affiliated operations worldwide. A seafood processor is a small business if it is independently owned and operated, not dominant in its field of operation (including its affiliates) and employs 500 or fewer persons, on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide. A business involved in both the harvesting and processing of seafood products is a small business if it meets the \$4.0 million criterion for fish harvesting operations. A wholesale business servicing the fishing industry is a small business if it employs 100 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide.

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 when: (1) A person is an affiliate of a concern if the 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, or (2) If two or more persons each owns, controls or have 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 control 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 “small organizations” as any nonprofit enterprise that is independently owned and operated and is not dominant in its field.

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

4.2 Reason for considering the proposed action

The Council developed a purpose and need statement defining the reasons for considering the proposed action (see Chapter 1). The Western and Central GOA Pacific cod fisheries are currently managed as a limited access race for fish, and the sectors race each other for shares of the TACs. Participants who have made significant long-term investments, have extensive catch histories, and are highly dependent on the Gulf Pacific cod fisheries need stability in the form of sector allocations. Without sector allocations, future harvests by some sectors may increase and impinge on historic levels of catch by other sectors.

4.3 Objectives of, and legal basis for, the proposed action

The objective of the proposed action is to establish direct allocations for each gear sector in the GOA Pacific cod fishery in order to protect the relative catch distribution among sectors. The problem statement notes that dividing the TAC among sectors may also facilitate the development of management measures to address Steller Sea lion mitigation issues, bycatch reduction, and PSC mortality issues.

The legal basis for this action is the Magnuson-Stevens Fishery Conservation and Management Act (MSA). One of the stated purposes of the MSA is to promote domestic commercial fishing under sound conservation and management principles and to achieve and maintain the optimum yield from each fishery.

4.4 Number and description of affected small entities

The proposed action directly regulates catcher vessels and catcher processors that participate in the Pacific cod fisheries in the Western and Central Gulf of Alaska. The number of small entities potentially impacted by the proposed action was estimated by calculating 2006 gross earnings for catcher vessels and 2006 first wholesale revenues for catcher processors from all Alaska fisheries. In 2006, 454 catcher vessels harvested Pacific cod in the Western or Central Gulf of Alaska, including vessels that did not participate in the directed federal fisheries and only have incidental catch of Pacific cod. Twenty-six of these catcher vessels were members of AFA cooperatives and are not considered small entities for the purpose of the RFA. The remaining 428 catcher vessels are all considered small entities. In 2006, 33 catcher processors harvested Pacific cod in the Western or Central Gulf, and 7 of these vessels are small entities. It is likely that additional vessels are affiliated through partnerships with other entities, and would be considered large entities for the purpose of this action, but in the absence of complete ownership information, these affiliations cannot be determined.

4.5 Recordkeeping and reporting

Recordkeeping and reporting requirements are not expected to change as a result of the proposed action. Implementation of the proposed action would require NOAA fisheries to modify the catch accounting system to track catch by each sector. However, vessels fishing off these allocations will simply have to report their catch to NOAA fisheries and catch will be deducted from the appropriate account.

4.6 Relevant Federal rules that may duplicate, overlap, or conflict with the proposed action

There do not appear to be any Federal rules that duplicate, overlap, or conflict with the proposed action.

4.7 Description of significant alternatives to the proposed action

The Council is currently considering two alternatives for this action. **Alternative 1** is the no action alternative. The Western and Central Gulf Pacific cod TACs would not be allocated to the various sectors, and the fisheries would continue to be managed as a limited access race for fish. Under **Alternative 2**, the Western and Central GOA Pacific cod TACs would be allocated among the various gear sectors and operation types. Allocations would be based on catch history over a series of years during 1995-2005 or 2000-2006. The Council is considering two options for defining qualifying catch: (1) all retained catch of Pacific cod in parallel and federal waters, and (2) retained catch in the directed Pacific cod fisheries in parallel and federal waters. The action would have similar impacts on small and large entities. Allocations would stabilize catch shares of the sectors. Options to increase the jig sector allocation beyond historic catch levels would be advantageous to jig vessels, which are among the smallest entities participating in the fisheries. The jig allocation allows for potential growth in entry-level opportunities in the GOA Pacific cod fisheries. During 1995-2006, the jig sector harvested, on average, less than 1% of the Western and Central Gulf of Alaska Pacific cod TACs. This allocation could potentially increase to 3%, 5%, or 7% of the Western and Central GOA TACs.

The Council considered, but rejected, options to establish separate allocations for trawl and hook-and-line catcher processors that have historically fished off the inshore TACs. Establishing distinct inshore catcher processor allocations would protect harvest shares of smaller catcher processors, if combined with a provision to limit entry to the inshore processing component. Prior to removing the option to create distinct inshore catcher processor allocations, the Council reviewed data which showed that during most years, nearly all catcher processors less than 125 feet in length elected to fish inshore. Therefore, if catcher processor allocations are based on vessel length (vessels less than and greater than 125 feet in length), these allocations would be nearly identical to allocations based on catch by the inshore and offshore processing components.

5 CONSISTENCY WITH OTHER APPLICABLE LAWS

5.1 Consistency with National Standards

Below are the ten National Standards in the Magnuson-Stevens Act (Act), and a brief discussion of the consistency of the proposed alternatives with those National Standards.

National Standard 1 – Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery.

In terms of achieving ‘optimum yield’ from the fishery, the Act defines ‘optimum’, with respect to yield from the fishery, as the amount of fish which:

- (A) Will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities, and taking into account the protection of marine ecosystems;

- (B) Is prescribed as such on the basis of the maximum sustainable yield from the fishery, as reduced by any relevant economic, social, or ecological factor; and,
- (C) In the case of an overfished fishery, provides for rebuilding to a level consistent with producing the maximum sustainable yield in such fishery.

The GOA Pacific cod fisheries will continue to be managed under the current harvest specifications process. Pacific cod stocks in the GOA are not currently in danger of being overfished and are considered stable. Overall levels of Pacific cod catch in the GOA will not be affected by the proposed sector allocations. The proposed allocations will not substantially change the current distribution of catch among sectors, and overall net benefits to the Nation are not expected to change to an identifiable degree.

National Standard 2 – Conservation and management measures shall be based upon the best scientific information available.

This analysis is based on the most current, comprehensive data available, recognizing that some information (such as operation costs) is unavailable.

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

The Western and Central Gulf of Alaska Pacific cod TACs are established on an annual basis during the harvest specifications process. NOAA fisheries conducts annual Gulf of Alaska stock assessments for Pacific cod and makes acceptable biological catch recommendations to the Council. The Council sets the Pacific cod TAC based on the most recent stock assessment and survey information. The GOA TAC is divided among the three GOA management areas (Western, Central, and Eastern GOA) based on stock assessment models and survey data. Separate quotas for each sector would continue to be monitored inseason by NMFS.

National Standard 4 – Conservation and management measures shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various U.S. fishermen, such allocation shall be (A) fair and equitable to all such fishermen, (B) reasonably calculated to promote conservation, and (C) carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

Sectors are defined by gear type (hook-and-line, pot, jig, or trawl), operation type (catcher vessel or catcher processor), and vessel length. Residency is not a criterion for sector allocations, and allocations will not be made to individual persons or entities.

National Standard 5 – Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources, except that no such measure shall have economic allocation as its sole purpose.

The wording of this standard was changed in the 1996 Magnuson-Stevens Act authorization, to ‘consider’ rather than ‘promote’ efficiency. Efficiency in this context refers to economic efficiency, and the reason for the change is to de-emphasize the importance of economics relative to other considerations (Senate Report of the Committee on Commerce, Science, and Transportation on S. 39, the Sustainable Fisheries Act, 1996). The analysis presents information on economic considerations, but does not emphasize this standard over other considerations.

National Standard 6 – Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.

Establishing sector allocations will likely reduce the ability of participants to increase effort in response to changes in fishing and market conditions. Overall harvest levels by each sector would be constrained by sector allocations. In the event of lower Pacific cod quotas in the BSAI or changes in other fisheries, sector allocations would protect the relative harvest levels of sectors that have long-term participation and are dependent on the GOA Pacific cod resource. In addition, provisions to increase the jig sector quota may increase opportunities for participation and total catch by this sector.

National Standard 7 – Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

The alternatives under consideration appear to be consistent with this standard.

National Standard 8 – Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.

Major ports in Alaska that process catch from the Western and Central Gulf of Alaska include Kodiak, Dutch Harbor, Akutan, Sand Point, and King Cove. Additionally, the greater Seattle, Washington metropolitan area is home to many catcher and catcher processor vessels operating in these fisheries, as well as cold storage, transshipping, and secondary processing facilities. Information on these communities is available in the Steller Sea Lion SEIS (NMFS 2001b), the Draft Programmatic SEIS (NMFS 2001a), and the crab rationalization EIS (NPFMC 2004). Detailed information on Kodiak, Akutan, Dutch Harbor, and King Cove is available in the Comprehensive Baseline Commercial Fishing Community Profiles Final Report (EDAW 2005).

National Standard 9 – Conservation and management measures shall, to the extent practicable, (A) minimize bycatch, and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.

The EA (Chapter 2) presents information on incidental catch rates in the Gulf of Alaska Pacific cod fishery by sector. Bycatch rates are low in the GOA Pacific cod fixed gear sectors, and higher in the trawl sectors. Chapter 3 presents information on halibut PSC mortality rates by sector. Halibut PSC limits will not be changed as a result of this action. Because sector allocations will reflect historic levels of catch by each sector, incidental catch levels are not expected to change under the proposed action.

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

In recent years, the A season has closed approximately one month after the trawl season opens. Participants in the A season have had to fish early in the year (January/February). The proposed action would create a separate allocation for the <60' pot catcher vessels. This allocation may reduce the incentive for the <60' fixed gear sector to harvest Pacific cod early in the year during adverse weather and promote safer fishing practices.

5.2 MSA Section 303(a)(9) – Fisheries Impact Statement

The Magnuson Stevens Act requires that any management measure submitted by the Council take into account potential impacts on participants in the fisheries subject to the proposed action, as well as

participants in other fisheries. The impacts of alternatives on participants in the harvesting and processing sectors are discussed in Chapter 3. Sector allocations will reflect the historic distribution of catch among sectors, and are unlikely to have a substantial effect on the number of participants or overall level of effort in the GOA Pacific cod fishery. Seasons will likely continue to be short, particularly during the A season, and participants will need to forgo participation in other fisheries. Consequently, no impacts to participants in other fisheries are anticipated. The reauthorized Magnuson Stevens Act (Section 303(9)) also requires analysis of cumulative effects of the proposed action, and interactions with other recent or proposed actions, and impacts on participants, communities, and the fisheries. These impacts are also discussed in Chapter 3.

5.3 Marine Mammal Protection Act (MMPA)

The Marine Mammal Protection Act (MMPA) of 1992 (16 U.S.C. 1361 *et seq.*) vests the Department of Commerce with authority to manage marine mammal populations. The Department of the Interior, USFWS, has management authority for all other marine mammal species in Alaska, including sea otter, walrus, and polar bear. The MMPA recognizes that certain species and populations of marine mammals are or may be in danger of depletion due to human activities, and that marine mammals are resources of international significance and should be protected using best management practices.

The primary management objectives of the MMPA are to maintain the health and stability of the marine ecosystem and to maintain sustainable populations of marine mammals within the carrying capacity of the habitat. The MMPA is intended to work in concert with the provisions of the Endangered Species Act. The Secretary of Commerce is required to give full consideration to all factors regarding regulations applicable to the “take” of marine mammals, including the conservation, development, and utilization of marine resources, and the economic and technological feasibility of implementing the regulations. Impacts of commercial fishing activities on marine mammal populations must be analyzed in an EA or EIS, and the Council or NMFS may be requested to consider measures to mitigate adverse impacts. Under the proposed Pacific cod sector allocations, no changes in the temporal or spatial distribution of harvests or overall level of fishing effort are anticipated. Consequently, no additional impacts to marine mammal populations are expected to result from the proposed action.

5.4 Coastal Zone Management Act

Implementation of either of the alternatives would be conducted in a manner consistent with the Alaska Coastal Management Program and Section 30(c)(1) of the Coastal Zone Management Act of 1972 and its implementing regulations.

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APPENDIX A. RETAINED CATCH OF PACIFIC COD

Table A-1. Retained catch of Pacific cod (mt) from the Western Gulf of Alaska, 1995-2007.

	HAL CP		HAL CV		Jig CV		Pot CP		Pot CV		Trawl CV		Trawl CP	
	Catch	Percent of total	Catch	Percent of total	Catch	Percent of total	Catch	Percent of total	Catch	Percent of total	Catch	Percent of total	Catch	Percent of total
1995	5,632	26.1%	128	0.6%	47	0.2%	104	0.5%	2,352	10.9%	12,704	58.9%	587	2.7%
1996	4,369	20.8%	172	0.8%	45	0.2%	*	*	1,669	8.0%	13,921	66.3%	787	3.8%
1997	3,837	16.0%	240	1.0%	5	0.0%	0	0.0%	1,041	4.3%	18,554	77.4%	295	1.2%
1998	3,168	15.0%	61	0.3%	1	0.0%	*	*	2,533	12.0%	15,007	71.2%	276	1.3%
1999	5,116	21.8%	70	0.3%	0	0.0%	1,424	6.1%	1,591	6.8%	14,673	62.4%	623	2.7%
2000	4,706	21.5%	50	0.2%	5	0.0%	*	*	5,107	23.3%	11,113	50.7%	751	3.4%
2001	3,969	27.3%	31	0.2%	157	1.1%	1,038	7.1%	2,538	17.5%	6,135	42.2%	670	4.6%
2002	6,411	36.9%	38	0.2%	192	1.1%	*	*	4,805	27.7%	5,073	29.2%	327	1.9%
2003	4,242	27.0%	45	0.3%	46	0.3%	*	*	9,549	60.9%	1,367	8.7%	340	2.2%
2004	2,893	18.9%	28	0.2%	183	1.2%	*	*	9,715	63.4%	1,717	11.2%	539	3.5%
2005	724	5.9%	279	2.3%	43	0.4%	*	*	6,402	52.2%	4,441	36.2%	217	1.8%
2006	2,691	19.4%	106	0.8%	*	*	0	0.0%	5,918	42.7%	4,917	35.5%	218	1.6%
2007	3,063	23.2%	390	3.0%	2	0.0%	*	*	4,605	34.9%	4,281	32.5%	529	4.0%

Source: ADFG Fish Tickets (CVs) and NMFS Blend (1995-2002) and Catch Accounting (2003-2007) databases. Note: 1995-1999 Pot CV catch includes directed catch only, due to apparent reporting errors in Fish Tickets that resulted in BSAI catch outside of the directed WG season to be reported as WG catch.

Table A-2. Retained catch of Pacific cod (mt) from the directed Pacific cod fishery in the Western Gulf of Alaska, 1995-2007.

	HAL CP		HAL CV		Jig CV		Pot CP		Pot CV		Trawl CV		Trawl CP	
	Catch	Percent of total	Catch	Percent of total	Catch	Percent of total	Catch	Percent of total	Catch	Percent of total	Catch	Percent of total	Catch	Percent of total
1995	5,133	24.5%	115	0.5%	43	0.2%	*	*	2,352	11.2%	12,695	60.5%	566	2.7%
1996	4,365	21.0%	166	0.8%	40	0.2%	0	0.0%	1,669	8.0%	13,823	66.4%	764	3.7%
1997	3,821	16.2%	*	*	*	*	0	0.0%	1,041	4.4%	18,480	78.2%	274	1.2%
1998	3,131	15.2%	*	*	*	*	0	0.0%	2,533	12.3%	14,719	71.7%	107	0.5%
1999	5,085	21.9%	*	*	0	0.0%	1,424	6.1%	1,591	6.8%	14,636	62.9%	481	2.1%
2000	4,323	20.7%	*	*	*	*	*	*	5,035	24.1%	10,946	52.3%	384	1.8%
2001	3,907	28.5%	19	0.1%	157	1.1%	1,038	7.6%	2,156	15.7%	6,067	44.3%	363	2.6%
2002	6,333	37.4%	8	0.0%	187	1.1%	*	*	4,718	27.9%	5,031	29.7%	135	0.8%
2003	4,139	27.3%	24	0.2%	46	0.3%	*	*	9,494	62.6%	1,235	8.1%	130	0.9%
2004	2,858	19.2%	9	0.1%	183	1.2%	*	*	9,715	65.4%	1,659	11.2%	192	1.3%
2005	693	5.8%	254	2.1%	43	0.4%	*	*	6,380	53.8%	4,334	36.5%	*	*
2006	2,651	19.5%	87	0.6%	*	*	0	0.0%	5,918	43.6%	4,823	35.5%	103	0.8%
2007	3,022	23.9%	349	2.8%	2	0.0%	*	*	4,605	36.4%	4,247	33.6%	119	0.9%

Source: ADFG Fish Tickets (CVs) and NMFS Blend (1995-2002) and Catch Accounting (2003-2007) databases.

Table A-3. Retained catch of Pacific cod (mt) from the Central Gulf of Alaska, 1995-2007.

	HAL CP		HAL CV		Jig CV		Pot CP		Pot CV		Trawl CV		Trawl CP	
	Catch	Percent of total	Catch	Percent of total	Catch	Percent of total	Catch	Percent of total	Catch	Percent of total	Catch	Percent of total	Catch	Percent of total
1995	134	0.3%	4,546	10.3%	50	0.1%	0	0.0%	13,760	31.2%	23,548	53.4%	2,072	4.7%
1996	710	1.7%	4,492	10.6%	34	0.1%	0	0.0%	10,539	24.8%	23,975	56.5%	2,714	6.4%
1997	*	*	6,401	15.4%	18	0.0%	0	0.0%	8,418	20.3%	25,895	62.3%	770	1.9%
1998	175	0.4%	5,815	14.2%	50	0.1%	0	0.0%	9,205	22.5%	21,214	51.9%	4,447	10.9%
1999	313	0.7%	6,156	14.3%	23	0.1%	2,938	6.8%	12,199	28.3%	19,881	46.1%	1,595	3.7%
2000	209	0.7%	6,529	20.4%	38	0.1%	910	2.8%	11,967	37.4%	10,971	34.3%	1,387	4.3%
2001	*	*	5,684	20.9%	11	0.0%	588	2.2%	3,504	12.9%	15,169	55.8%	2,241	8.2%
2002	1,638	7.0%	6,867	29.5%	3	0.0%	131	0.6%	3,228	13.9%	10,568	45.4%	835	3.6%
2003	1,462	6.1%	3,586	15.0%	16	0.1%	*	*	3,200	13.4%	14,405	60.3%	1,219	5.1%
2004	1,453	5.5%	5,423	20.6%	108	0.4%	0	0.0%	4,916	18.7%	13,669	51.9%	770	2.9%
2005	267	1.2%	4,130	18.8%	137	0.6%	0	0.0%	8,169	37.1%	8,591	39.0%	719	3.3%
2006	897	4.0%	6,182	27.6%	93	0.4%	0	0.0%	8,420	37.6%	5,922	26.4%	877	3.9%
2007	1,367	5.4%	6,342	25.2%	36	0.1%	*	*	8,282	32.9%	8,220	32.6%	590	2.3%

Source: ADFG Fish Tickets (CVs) and NMFS Blend (1995-2002) and Catch Accounting (2003-2007) databases.

Table A-4. Retained catch of Pacific cod (mt) from the directed Pacific cod fishery in the Central Gulf of Alaska, 1995-2007.

	HAL CP		HAL CV		Jig CV		Pot CP		Pot CV		Trawl CV		Trawl CP	
	Catch	Percent of total	Catch	Percent of total	Catch	Percent of total	Catch	Percent of total	Catch	Percent of total	Catch	Percent of total	Catch	Percent of total
1995	*	*	4,343	10.8%	42	0.1%	0	0.0%	13,067	32.5%	21,166	52.6%	1,518	3.8%
1996	710	1.7%	4,463	10.7%	34	0.1%	0	0.0%	10,539	25.3%	23,589	56.5%	2,400	5.8%
1997	*	*	6,255	15.7%	15	0.0%	0	0.0%	8,395	21.1%	24,564	61.7%	537	1.3%
1998	*	*	5,626	15.0%	49	0.1%	0	0.0%	9,204	24.5%	19,474	51.9%	3,041	8.1%
1999	308	0.7%	5,948	14.5%	23	0.1%	2,462	6.0%	12,178	29.6%	18,840	45.8%	1,379	3.4%
2000	207	0.7%	6,372	21.9%	38	0.1%	910	3.1%	11,967	41.2%	8,452	29.1%	1,096	3.8%
2001	*	*	5,549	22.8%	11	0.0%	588	2.4%	3,495	14.4%	12,701	52.3%	1,950	8.0%
2002	1,622	8.2%	6,748	34.0%	3	0.0%	131	0.7%	3,228	16.3%	7,920	39.9%	212	1.1%
2003	1,424	7.1%	3,363	16.7%	14	0.1%	0	0.0%	3,200	15.9%	11,663	57.9%	479	2.4%
2004	1,451	6.2%	5,269	22.4%	105	0.4%	0	0.0%	4,916	20.9%	11,305	48.0%	502	2.1%
2005	*	*	4,068	20.8%	134	0.7%	0	0.0%	8,169	41.8%	6,626	33.9%	308	1.6%
2006	889	4.5%	6,089	31.0%	93	0.5%	0	0.0%	8,420	42.9%	3,895	19.8%	256	1.3%
2007	1,271	5.7%	6,198	27.6%	36	0.2%	*	*	8,282	36.8%	6,134	27.3%	229	1.0%

Source: ADFG Fish Tickets (CVs) and NMFS Blend (1995-2002) and Catch Accounting (2003-2007) databases.

Table A-5. Retained catch of Pacific cod (mt) from the Western Gulf of Alaska from 1995-2007 reported by vessel length.

Year	HAL CP <125	HAL CP ≥125	HAL CV <60	HAL CV ≥60	Pot CV <60	Pot CV ≥60	TRW CP <125	TRW CP ≥125
1995	4,871	761	22	106	1,231	1,122	40	547
1996	3,842	526	166	6	1,396	273	55	732
1997	3,605	232	26	214	*	*	156	138
1998	*	*	18	43	1,722	811	190	86
1999	4,021	1,095	47	23	1,393	198	558	66
2000	4,538	168	37	13	1,104	4,003	451	300
2001	3,898	71	26	5	1,346	1,192	268	403
2002	5,459	952	24	14	3,009	1,796	*	*
2003	2,490	1,752	40	5	6,026	3,523	262	77
2004	2,160	733	19	9	4,726	4,990	260	279
2005	484	241	274	5	1,896	4,506	163	54
2006	1,966	725	102	4	1,827	4,091	134	84
2007	2,706	357	383	7	2,338	2,267	365	163

Source: ADFG Fish Tickets (CVs) and NMFS Blend (1995-2002) and Catch Accounting (2003-2007) databases.

Note: 1995-1999 Pot CV catch includes directed catch only, due to apparent reporting errors that resulted in BSAI catch being reported as WG catch.

Table A-6. Retained catch of Pacific cod (mt) from the directed Pacific cod fishery in the Western Gulf of Alaska from 1995-2007 reported by vessel length.

Year	HAL CP <125	HAL CP ≥125	HAL CV <60	HAL CV ≥60	Pot CV <60	Pot CV ≥60	TRW CP <125	TRW CP ≥125
1995	4,871	262	*	*	1,231	1,122	40	526
1996	3,839	526	*	*	1,396	273	39	724
1997	3,598	224	*	0	*	*	137	137
1998	3,131	0	*	*	1,722	811	107	0
1999	3,992	1,092	*	0	1,393	198	*	*
2000	*	*	*	0	1,104	3,931	*	*
2001	*	*	19	0	1,336	820	*	*
2002	5,442	891	8	1	3,009	1,709	*	*
2003	2,487	1,653	*	*	6,026	3,468	130	0
2004	2,143	715	8	1	4,726	4,990	192	0
2005	*	*	*	*	1,875	4,506	*	*
2006	1,929	722	87	0	1,827	4,091	*	*
2007	2,669	353	345	3	2,338	2,267	*	*

Source: ADFG Fish Tickets (CVs) and NMFS Blend (1995-2002) and Catch Accounting (2003-2007) databases.

Table A-7. Retained catch of Pacific cod (mt) from the Central Gulf of Alaska from 1995-2007 reported by vessel length.

Year	HAL CP <125	HAL CP ≥125	HAL CV <60	HAL CV ≥60	Pot CV <60	Pot CV ≥60	TRW CP <125	TRW CP ≥125
1995	134	0	3,731	815	7,631	6,128	326	1,747
1996	710	0	4,041	451	5,533	5,006	183	2,531
1997	*	*	6,146	255	5,099	3,318	623	147
1998	6	169	5,336	479	4,328	4,878	390	4,057
1999	*	*	5,673	483	6,204	5,996	423	1,172
2000	*	*	5,716	814	4,162	7,805	375	1,012
2001	*	*	5,392	292	2,069	1,434	750	1,491
2002	*	*	6,604	264	1,560	1,668	328	507
2003	280	1,181	3,232	353	1,640	1,560	399	820
2004	*	*	4,735	688	2,498	2,418	330	439
2005	244	22	3,751	379	3,323	4,846	497	222
2006	*	*	5,387	795	4,007	4,413	545	332
2007	499	868	5,852	490	4,178	4,104	388	202

Source: ADFG Fish Tickets (CVs) and NMFS Blend (1995-2002) and Catch Accounting (2003-2007) databases.

Table A-8. Retained catch of Pacific cod (mt) from the directed Pacific cod fishery in the Central Gulf from 1995-2007 reported by vessel length.

Year	HAL CP <125	HAL CP ≥125	HAL CV <60	HAL CV ≥60	Pot CV <60	Pot CV ≥60	TRW CP <125	TRW CP ≥125
1995	*	0	3,584	759	7,449	5,618	32	1,486
1996	710	0	4,019	445	5,533	5,006	74	2,326
1997	*	0	6,037	217	5,099	3,296	*	*
1998	0	*	5,190	436	4,327	4,878	256	2,786
1999	*	*	5,522	426	6,204	5,974	288	1,091
2000	207	0	5,591	781	4,162	7,805	110	986
2001	*	0	5,282	267	2,061	1,434	*	*
2002	0	1,622	6,521	227	1,560	1,668	*	*
2003	*	*	3,059	304	1,640	1,560	*	*
2004	*	*	4,616	654	2,498	2,418	*	*
2005	*	*	3,715	352	3,323	4,846	*	*
2006	*	*	5,331	759	4,007	4,413	147	109
2007	*	*	5,740	458	4,178	4,104	*	*

Source: ADFG Fish Tickets (CVs) and NMFS Blend (1995-2002) and Catch Accounting (2003-2007) databases.

Table A-9. Retained catch of Pacific cod (mt) by the inshore and offshore catcher processor sectors in the Western Gulf of Alaska from 1995-2007.

Year	Hook-and-line CP						Trawl CP					
	Inshore			Offshore			Inshore			Offshore		
	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total
1995	11	4,871	22.6%	7	761	3.5%	3	40	0.2%	8	547	2.5%
1996	12	3,649	17.4%	5	720	3.4%	4	55	0.3%	15	732	3.5%
1997	7	3,310	13.8%	6	528	2.2%	4	156	0.7%	13	138	0.6%
1998	5	*	*	2	*	*	5	194	0.9%	10	82	0.4%
1999	9	3,908	16.6%	11	1,208	5.1%	5	567	2.4%	8	57	0.2%
2000	9	3,622	16.5%	5	1,085	4.9%	3	451	2.1%	10	300	1.4%
2001	7	3,598	24.7%	9	372	2.6%	4	392	2.7%	9	279	1.9%
2002	8	5,459	31.4%	8	952	5.5%	2	*	*	11	*	*
2003	6	2,490	15.9%	13	1,752	11.2%	3	261	1.7%	8	79	0.5%
2004	4	2,160	14.1%	8	733	4.8%	2	*	*	11	*	*
2005	4	484	3.9%	6	241	2.0%	2	*	*	11	*	*
2006	7	1,966	14.2%	7	725	5.2%	1	*	*	10	*	*
2007	7	2,701	20.5%	5	362	2.7%	2	*	*	11	*	*

Source: NMFS Blend/Catch Accounting, 1995-2007.

Table A-10. Retained catch of Pacific cod (mt) by the inshore and offshore catcher processor sectors in the Central Gulf of Alaska from 1995-2007.

Year	Hook-and-line CP						Trawl CP					
	Inshore			Offshore			Inshore			Offshore		
	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total
1995	7	*	*	1	*	*	5	253	0.6%	19	1,819	4.1%
1996	4	710	1.7%	0	0	0.0%	6	229	0.5%	17	2,484	5.9%
1997	1	*	*	1	*	*	5	675	1.6%	15	94	0.2%
1998	4	6	0.0%	3	169	0.4%	4	1,651	4.0%	13	2,796	6.8%
1999	6	306	0.7%	3	7	0.0%	5	673	1.6%	10	922	2.1%
2000	6	*	*	2	*	*	4	375	1.2%	6	1,012	3.2%
2001	1	*	*	1	*	*	5	785	2.9%	6	1,456	5.4%
2002	2	*	*	5	*	*	3	328	1.4%	6	507	2.2%
2003	4	280	1.2%	4	1,181	4.9%	3	392	1.6%	9	827	3.5%
2004	2	*	*	3	*	*	3	175	0.7%	7	595	2.3%
2005	3	244	1.1%	4	22	0.1%	3	494	2.2%	8	226	1.0%
2006	2	*	*	7	*	*	2	*	*	9	*	*
2007	2	*	*	5	*	*	2	*	*	5	*	*

Source: NMFS Blend/Catch Accounting, 1995-2007.

Table A-11. Retained catch of Pacific cod (mt) by pot catcher vessels in the Western Gulf of Alaska, reported by vessel length (LOA).

Year	POT CV <50 ft				POT CV 50-59 ft				POT CV ≥60 ft			
	All cod		Directed cod		All cod		Directed cod		All cod		Directed cod	
	Vessels	Catch	Vessels	Catch	Vessels	Catch	Vessels	Catch	Vessels	Catch	Vessels	Catch
1995	21	573	21	573	14	658	14	658	23	1,122	23	1,122
1996	14	426	14	426	20	971	20	971	3	273	3	273
1997	10	419	10	419	8	390	8	390	2	*	2	*
1998	13	551	13	551	19	1,171	19	1,171	21	811	21	811
1999	10	310	10	310	20	1,083	20	1,083	4	198	4	198
2000	8	184	8	184	29	921	29	921	44	4,003	44	3,931
2001	7	245	7	245	25	1,101	24	1,091	14	1,192	10	820
2002	3	178	3	178	30	2,831	30	2,831	15	1,796	15	1,709
2003	4	420	4	420	38	5,606	38	5,606	18	3,523	17	3,468
2004	8	314	8	314	45	4,412	45	4,412	28	4,990	28	4,990
2005	6	283	6	283	34	1,613	33	1,591	19	4,506	19	4,506
2006	8	254	8	254	25	1,573	25	1,573	18	4,091	18	4,091
2007	6	337	6	337	24	2,001	24	2,001	17	2,267	17	2,267

Source: ADFG fish tickets

Table A-11. Retained catch of Pacific cod (mt) by pot catcher vessels in the Central Gulf of Alaska, reported by vessel length (LOA).

Year	POT CV <50 ft				POT CV 50-59 ft				POT CV ≥60 ft			
	All cod		Directed cod		All cod		Directed cod		All cod		Directed cod	
	Vessels	Catch	Vessels	Catch	Vessels	Catch	Vessels	Catch	Vessels	Catch	Vessels	Catch
1995	40	3,812	39	3,738	27	3,820	27	3,711	55	6,128	54	5,618
1996	25	1,717	25	1,717	23	3,816	23	3,816	39	5,006	39	5,006
1997	20	952	20	952	21	4,147	21	4,147	20	3,318	20	3,296
1998	15	802	15	802	23	3,526	22	3,525	23	4,878	23	4,878
1999	15	925	15	925	30	5,279	30	5,279	40	5,996	39	5,974
2000	16	560	16	560	40	3,601	40	3,601	58	7,805	58	7,805
2001	8	301	8	301	26	1,768	26	1,760	28	1,434	28	1,434
2002	9	104	9	104	19	1,456	19	1,456	17	1,668	17	1,668
2003	5	79	5	79	17	1,561	17	1,561	13	1,560	13	1,560
2004	7	145	7	145	15	2,353	15	2,353	13	2,418	13	2,418
2005	8	251	8	251	17	3,072	17	3,072	22	4,846	22	4,846
2006	9	185	9	185	27	3,821	27	3,821	23	4,413	23	4,413
2007	7	110	7	110	33	4,069	33	4,069	22	4,104	22	4,104

Source: ADFG fish tickets

APPENDIX B. COMPARISON BETWEEN CATCH DATA SETS

Table B-1. Comparison between retained catch estimates (mt) for Western Gulf Pacific cod based on ADFG Fish Tickets and NMFS Blend/Catch Accounting data, 1995-2007.

Year	HAL CV			Jig CV			Pot CV			Trawl CV		
	Blend/Catch Accounting	Fish Tickets	Percent difference	Blend/Catch Accounting	Fish Tickets	Percent difference	Blend/Catch Accounting	Fish Tickets	Percent difference	Blend/Catch Accounting	Fish Tickets	Percent difference
1995	19	128	85.4%	32	47	31.3%	2,360	3,335	29.2%	12,526	12,704	1.4%
1996	132	172	22.9%	45	45	-0.3%	1,663	4,510	63.1%	11,942	13,921	14.2%
1997	52	240	78.5%	4	5	23.4%	992	3,885	74.5%	18,053	18,554	2.7%
1998	112	61	-85.0%	*	*	*	1,618	3,891	58.4%	14,382	15,007	4.2%
1999	37	70	48.0%	*	*	*	1,313	2,901	54.8%	14,335	14,673	2.3%
2000	65	50	-29.6%	4	5	16.5%	4,670	5,107	8.6%	11,284	11,113	-1.5%
2001	25	31	19.4%	130	157	17.1%	1,971	2,538	22.4%	6,143	6,135	-0.1%
2002	9	38	77.2%	172	192	10.4%	4,340	4,805	9.7%	5,026	5,073	0.9%
2003	76	45	-70.4%	46	46	-0.4%	9,492	9,549	0.6%	1,422	1,367	-4.0%
2004	40	28	-42.9%	178	183	3.0%	9,680	9,715	0.4%	1,698	1,717	1.1%
2005	297	279	-6.4%	52	43	-20.5%	6,355	6,402	0.7%	4,386	4,441	1.2%
2006	130	106	-23.0%	*	*	*	5,908	5,918	0.2%	4,813	4,917	2.1%
2007	403	390	-3.4%	2	2	0.1%	4,653	4,605	-1.1%	4,281	4,281	0.0%

Source: ADFG Fish Tickets (1995-2007), NMFS Blend (1995-2002), and NMFS Catch Accounting (2003-2007).

Table B-2. Comparison between retained catch estimates (mt) for Central Gulf Pacific cod based on ADFG Fish Tickets and NMFS Blend/Catch Accounting data, 1995-2007.

Year	HAL CV			Jig CV			Pot CV			Trawl CV		
	Blend/Catch Accounting	Fish Tickets	Percent difference	Blend/Catch Accounting	Fish Tickets	Percent difference	Blend/Catch Accounting	Fish Tickets	Percent difference	Blend/Catch Accounting	Fish Tickets	Percent difference
1995	4,479	4,546	1.5%	41	50	17.8%	12,962	13,760	5.8%	23,575	23,548	-0.1%
1996	4,433	4,492	1.3%	8	34	77.8%	10,176	10,539	3.4%	23,481	23,975	2.1%
1997	6,137	6,401	4.1%	13	18	27.3%	7,563	8,418	10.2%	25,135	25,895	2.9%
1998	5,852	5,815	-0.6%	16	50	67.7%	8,690	9,205	5.6%	20,862	21,214	1.7%
1999	6,153	6,156	0.1%	30	23	-27.2%	12,779	12,199	-4.7%	19,506	19,881	1.9%
2000	6,342	6,529	2.9%	35	38	7.6%	11,423	11,967	4.5%	10,739	10,971	2.1%
2001	5,605	5,684	1.4%	20	11	-71.3%	3,443	3,504	1.7%	13,749	15,169	9.4%
2002	6,423	6,867	6.5%	4	3	-49.1%	2,579	3,228	20.1%	10,112	10,568	4.3%
2003	3,294	3,586	8.1%	42	16	-167.8%	3,050	3,200	4.7%	13,877	14,405	3.7%
2004	5,510	5,423	-1.6%	166	108	-52.9%	4,868	4,916	1.0%	13,669	13,669	0.0%
2005	4,274	4,130	-3.5%	152	137	-10.8%	8,099	8,169	0.9%	8,468	8,591	1.4%
2006	6,289	6,182	-1.7%	117	93	-26.2%	8,286	8,420	1.6%	5,818	5,922	1.7%
2007	6,355	6,342	-0.2%	39	36	-6.1%	8,126	8,282	1.9%	8,241	8,220	-0.3%

Source: ADFG Fish Tickets (1995-2007), NMFS Blend (1995-2002), and NMFS Catch Accounting (2003-2007).

Table B-3. Comparison between retained catch estimates (mt) for Pacific cod in the Western Gulf based on NMFS Weekly Production Reports and NMFS Blend/Catch Accounting data, 1995-2006.

Year	HAL CP			POT CP			TRW CP		
	Blend/Catch Accounting	WPR	Percent difference	Blend/Catch Accounting	WPR	Percent difference	Blend/Catch Accounting	WPR	Percent difference
1995	5,632	4,875	-13.4	*	*	*	587	602	2.6
1996	4,369	4,199	-3.9	*	*	*	787	632	-19.8
1997	3,837	3,285	-14.4	0	0	0.0	295	263	-11.0
1998	3,168	2,959	-6.6	*	0	*	276	251	-8.9
1999	5,116	4,947	-3.3	1,424	1,347	-5.4	623	618	-0.8
2000	4,706	4,532	-3.7	*	*	*	751	654	-12.9
2001	3,969	3,657	-7.9	1,038	1,074	3.4	670	618	-7.8
2002	6,411	5,787	-9.7	*	*	*	327	419	28.0
2003	4,242	3,923	-7.5	*	*	*	340	317	-6.7
2004	2,893	2,811	-2.8	*	*	*	539	425	-21.2
2005	724	698	-3.6	*	*	*	217	228	5.2
2006	2,691	2,473	-8.1	*	*	*	218	206	-5.7
Total	47,759	44,147	-7.6	*	*	*	5,631	5,232	-7.1

Source: NMFS Weekly Production Reports (1995-2006), NMFS Blend (1995-2002), and NMFS Catch Accounting (2003-2006).

Table B-4. Comparison between retained catch estimates (mt) for Pacific cod in the Central Gulf based on NMFS Weekly Production Reports and NMFS Blend/Catch Accounting data, 1995-2006.

Year	HAL CP			POT CP			TRW CP		
	Blend/Catch Accounting	WPR	Percent difference	Blend/Catch Accounting	WPR	Percent difference	Blend/Catch Accounting	WPR	Percent difference
1995	134	216	61.7	0	0		1,860	1,859	0.0
1996	710	494	-30.4	0	0		2,714	1,867	-31.2
1997	*	*	*	0	0		770	789	2.5
1998	175	107	-38.8	0	0		4,447	4,155	-6.6
1999	313	314	0.4	2,938	2,932	-0.2	1,595	1,451	-9.0
2000	209	209	0.0	*	*	*	1,387	1,724	24.3
2001	*	*	*	588	572	-2.7	2,241	2,446	9.1
2002	1,638	1,291	-21.2	*	*	*	835	687	-17.8
2003	1,462	1,257	-14.0	*	*	*	1,219	1,448	18.8
2004	1,453	1,383	-4.8	0	0		770	934	21.4
2005	267	264	-0.9	0	0		719	752	4.5
2006	897	836	-6.7	0	0		877	886	1.1
Total	*	*	*	*	*	*	19,435	18,998	-2.2

Source: NMFS Weekly Production Reports (1995-2006), NMFS Blend (1995-2002), and NMFS Catch Accounting (2003-2006).

APPENDIX C. MARKET INFORMATION ON ALASKA PACIFIC COD PRODUCTS

Market information on Pacific cod products

This information below is summarized from “Selected Market Information for Pacific Cod” by Gunnar Knapp, January 12, 2006, an unpublished report prepared for the North Pacific Fishery Management Council.

- The proportion of frozen (headed & gutted) Pacific cod increased steadily from 1995 through 2004. The overall amount of Pacific cod exported has also increased.
- Data presented in this report show a convergence between headed & gutted production in the U.S. with total exports of frozen cod (currently over 90%). This suggests that most headed & gutted Pacific cod is being exported.
- Since 2001, there has been a declining trend in exports of Pacific cod fillets as a share of total U.S. production. The production of Pacific cod fillets have been declining in the U.S. since 1997 and the proportion of the fillet production exported has recently decreased.
- China has received an increasing share of U.S. exports of frozen cod since 1999, but Japan still accounts for the largest proportion of U.S. exports of cod.
- The cod imports to the U.S. from China have increased very dramatically since 1998.
- The amount of frozen cod fillets imported by the U.S. has increased steadily since 1998.
- About 90% (2004) of U.S. export of Pacific cod is headed & gutted production.