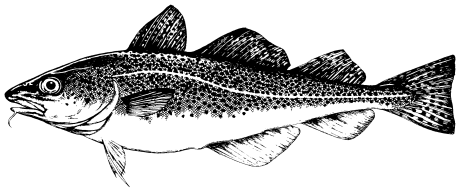
INITIAL REVIEW

DRAFT

ENVIRONMENTAL ASSESSMENT/REGULATORY IMPACT REVIEW/ INITIAL REGULATORY FLEXIBILITY ANALYSIS

for Proposed Amendment to the Fishery Management Plan for Groundfish of the GOA Management Area

ALLOCATION OF PACIFIC COD AMONG SECTORS IN THE WESTERN AND CENTRAL GOA



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November 14, 2008

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EXECUTIVE SUMMARY

This EA/RIR/IRFA examines the environmental, economic, and socioeconomic aspects of the proposed amendment to allocate the Western and Central GOA 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 GOA Fisheries Management Plan (FMP).

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 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 GOA 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:

GOA Pacific Cod Sector Split Purpose and Need Statement

The limited access derby-style management of the Western GOA and Central GOA 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 GOA 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: Management areas
The Western and Central GOA Pacific cod TACs will be allocated among the various gear and operation types, as defined in Component 2 (WG and CG management areas could be treated differently within Component 2).

Component 2: Sector definitions
The Western and Central GOA Pacific cod TACs will be allocated among the following sectors:

- Trawl catcher processors
- 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
  Option (CG only): Hook-and-line catcher vessels <50 ft
  Hook-and-line catcher vessels ≥50 ft
- Pot catcher processors
- Pot catcher vessels
  Option: Pot catcher vessels <60 ft
  Pot catcher vessels ≥60 ft
- Jig vessels

Note: The Council has the option to either give a single allocation to each sector, or to divide any allocation by vessel length based on the option(s) listed above.

Option: Vessels participating in the <60 ft sectors may not exceed a capacity limit to be determined by the Council. The Council directs staff to provide recommendations of options to consider for capacity limits. Vessels that exceed the capacity limit set for the <60 ft sectors will be allowed to participate in ≥60 ft sectors.

Option: For Western GOA only, create a separate sector for combination trawl and pot vessels <60 ft.

Component 3: Definition of qualifying catch

Qualifying catch includes all retained legal catch of Pacific cod from the Federal and parallel waters fisheries in the Western and Central GOA.

- 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 GOA Rockfish program (currently, 2.09% of the Central GOA Pacific cod TAC) will be deducted from the Central GOA trawl catcher vessel B season 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
Option 5	Qualifying years 2002-2007: average of best 3 years
Option 6	Qualifying years 2002-2007: average of best 5 years

When sectors are divided into subsectors (e.g., by vessel length), the allocation will be calculated using the best set of years for the sector, and the sum of the subsector allocations will equal the allocation to the sector.

The Council directs staff to provide tables that identify catch by sector during the A season and B season in the Western and Central GOA, including: (1) total retained catch by season and qualifying year, and (2)

proportion of total retained catch taken during each season by sector under the set of options provided under Component 4.

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% 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 requests that staff continue to work with the State of Alaska and NMFS to explore considerations required to implement possible options for the jig fishery management structure (both State parallel/Federal and State) that create a workable fishery and minimize the amount of stranded quota, focusing on Option 1. Possible solutions that could be explored are:

1. State parallel/Federal managed Pacific cod jig fishery. Federal allocation managed 0-200 miles through a parallel fishery structure. Any State waters jig GHL could (under subsequent action by the Alaska Board of Fisheries) be added to this State parallel/Federal managed jig sector allocation so that the jig sector is fishing off of a single account.
2. State managed Pacific cod jig fishery. Federal management authority delegated to the State of Alaska to manage the Pacific cod jig fisheries in the Western and Central GOA from 0-200 miles.

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.

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 GOA and Central GOA 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.

Component 8: Retention of Community Protections

This component would protect community participation in the processing of Pacific cod, and protect community delivery patterns established by the inshore/offshore regulations.

For each management area, the mothership processing cap will be a percent of the Federal Pacific cod TAC in that area:

Option 1 0%

Option 2 A percentage based on the same qualification criteria as selected for the harvesting sector allocations, but calculated from mothership processing activity.

- Motherships include catcher processors receiving deliveries over the side and mobile floating processors. Motherships do not include inshore floating processors operating at a single geographic location during a given year.

  Suboption: For the Western GOA, the combined offshore catcher processor allocations (sum of hook-and-line CP, pot CP, and trawl CP allocations) may be limited to 10%, 15%, or 20%; adjustments to achieve this limit would be applied proportionately to other sectors' allocations.

Component 9

To address Steller sea lion mitigation, bycatch reduction, prohibited species catch mortality, or other conservation and social objectives, potential allocations to any sector based on catch history may be adjusted upwards or downwards by 5% or 10%; this adjustment would be applied proportionately to other sectors' allocations.

Other issues for analysis

The Council requests that staff expand the analysis on Alaskan ownership in the freezer-longline (hook-and-line CP) sector to include percent ownership and gross revenues by Alaskan community.

Background on the proposed action

The proposed action would divide the Western and Central GOA 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.

Catch history by each of the sectors from 1995-2008 in the Western and Central GOA Pacific cod fisheries is summarized in Table E-1. The table shows 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 has been substantial year-to-year variability in catch shares. For example, in the Western GOA trawl catcher vessels have harvested as little as 8.7% of the annual catch (2003) and as much as 77.4% of the catch (1997). Similarly, pot catcher vessels have harvested as little as 4.3% of the Western GOA catch (1997) and as much as 63.4% of the catch (2004). 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. The problem statement notes that 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.

Table E-1 Retained catch and percent of annual retained catch by each sector in the GOA Pacific cod fisheries.

Western GOA

	Hook-and-line CP		Hook-and-line CV		Jig CV		Pot CP		Pot CV		Trawl CP		Trawl CV	
	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	26.2%	35	0.2%	48	0.2%	104	0.5%	2,352	11.0%	587	2.7%	12,704	59.2%
1996	4,369	20.8%	193	0.9%	45	0.2%	*	*	1,689	8.0%	787	3.7%	13,921	66.2%
1997	3,837	16.0%	240	1.0%	5	0.0%	0	0.0%	1,041	4.3%	295	1.2%	18,554	77.4%
1998	3,168	15.0%	22	0.1%	1	0.0%	*	*	2,550	12.1%	276	1.3%	15,007	71.3%
1999	5,116	21.8%	70	0.3%	0	0.0%	1,424	6.1%	1,591	6.8%	623	2.7%	14,673	62.4%
2000	4,706	21.5%	54	0.2%	5	0.0%	*	*	5,107	23.3%	751	3.4%	11,113	50.7%
2001	3,969	27.2%	103	0.7%	157	1.1%	1,038	7.1%	2,538	17.4%	670	4.6%	6,135	42.0%
2002	6,411	36.9%	38	0.2%	193	1.1%	*	*	4,805	27.7%	327	1.9%	5,073	29.2%
2003	4,242	27.0%	47	0.3%	46	0.3%	*	*	9,549	60.8%	340	2.2%	1,367	8.7%
2004	2,893	18.9%	28	0.2%	183	1.2%	*	*	9,718	63.4%	539	3.5%	1,717	11.2%
2005	724	5.9%	281	2.3%	46	0.4%	*	*	6,402	52.2%	217	1.8%	4,441	36.2%
2006	2,691	19.4%	106	0.8%	*	*	0	0.0%	5,918	42.7%	218	1.6%	4,917	35.5%
2007	3,069	23.2%	390	2.9%	2	0.0%	*	*	4,646	35.1%	529	4.0%	4,281	32.4%
2008	3,071	21.5%	479	3.3%	44	0.3%	*	*	5,651	39.5%	378	2.6%	4,600	32.1%

Central GOA

	Hook-and-line CP		Hook-and-line CV		Jig CV		Pot CP		Pot CV		Trawl CP		Trawl CV	
	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%	51	0.1%	0	0.0%	13,760	31.2%	2,072	4.7%	23,548	53.4%
1996	710	1.7%	4,491	10.6%	34	0.1%	0	0.0%	10,539	24.8%	2,714	6.4%	23,975	56.5%
1997	*	*	6,401	15.4%	21	0.1%	0	0.0%	8,420	20.3%	770	1.9%	25,895	62.3%
1998	175	0.4%	5,815	14.2%	50	0.1%	0	0.0%	9,208	22.5%	4,447	10.9%	21,214	51.9%
1999	313	0.7%	6,174	14.3%	24	0.1%	2,938	6.8%	12,182	28.3%	1,595	3.7%	19,881	46.1%
2000	209	0.7%	6,529	20.4%	38	0.1%	910	2.8%	11,967	37.4%	1,387	4.3%	10,971	34.3%
2001	*	*	5,684	20.9%	11	0.0%	588	2.2%	3,505	12.9%	2,241	8.2%	15,169	55.8%
2002	1,638	7.0%	6,867	29.5%	3	0.0%	131	0.6%	3,228	13.9%	835	3.6%	10,568	45.4%
2003	1,462	6.1%	3,586	15.0%	16	0.1%	*	*	3,201	13.4%	1,219	5.1%	14,405	60.3%
2004	1,453	5.5%	5,423	20.6%	118	0.4%	0	0.0%	4,916	18.7%	770	2.9%	13,669	51.9%
2005	267	1.2%	4,271	19.3%	137	0.6%	0	0.0%	8,169	36.9%	719	3.2%	8,591	38.8%
2006	897	4.0%	6,183	27.6%	96	0.4%	0	0.0%	8,420	37.6%	877	3.9%	5,922	26.4%
2007	1,376	5.5%	6,341	25.2%	36	0.1%	*	*	8,286	32.9%	590	2.3%	8,220	32.6%
2008	1,755	7.0%	6,115	24.3%	27	0.1%	0	0.0%	5,216	20.7%	631	2.5%	11,465	45.5%

Source: ADFG Fish Tickets and NMFS Blend and Catch Accounting.

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 GOA management measures to address Steller sea lion issues, halibut PSC usage, and bycatch reduction.

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-2 and E-3. The qualification period that includes earlier years (1995-2005) generally favors the trawl catcher vessel sector, particularly in the Western GOA. The qualification period that only includes more recent years (2000-2006 or 2002-2007) 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 26.5% to 46.6% of the Western GOA TAC and 41.3% to 48.1% of the Central GOA TAC. Similarly, the pot catcher vessel allocation could range from 27.9% to 45.7% of the Western GOA TAC and 24.7% to 28.1% of the Central GOA TAC.

Table E-2 Potential percent allocations of the Western and Central GOA Pacific cod TACs

Western Gulf	Period	HAL CP	HAL CV	Jig CV	Pot CP	Pot CV	Trawl CP	Trawl CV
All Cod	1995-2005: Best 7 years	19.7%	0.6%	0.5%	2.2%	27.9%	2.5%	46.6%
	1995-2005: Best 5 years	18.6%	0.7%	0.5%	2.5%	30.4%	2.4%	44.9%
	2000-2006: Best 5 years	21.6%	0.7%	0.7%	2.3%	40.5%	2.6%	31.7%
	2000-2006: Best 3 years	21.4%	0.9%	0.8%	2.7%	41.3%	2.7%	30.2%
	2002-2007: Best 5 years	22.6%	1.2%	0.6%	1.6%	45.7%	2.4%	26.0%
	2002-2007: Best 3 years	22.2%	1.5%	0.7%	1.8%	44.9%	2.5%	26.5%
Central Gulf	Period	HAL CP	HAL CV	Jig CV	Pot CP	Pot CV	Trawl CP	Trawl CV
All Cod	1995-2005: Best 7 years	2.8%	17.3%	0.2%	1.5%	24.7%	5.3%	48.1%
	1995-2005: Best 5 years	3.4%	17.6%	0.2%	2.0%	25.2%	5.6%	45.9%
	2000-2006: Best 5 years	4.2%	20.8%	0.3%	1.0%	25.3%	4.4%	44.1%
	2000-2006: Best 3 years	4.7%	19.4%	0.4%	1.4%	27.9%	4.4%	41.9%
	2002-2007: Best 5 years	5.2%	22.6%	0.3%	0.4%	25.8%	3.5%	42.3%
	2002-2007: Best 3 years	4.9%	21.5%	0.4%	0.5%	28.1%	3.3%	41.3%

Table E-3 Potential percent allocations of the Western and Central GOA Pacific cod TACs under suboptions to split sectors by vessel length

Western Gulf	Period	HAL CP <125	HAL CP ≥125	TRW CP <125	TRW CP ≥125	TRW CV <60	TRW CV ≥60
All Cod	1995-2005: Best 7 years	16.8%	2.9%	1.1%	1.4%	32.8%	13.8%
	1995-2005: Best 5 years	15.4%	3.1%	0.8%	1.6%	30.9%	14.1%
	2000-2006: Best 5 years	18.1%	3.6%	1.4%	1.2%	24.6%	7.1%
	2000-2006: Best 3 years	17.6%	3.7%	1.3%	1.4%	23.6%	6.6%
	2002-2007: Best 5 years	17.5%	5.1%	1.5%	0.9%	21.4%	4.5%
	2002-2007: Best 3 years	17.6%	4.6%	1.6%	0.9%	23.0%	3.5%
Central Gulf	Period						
All Cod	1995-2005: Best 7 years	0.8%	2.1%	1.1%	4.3%	8.0%	40.1%
	1995-2005: Best 5 years	0.8%	2.7%	1.0%	4.6%	8.5%	37.4%
	2000-2006: Best 5 years	0.6%	3.6%	1.7%	2.8%	1.7%	42.4%
	2000-2006: Best 3 years	0.5%	4.1%	1.4%	3.0%	1.7%	40.1%
	2002-2007: Best 5 years	0.8%	4.4%	1.7%	1.8%	1.1%	41.1%
	2002-2007: Best 3 years	0.5%	4.4%	1.4%	1.9%	1.5%	39.8%

Western Gulf	Period	HAL CV <50	HAL CV ≥50	HAL CV <60	HAL CV ≥60	Pot CV <50	Pot CV ≥50	Pot CV <60	Pot CV ≥60
All Cod	1995-2005: Best 7 years	0.3%	0.4%	0.4%	0.2%	1.4%	26.5%	13.5%	14.4%
	1995-2005: Best 5 years	0.3%	0.4%	0.4%	0.3%	1.0%	29.3%	14.3%	16.1%
	2000-2006: Best 5 years	0.3%	0.4%	0.6%	0.1%	1.4%	39.1%	18.9%	21.6%
	2000-2006: Best 3 years	0.4%	0.4%	0.7%	0.1%	1.4%	40.0%	19.8%	21.5%
	2002-2007: Best 5 years	0.6%	0.6%	1.1%	0.0%	1.7%	44.0%	20.8%	24.9%
	2002-2007: Best 3 years	0.8%	0.7%	1.5%	0.0%	1.5%	43.4%	21.6%	23.3%
Central Gulf	Period								
All Cod	1995-2005: Best 7 years	12.5%	4.8%	16.0%	1.3%	1.5%	23.2%	11.4%	13.3%
	1995-2005: Best 5 years	12.8%	4.9%	16.3%	1.4%	1.4%	23.9%	11.3%	13.9%
	2000-2006: Best 5 years	14.6%	6.2%	19.0%	1.8%	0.6%	24.6%	10.9%	14.4%
	2000-2006: Best 3 years	13.9%	5.5%	18.0%	1.4%	0.7%	27.2%	11.4%	16.4%
	2002-2007: Best 5 years	15.4%	7.1%	20.5%	2.0%	0.5%	25.3%	12.1%	13.7%
	2002-2007: Best 3 years	14.7%	6.9%	19.8%	1.7%	0.5%	27.6%	13.0%	15.2%

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-4. 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 GOA. 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. 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.

Table E-4 A comparison of the components and options included in the proposed GOA Pacific cod sector allocations action and the GOA fixed gear LLP recency action.

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 WG and CG
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 Option: Hook-and-line CVs <60 and ≥60 Option: Hook-and-line CVs <50 and ≥50 (CGOA) (2) Hook-and-line CPs Option: Hook-and-line CPs <125 and ≥125 (3) Pot CVs Option: Pot CVs <60 and ≥60 (4) Pot CPs (5) Jig (6) Trawl CVs (7) Trawl CPs Option: Combined <60 ft trawl and pot CV (WG only)	(1) Hook-and-line CVs Option: Hook-and-line CVs <60 and ≥60 (2) Hook-and-line CPs Option: Hook-and-line CPs <125 and ≥125 (3) Pot CVs Option: Pot CVs <60 and ≥60 (4) Pot CPs (5) Jig
VESSEL CAPACITY	Option: Vessels participating in the <60 ft sectors may not exceed a capacity limit to be determined by the Council.	Option: Exempt vessels that are both <60 ft and under a capacity limit to be determined by the Council.
QUALIFYING CATCH	All retained catch of Pacific cod from 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 and 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 (5) 2002-2007: best 5 years (6) 2002-2007: best 3 years	(1) 2000-2005 (2) 2000-2006 (3) 2002-2005 (4) 2002-2006 Option: Include 2007-June 4, 2008 in addition to one of the above qualifying periods
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% allocation Step up provision (1%, 2%, or 3%) if allocation is 90% harvested during a given year Step down provision if allocation is not 90% 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 cap mothership processing shares	Stacked license provisions: (1) Credit catch to stacked licenses; or (2) Divide catch history among stacked licenses

1 INTRODUCTION

The groundfish fisheries in the Exclusive Economic Zone (3 to 200 miles offshore) of the GOA are managed under the GOA Fisheries Management Plan (FMP), developed by the North Pacific Fishery Management Council, under the authority of the Magnuson-Stevens Fishery Conservation and Management Act. The GOA 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 GOA Pacific cod total allowable catch (TAC), which would result in an amendment to the GOA 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 GOA 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 GOA groundfish fisheries. At its April 2003 meeting, the Council adopted a motion defining preliminary alternatives for rationalizing the GOA 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 GOA 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 GOA Pacific cod TACs among various sectors and removing latent licenses from fisheries in the GOA. 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 GOA Pacific cod sector allocations. In June 2008, the Council reviewed a draft initial EA/RIR/IRFA for the proposed Pacific cod sector allocations. At that time, the Council refined the components and options for analysis, and elected to review another draft initial EA/RIR/IRFA before releasing the analysis for public review.

1.1.2 Purpose and Need Statement

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. Separate TACs are identified for Pacific cod in the Western, Central, and Eastern GOA 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:

GOA Pacific Cod Sector Split Purpose and Need Statement

The limited access derby-style management of the Western GOA and Central GOA 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 GOA 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 GOA 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 GOA 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 GOA Pacific cod TACs would not be allocated to the various gear and operation types.

ALTERNATIVE 2. Allocate the Western GOA (WG) and Central GOA (CG) 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: Management areas
The Western and Central GOA Pacific cod TACs will be allocated among the various gear and operation types, as defined in Component 2 (WG and CG management areas could be treated differently within Component 2).

Component 2: Sector definitions
The Western and Central GOA Pacific cod TACs will be allocated among the following sectors:

- Trawl catcher processors
- 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
  Option (CG only): Hook-and-line catcher vessels <50 ft
  Hook-and-line catcher vessels ≥50 ft
- Pot catcher processors
- Pot catcher vessels
  Option: Pot catcher vessels <60 ft
  Pot catcher vessels ≥60 ft
- Jig vessels

Note: The Council has the option to either give a single allocation to each sector, or to divide any allocation by vessel length based on the option(s) listed above.

Option: Vessels participating in the <60 ft sectors may not exceed a capacity limit to be determined by the Council. The Council directs staff to provide recommendations of options to consider for capacity limits. Vessels that exceed the capacity limit set for the <60 ft sectors will be allowed to participate in ≥60 ft sectors.

Option: For Western GOA only, create a separate sector for combination trawl and pot vessels <60 ft.

Component 3: Definition of qualifying catch

Qualifying catch includes all retained legal catch of Pacific cod from the Federal and parallel waters fisheries in the Western and Central GOA.

- 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 GOA Rockfish program (currently, 2.09% of the Central GOA Pacific cod TAC) will be deducted from the Central GOA trawl catcher vessel B season 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
Option 5 Qualifying years 2002-2007: average of best 3 years
Option 6 Qualifying years 2002-2007: average of best 5 years

When sectors are divided into subsectors (e.g., by vessel length), the allocation will be calculated using the best set of years for the sector, and the sum of the subsector allocations will equal the allocation to the sector.

The Council directs staff to provide tables that identify catch by sector during the A season and B season in the Western and Central GOA, including: (1) total retained catch by season and qualifying year, and (2) proportion of total retained catch taken during each season by sector under the set of options provided under Component 4.

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% 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 requests that staff continue to work with the State of Alaska and NMFS to explore considerations required to implement possible options for the jig fishery management structure (both State parallel/Federal and State) that create a workable fishery and minimize the amount of stranded quota, focusing on Option 1. Possible solutions that could be explored are:

1. State parallel/Federal managed Pacific cod jig fishery. Federal allocation managed 0-200 miles through a parallel fishery structure. Any State waters jig GHL could (under subsequent action by the Alaska Board of Fisheries) be added to this State parallel/Federal managed jig sector allocation so that the jig sector is fishing off of a single account.
2. State managed Pacific cod jig fishery. Federal management authority delegated to the State of Alaska to manage the Pacific cod jig fisheries in the Western and Central GOA from 0-200 miles.

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.

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 GOA and Central GOA 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.

Component 8: Retention of Community Protections

This component would protect community participation in the processing of Pacific cod, and protect community delivery patterns established by the inshore/offshore regulations.

For each management area, the mothership processing cap will be a percent of the Federal Pacific cod TAC in that area:

Option 1 0%

Option 2 A percentage based on the same qualification criteria as selected for the harvesting sector allocations, but calculated from mothership processing activity.

- Motherships include catcher processors receiving deliveries over the side and mobile floating processors. Motherships do not include inshore floating processors operating at a single geographic location during a given year.

  Suboption: For the Western GOA, the combined offshore catcher processor allocations (sum of hook-and-line CP, pot CP, and trawl CP allocations) may be limited to 10%, 15%, or 20%; adjustments to achieve this limit would be applied proportionately to other sectors' allocations.

Component 9

To address Steller sea lion mitigation, bycatch reduction, prohibited species catch mortality, or other conservation and social objectives, potential allocations to any sector based on catch history may be adjusted upwards or downwards by 5% or 10%; this adjustment would be applied proportionately to other sectors' allocations.

Other issues for analysis

The Council requests that staff expand the analysis on Alaskan ownership in the freezer-longline (hook-and-line CP) sector to include percent ownership and gross revenues by Alaskan community.

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.

The Council also considered, but rejected, an option to create a 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 (with 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.

Component 3: The option to exclude meal from qualifying catch was 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 GOA 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. Also, the option to define qualifying catch as retained catch in the directed Pacific cod fishery was deleted. Sector allocations will be based on all retained Pacific cod catch, including incidental catch of Pacific cod in other directed fisheries.

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 GOA FMP

The proposed action would result in an amendment to the GOA 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 GOA 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 GOA 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 GOA 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, marine mammals, benthic habitat and essential fish habitat, the ecosystem, 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 GOA and occurs at depths from shoreline to 500 m (Thompson et al. 2007). 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 GOA. 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 GOA: the Western GOA TAC, the Central GOA TAC, and the Eastern GOA 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 GOA management subareas. Final 2008 harvest specifications apportioned 57% of the GOA catch to the Central GOA (28,426 mt), 39% to the Western GOA (19,449 mt), and 5% to the Eastern GOA (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 GOA 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%	8,648	76,505	81,500	93.9%
1998	61,504	66,060	93.1%	10,509	72,013	77,900	92.4%
1999	67,927	67,835	100.1%	13,838	81,765	84,400	96.9%
2000	54,266	58,715	92.4%	12,043	66,309	76,400	86.8%
2001	41,532	52,110	79.7%	9,926	51,458	67,800	75.9%
2002	42,306	44,230	95.6%	12,219	54,524	57,600	94.7%
2003	41,152	40,540	101.5%	11,618	52,770	52,800	99.9%
2004	43,017	48,033	89.6%	13,752	56,769	62,810	90.4%
2005	35,127	44,433	79.1%	12,761	47,887	58,100	82.4%
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 and Nichol, 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 2007a).

Effects of the Alternatives

Current management of the GOA Pacific cod fishery was analyzed in detail in the Groundfish Programmatic Supplemental Environmental Impact Statement (PSEIS) (NOAA 2004a). This analysis is updated annually during the harvest specifications process for the groundfish fisheries (NMFS 2007c). 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. Under Alternative 2 the sector allocations are likely to reflect the current distribution of catch among the 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. 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, skates, squid, 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. There are some discards of Pacific cod during the Pacific cod target fishery. The Increased Retention/Increased Utilization (IRIU) requirements do not apply to catch of decomposed or previously caught and discarded fish (679.21(h)). Vessels using pot gear mainly have incidental catch of skates, squid, and 'other species', including octopus, while targeting Pacific cod. Hook-and-line vessels have somewhat higher incidental catch levels, and catch skates, roundfish (including sablefish, pollock, and Atka mackerel), flatfish, and rockfish. Trawl vessels have the highest incidental catch levels, and the majority of incidental catch consists of flatfish. In general, incidental catch is more likely to be discarded than retained, but trawl CVs in the Central GOA retain the majority of flatfish and roundfish.

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

Western Gulf		Hook-and-line		Jig	Pot		Trawl	
Species	Retained or Discarded	CP	CV	CV	CP	CV	CP	CV
Pacific Cod*	R	3,548	98	73	366	5,883	183	4,742
Pacific Cod*	D	37	1	0	0	65	0	126
Flatfish	R	10	0	0	0	0	126	1
Flatfish	D	47	1	0	0	5	187	229
Rockfish	R	5	0	0	0	0	9	0
Rockfish	D	14	1	0	0	7	29	32
Roundfish**	R	19	3	0	0	1	25	41
Roundfish**	D	8	0	0	0	8	11	126
Skate, Squid, and Other Species	R	59	0	0	3	32	6	1
Skate, Squid, and Other Species	D	205	9	0	3	126	14	56
Central Gulf		Hook-and-line		Jig	Pot		Trawl	
Species	Retained or Discarded	CP	CV	CV	CP	CV	CP	CV
Pacific Cod*	R	904	5,381	68	395	6,234	506	8,198
Pacific Cod*	D	27	44	0	0	29	8	94
Flatfish	R	4	0	0	0	1	247	868
Flatfish	D	9	107	0	0	5	464	662
Rockfish	R	0	6	2	0	0	19	16
Rockfish	D	2	24	0	0	6	26	48
Roundfish**	R	2	55	2	0	4	20	316
Roundfish**	D	4	47	0	0	5	30	135
Skate, Squid, and Other Species	R	63	124	0	3	60	4	41
Skate, Squid, and Other Species	D	116	568	9	1	93	29	138

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

Incidental catch of skates, "other species", and non-specified species during 2004 and 2005 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. The "other species" complex opened to directed fishing in 2005. 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., 2007).

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 GOA, and the trawl fishery catches much of the non-specified 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 GOA Pacific cod target fisheries, 2004- 2005, and percent of each species taken by each sector.

Gear	Species group	Catch (mt)		Percent of GOA catch	
		2004	2005	2004	2005
Hook-and-line	Skate	472	108	21%	6%
	Sea Star	246	170	23%	17%
	Large sculpins	129	49	20%	9%
	Shark	13	10	11%	4%
	Other sculpins	7	7	14%	15%
	Misc fish	6	2	2%	1%
	Octopus	1	0	1%	0%
	Sea Anemone	1	0	9%	2%
	Greenlings	1	1	6%	16%
	Sponge	0	1	7%	34%
Trawl	Misc fish	108	35	36%	11%
	Skate	49	26	2%	1%
	Large sculpins	20	88	3%	16%
	Sea Star	9	3	1%	0%
	Other sculpins	5	0	9%	0%
	Shark	5	7	4%	3%
	Greenlings	5	0	36%	3%
	Octopus	3	0	2%	0%
	Sea Anemone	1	0	6%	0%
Pot	Sea Star	756	748	71%	73%
	Large sculpins	262	157	41%	28%
	Octopus	135	88	86%	96%
	Other sculpins	7	8	15%	18%
	Greenlings	1	0	4%	4%
	Skate	0	1	0%	0%

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 2007c) 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

The North Pacific Groundfish Observer Program collects catch and bycatch data used for management and inseason monitoring of groundfish fisheries. 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% coverage required on vessels 60 ft to 125 ft, 100% coverage on vessels larger than 125 ft, and 100% 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 required to have coverage on only 30% of pots pulled for that calendar year, rather than 30% of fishing days. Observer estimates from the 30% observed fleet are extrapolated to unobserved vessels. Observer data provide for accurate and relatively precise estimation of groundfish catch, particularly for fleets with high levels of observer coverage, such as the Bering Sea pollock fishery (Volstad et al. 1997).

In the GOA fisheries, observer coverage is relatively low in some target fisheries, in comparison with observer coverage in the BSAI fisheries, due to the prevalence of smaller vessels in the GOA fleet. Over the past 10 years, there has generally been an increasing level of participation by smaller vessels in the GOA groundfish fisheries, particularly by trawl and fixed gear catcher vessels less than 60 ft LOA (NPFMC 2003). As a result, estimates of halibut, crab, and salmon bycatch in the GOA fisheries may be less precise than estimates of bycatch in the Bering Sea fisheries.

Information on actual observer coverage levels in the GOA groundfish fisheries has been made available by NMFS at: http://www.fakr.noaa.gov/sustainablefisheries/inseason/percent_observed.pdf. NMFS compiled a series of tables that report the percentage of harvest that was observed in each target fishery during 2004 through 2007, in order to evaluate the effective rate of coverage in specific target fisheries. The data are reported by observer coverage category (30%, 100%), gear type, processing sector, and management area. The tables also report the amount of catch by the unobserved <60 ft LOA fleet.[1]

[1] Note that the total catch data used in the tables is from the NMFS catch accounting system, and the observer data is from the NMFS observer database. The observer data includes both sampled and unsampled hauls when an observer is onboard, as the data request attempts to determine the percent observed catch whenever an observer is onboard a vessel. High variability in percent observed catch among years has been correlated with several factors, such as the varying season lengths, number of participating vessels, different catch rates per year, weather, and market prices.

Table 2-5 Observer coverage in the Pacific cod target fisheries in the GOA during 2004-2007, including total catch (mt), observed catch (mt), and percent of catch observed in each sector.

WESTERN GULF

Catcher processors and motherships

		2004			2005			2006			2007		
Gear	Length (ft)	Total (mt)	Observed (mt)	Percent observed	Total (mt)	Observed (mt)	Percent observed	Total (mt)	Observed (mt)	Percent observed	Total (mt)	Observed (mt)	Percent observed
Hook-and-line	<60	0	0	0%	0	0	0%	0	0	0%	*	*	0%
	60-125	2,394	509	21%	*	*	7%	2,199	1,587	72%	2,895	1,989	69%
	≥125	925	925	100%	292	292	100%	956	956	100%	442	442	100%
NP Trawl	60-125	635	0	0%	*	*	100%	*	*	0%	*	*	39%
	≥125	*	*	100%	0	0	0%	0	0	0%	0	0	0%
Pot	<60	0	0	0%	0	0	0%	0	0	0%	*	*	0%
	60-125	*	*	0%	*	*	34%	*	*	0%	*	*	18%

Shoreside Processors

		2004			2005			2006			2007		
Gear	Length (ft)	Total (mt)	Observed (mt)	Percent observed	Total (mt)	Observed (mt)	Percent observed	Total (mt)	Observed (mt)	Percent observed	Total (mt)	Observed (mt)	Percent observed
Hook-and-line	<60	*	*	0%	242	0	0%	78	0	0%	327	0	0%
	60-125	4	0	0%	*	*	0%	0	0	0%	*	*	0%
NP Trawl	<60	1,464	0	0%	3,554	0	0%	5,114	0	0%	*	*	0%
	60-125	183	0	0%	783	392	50%	*	*	25%	*	*	77%
Pot	<60	4,823	0	0%	1,962	0	0%	1,913	0	0%	2,441	0	0%
	60-125	5,016	1,138	23%	4,428	965	22%	3,882	683	18%	2,205	378	17%
	>125	*	*	64%	*	*	0%	*	*	0%	*	*	0%

CENTRAL GULF

Catcher processors

		2004			2005			2006			2007		
Gear	Length (ft)	Total (mt)	Observed (mt)	Percent observed	Total (mt)	Observed (mt)	Percent observed	Total (mt)	Observed (mt)	Percent observed	Total (mt)	Observed (mt)	Percent observed
Hook-and-line	<60	*	*	0%	*	*	0%	0	0	0%	0	0	0%
	60-125	0	0	0%	0	0	0%	*	*	100%	*	*	17%
	≥125	*	*	100%	*	*	100%	1,195	1,195	100%	*	*	100%
NP Trawl	60-125	*	*	0%	565	411	73%	*	*	0%	166	0	0%
	≥125	*	*	100%	0	0	0%	0	0	0%	0	0	0%
Pot	60-125	0	0	0%	0	0	0%	0	0	0%	*	*	0%

Shoreside Processors

		2004			2005			2006			2007		
Gear	Length (ft)	Total (mt)	Observed (mt)	Percent observed	Total (mt)	Observed (mt)	Percent observed	Total (mt)	Observed (mt)	Percent observed	Total (mt)	Observed (mt)	Percent observed
Hook-and-line	<60	5,144	0	0%	4,289	0	0%	6,185	0	0%	6,617	0	0%
	60-125	748	99	13%	519	226	44%	802	179	22%	512	116	23%
NP Trawl	<60	*	*	0%	*	*	0%	*	*	0%	*	*	0%
	60-125	12,443	3,716	30%	7,376	2,185	30%	4,861	1,152	24%	8,377	2,216	26%
Pot	<60	2,426	0	0%	3,233	0	0%	3,778	0	0%	4,296	0	0%
	60-125	2,475	687	28%	4,920	1,298	26%	4,369	981	22%	4,090	969	24%
	≥125	0	0	0%	0	0	0%	*	*	0%	0	0	0%

Source: NMFS Alaska Region, April 2008. Total catch (mt) only includes Pacific cod harvested in the Pacific cod target, and does not include catch of Pacific cod in other groundfish targets.

Observer coverage rates in the Pacific cod target fishery in the Western and Central GOA are summarized in Table 2-5. In the Western GOA, the majority of the hook-and-line CP catch was by vessels 60 to 125 ft LOA during 2004-2007, and 7% to 72% of catch by these vessels was observed. There was relatively little Pacific cod catch in the Western GOA by hook-and-line CVs 60 to 125 ft LOA delivering shoreside during 2004-2007, and this fleet had 0% observer coverage. In the Central GOA hook-and-line fisheries, the majority of the catcher processor catch during 2004-2007 was by vessels >125 ft LOA that are 100% observed. Vessels in the 60 to 125 ft LOA class had 0% to 100% observer coverage. For catcher vessels in the Central GOA, the majority of hook-and-line catch was in the <60 ft LOA unobserved fleet. Observer coverage of the 60 to 125 ft LOA hook-and-line CV fleet ranged from 13% to 44% of the catch. Only 2 to 4 hook-and-line catcher vessels per year had any observer coverage in the GOA Pacific cod target fisheries.

In the GOA Pacific cod pot fisheries, more than half the catch from 2004-2007 was by the unobserved <60 ft LOA fleet. The remaining catch primarily came from the ≥60 ft to 125 ft fleet, where observer coverage ranged from 17% to 23% in the Western GOA and 22% to 28% in the Central GOA. For the Pacific cod trawl fisheries delivering shoreside, most catch in the Western GOA was by the unobserved <60 ft LOA fleet, and the majority of catch in the Central GOA was by vessels in the 60-125 ft LOA fleet, with observer coverage ranging from 24% to 30%.

Estimation of Prohibited Species Catch Rates

NMFS uses data from observed vessels to estimate prohibited species catch (PSC) rates when sufficient data are available. The PSC rate is the weight (halibut) or number of animals (salmon and crab) per metric ton of groundfish. Until recently, all CV deliveries to shoreside processors that had the same gear, target, and management area used an average PSC rate for all observed catcher vessels with the same gear, target, and area. Several improvements were made to the catch accounting system in 2003. Observed catcher vessels now use the rates from the observer on the vessel, rather than an average PSC rate for all observed catcher vessels applied to the shoreside processor data with the same gear, target, and area. Also, PSC rates are now computed on a daily rather than a weekly basis.

There are seven types of PSC rates:

- Precedence 50 / Vessel Specific / Catcher Vessels
- Precedence 50 / Vessel Specific / Catcher Processors
- Precedence 45 / Coop Specific
- Precedence 40 / Processing Sector
- Precedence 30 / Three-Week Average
- Precedence 25 / Three-Month Average
- Precedence 20 / FMP Area

Observed CPs and CVs use the PSC rates from the on board observer for that vessel (precedence 50). Smaller vessels (<60 ft) with no observers and unobserved vessels in the 30% observer coverage category utilize PSC rates calculated based on the best data available. The first choice is to use a three week average rate for the same processing sector (shoreside, mothership, or catcher processor), week, reporting area, gear, and target (precedence 40). The processing sector rates are applied to unobserved catch from the corresponding sector if a sufficient number of observer reports are available. If no processing sector rate is available, the three week average (precedence 30) for the same week, reporting area, gear, and target is used. This rate combines data from all catcher vessel and catcher processor observers. If a three week average rate is not available, a three month average rate (precedence 25) from the same FMP area, gear, and target may be used. Finally, if a three month average rate is not available, an average annual

rate (precedence 20) for all GOA vessels using the same gear and target is used. Once the PSC rate has been determined, PSC estimates are computed by multiplying the PSC rate by the total groundfish weight for the vessel or processor.

Table 2-6 Data elements used by each PSC rate.

Precedence rate	Desc	Vessel	Coop	Proc. Sector	Year	Week End Date	Trip Targ Date	Trip Targ Code	Gear	FMP Area	Report Area	Special Area
50	C/V	Yes		'S'	Yes		Yes			Yes		
50	C/P	Yes		'CP','M'	Yes		Yes		Yes		Yes	Yes
45	Coop		Yes		Yes	Yes		Yes	Yes		Yes	Yes
40	Proc			Yes	Yes	Yes		Yes	Yes		Yes	Yes
30	3wk				Yes	Yes		Yes	Yes		Yes	Yes
25	3mo				Yes	Yes		Yes	Yes	Yes		
20	FMP				Yes			Yes	Yes	Yes		

Source: NMFS Alaska region.

The halibut PSC data are multiplied by the estimated discard mortality rate for a given gear type, target fishery, and management area to calculate halibut mortality (mt). The International Pacific Halibut Commission (IPHC) estimates halibut discard mortality rates for each gear type, target fishery, and management area based on observer data. The IPHC then recommends discard mortality rates to the Council for use in managing halibut bycatch in subsequent seasons. In 2007, the IPHC recommended that the Council adopt halibut discard mortality rates for the GOA Pacific cod target fishery of 63% (trawl), 16% (pot), and 14% (longline).

The crab and salmon PSC data are not adjusted by a discard mortality rate, and simply report the number of animals that were discarded. Estimates of crab discard mortality vary widely. Gear-specific bycatch mortality rates are applied in the annual Crab SAFE report (NPFMC 2007) to summarize mortality in the directed crab and other fisheries using the following mortality rates: 80% (trawl gear) and 20% (fixed gear). Within the fixed gear groundfish fisheries, discard mortality rates for red king crab were calculated as 37% for longline gear and 8% for pot gear, and for Bairdi Tanner crab, 45% for longline gear and 30% for pot gear (NPFMC 1993). NRC (1990) estimates of crab bycatch mortality in the trawl fisheries range from 2% to 81% for king crab and 12% to 82% for Tanner crab. In the directed crab fisheries, discard mortality has been estimated as 24% for C. opilio, 20% for C. bairdi, and 8% for king crab. Recently, new overfishing definitions for BSAI crab stocks were established, and the analysis used a 50% discard mortality rate for C. opilio, 20% for king crab, and 20% for C. bairdi in each of the respective directed crab fisheries (NPFMC 2007).

Salmon bycatch mortality rates are also highly variable, and differ by gear type and size of the salmon. Chinook salmon caught in troll gear have an estimated mortality rate as low as 8%, while longline gear mortality rates have been estimated to be as high as 100% (Alverson et al. 1994). For the purpose of this discussion, it is assumed that salmon bycatch has a 100% mortality rate within the longline and trawl fisheries.

Several area and gear closures in the GOA were implemented to limit the impacts of commercial fishing activities on red king crab, nearshore habitat, and Steller sea lion critical habitat. Bottom trawl area closures to protect red king crab were established in 1993. In addition to the red king crab area closures, bottom trawling has been prohibited E. of 140º in Southeast Alaska since 1998, in State waters since 2000, and in Cook Inlet since 2001. In addition, Steller sea lion protection measures resulted in fishing closures around rookeries. The timing and purpose of each closure is summarized below.

Kodiak red king crab closures (1993). In the GOA, trawl closure areas have been implemented around Kodiak Island to protect red king crab. Specific areas are designated as Type I, Type II, and Type III, depending upon the importance of the area to concentrations of red king crab at various life stages. Type I areas have very high red king crab concentrations and, to promote rebuilding of the stock, are closed year-round to all non-pelagic trawl gear. Type II areas are closed to non-pelagic trawl gear during the molting period for red king crab (February 15 through June 15), while Type III areas are closed only during specified 'recruitment events' and are otherwise opened year-round. These closures are delineated in green (year-round) and red (seasonal) in Figures 1 and 3.

Southeast Alaska no trawl closure (1998). Year-round trawl closure E. of 140° initiated as part the License Limitation Program.

State Waters no bottom trawling (2000). Closed all State waters (0–3 nm) to commercial bottom trawling year-round to protect nearshore habitats and species, with the exception of some areas in the South Alaska Peninsula management area that remain open to bottom trawling.

Cook Inlet bottom trawl closure (2001). Prohibits non-pelagic trawling in Cook Inlet to control crab bycatch mortality and protect crab habitat in an areas with depressed king and Tanner crab stocks.

Steller Sea Lion (SSL) 3-nautical mile (nm) No Transit Zone (2003). Groundfish fishing closures related to SSL conservation establish 3-nm no-transit zones surrounding rookeries to protect endangered Steller sea lions.

SSL no pollock trawl zones (2003). Groundfish fishing closures related to SSL conservation establish 10-nm fishing closures surrounding rookeries to protect endangered Steller sea lions.

Prince William Sound rookeries no fishing zone (2003). Groundfish fishing closures related to SSL conservation include two rookeries in the PWS area, Seal Rocks (60° 09.78' N. lat., 146° 50.30' W. long.) and Wooded Island (Fish Island) (59° 52.90' N. lat., 147° 20.65' W. long.). Directed commercial fishing for groundfish is closed to all vessels within 3 nautical miles of each of these rookeries.

Halibut Bycatch

Halibut prohibited species catch allowances are currently allocated separately to the GOA 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 GOA. The 2008 PSC allowances for the GOA Pacific cod trawl and hook-and-line fisheries are shown in Table 2-7. The pot and jig sectors are exempt from halibut PSC limits. The GOA-wide halibut PSC mortality 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. Unused seasonal halibut PSC apportionments are 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 2-7 Halibut prohibited species catch seasonal allowances in the GOA, 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 GOA.

Halibut PSC usage in the GOA Pacific cod target fisheries during 1995-2007 is summarized in Table 2-8. 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. 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.

Table 2-9 and Table 2-10 show the halibut bycatch rate in the Pacific cod target fishery, calculated in two ways: (1) in Table 2-9, the halibut bycatch rate is calculated as kg of halibut per mt of groundfish harvested, and does not account for the estimated halibut mortality rates, and (2) in Table 2-10, the halibut bycatch mortality rate is calculated as kg of halibut mortality per mt of groundfish harvested. The hook-and-line sectors have the highest halibut bycatch rates of all of the sectors during both the A and B seasons (see Table 2-9). The B season hook-and-line bycatch rates were often more than twice as high as bycatch rates during the A season. Among the trawl sectors, trawl CVs fishing during the A season in the Western GOA have the lowest halibut bycatch rate (23.9 kg/mt, averaged from 2001-2008), and have had no B season halibut bycatch in the Pacific cod target (or targeted Pacific cod catch) since 2003. In the Central GOA, the trawl CV halibut bycatch rate has on average been more than twice as high during the B season as in the A season. However, during 2007 and 2008 the Central GOA trawl CV fleet reduced its B season halibut bycatch via voluntary measures, including: 1) fishing during daylight hours, when halibut bycatch rates are lower, and 2) a portion of the fleet using halibut excluder devices. The trawl CP fleet has a relatively high observer coverage rate, and had an average bycatch rate of approximately 20 kg/mt during the A season in both the Western and Central GOA, and higher bycatch during the B season.

Halibut bycatch mortality rates are reported in Table 2-10. Bycatch mortality rates are similar in the hook-and-line and trawl sectors. The average (2001-2008) bycatch mortality rates during the A season ranged from 16.5 kg/mt to 20.8 kg/mt in the hook-and-line sectors, and 12.4 kg/mt to 28.5 kg/mt in the trawl sectors. Halibut bycatch rates are lower during the A season, when Pacific cod are aggregated and CPUE is higher, than during the B season. Bycatch mortality rates were approximately twice as high during the B season in most of the hook-and-line and trawl sectors.

It is important to note that these halibut bycatch rates are based on the best available data, and some sectors have relatively low levels of observer coverage. The trawl and hook-and-line CP fleets in the GOA have relatively high observer coverage rates, and majority of the halibut PSC mortality amounts are

estimated based on observer estimates from on board these vessels. Most trawl CV catch in the Central GOA is by vessels in the 30% observed fleet (60 to 125 ft LOA), and most trawl CV catch in the Western GOA is by the unobserved <60 ft LOA fleet. The hook-and-line CV fleet has a very low observer coverage level. In recent years, only 2 to 4 hook-and-line catcher vessels have carried observers for any portion of the Pacific cod season in the GOA.

Table 2-8 Halibut prohibited species catch (PSC) (mt) by vessels targeting Pacific cod in the Western and Central GOA

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
2008	13.8	60.5	74.3	97.8	1.7	99.5	10.0	0.0	10.0	183.8

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
2008	282.9	40.1	323.0	455.4	3.6	459.0	13.4	0.0	13.4	795.4

Source: NMFS Catch Accounting PSC Database (2003-2008) and Blend PSC Database (1995-2002).
*Indicates data are confidential. Totals do not include confidential data.

Table 2-9 Halibut bycatch rate (kg halibut per mt groundfish) in the Pacific cod target fisheries in the Western and Central GOA.

Western Gulf

	Hook-and-line CP		Hook-and-line CV		Pot CP		Pot CV		Trawl CP		Trawl CV	
Year	A	B	A	B	A	B	A	B	A	B	A	B
2001	207.0	550.9	103.0	81.5	6.1	5.0	5.6	10.6	20.3	72.0	17.6	76.0
2002	83.9	140.3	0.0	113.4	0.0	4.8	4.2	5.3	10.2	46.8	9.3	144.5
2003	139.9	210.6	124.0	156.9	0.5	12.6	1.0	9.8	21.4	73.1	47.4	0.0
2004	169.9	356.3	150.8	254.2	1.1	4.0	1.3	10.7	53.5	81.3	57.2	0.0
2005	162.7	421.8	163.5	325.9	0.2	0.0	1.1	23.6	0.0	32.7	9.3	0.0
2006	165.7	343.2	190.7	341.3	0.0	0.0	1.8	16.9	1.8	0.0	16.9	0.0
2007	159.5	268.0	152.9	243.1	2.2	0.0	1.9	13.9	27.7	0.0	14.2	0.0
2008	83.1	385.6	94.0	290.8	0.0	0.0	2.4	34.5	25.6	44.5	19.1	0.0
Avg	146.5	334.6	122.4	225.9	1.3	3.3	2.4	15.7	20.1	43.8	23.9	27.6
Central Gulf												
2001	197.6	83.0	155.1	94.7	15.0	0.0	9.3	35.8	64.1	67.8	25.3	66.3
2002	240.7	238.8	83.8	84.9	6.7	11.2	7.6	9.8	26.7	0.0	27.3	0.0
2003	43.4	208.6	153.1	198.6	1.3	0.0	3.3	8.4	0.0	50.1	29.4	80.5
2004	114.6	0.0	187.9	332.4	0.0	0.0	3.4	10.9	41.7	53.8	49.2	153.9
2005	160.7	199.5	178.1	423.9	0.0	0.0	3.9	30.1	0.0	96.0	38.5	262.7
2006	0.0	283.9	136.0	308.6	0.0	0.0	5.6	12.9	0.0	215.0	77.2	212.9
2007	208.8	115.0	156.8	163.5	2.3	11.5	2.7	18.6	0.0	0.0	73.2	81.8
2008	138.8	0.0	171.5	579.5	0.0	0.0	3.9	33.3	35.3	0.0	49.6	50.9
Avg	138.1	141.1	152.8	273.2	3.2	2.8	5.0	20.0	21.0	60.3	46.2	113.6

Table 2-10 Halibut bycatch mortality rate (kg halibut mortality per mt groundfish) in the Pacific cod target fishery in the Western and Central GOA.

Western Gulf

	Hook-and-line CP		Hook-and-line CV		Pot CP		Pot CV		Trawl CP		Trawl CV	
Year	A	B	A	B	A	B	A	B	A	B	A	B
2001	29.0	77.0	14.8	11.8	0.4	0.3	0.3	0.6	12.4	43.9	10.7	46.4
2002	11.7	19.6	0.0	16.4	0.0	0.3	0.2	0.3	6.2	28.6	5.7	87.8
2003	19.6	29.5	17.4	22.0	0.1	1.8	0.1	1.4	13.0	44.6	28.9	0.0
2004	22.1	46.3	19.6	33.0	0.2	0.7	0.2	1.8	32.6	49.6	34.9	0.0
2005	21.1	54.8	21.3	42.4	0.0	0.0	0.2	4.0	0.0	20.0	5.6	0.0
2006	21.5	44.6	24.8	44.4	0.0	0.0	0.3	2.9	1.1	0.0	10.3	0.0
2007	22.3	37.5	21.4	34.0	0.4	0.0	0.3	2.2	17.5	0.0	9.0	0.0
2008	11.6	54.0	13.2	40.7	0.0	0.0	0.4	5.5	16.1	28.0	12.0	0.0
Avg	19.9	45.4	16.5	30.6	0.1	0.4	0.3	2.3	12.4	26.8	14.6	16.8
Central Gulf												
2001	28.3	11.5	21.7	13.3	0.9	0.0	0.5	2.1	39.1	41.4	15.4	40.4
2002	33.7	33.4	11.7	11.8	0.0	0.7	0.4	0.6	16.3	0.0	16.7	0.0
2003	6.1	29.2	21.4	27.8	0.2	0.0	0.5	1.2	0.0	30.5	18.0	49.1
2004	14.9	0.0	24.4	43.2	0.0	0.0	0.6	1.9	25.4	32.8	30.0	93.9
2005	20.9	25.9	23.2	55.1	0.0	0.0	0.7	5.1	0.0	58.5	23.5	160.3
2006	0.0	36.9	17.7	40.1	0.0	0.0	0.9	2.2	0.0	131.1	47.1	129.9
2007	29.2	16.1	21.9	22.9	0.4	1.8	0.4	3.0	0.0	0.0	46.1	51.5
2008	19.4	0.0	24.0	81.1	0.0	0.0	0.6	5.3	22.3	0.0	31.3	32.1
Avg	19.1	19.1	20.8	36.9	0.2	0.3	0.6	2.7	12.9	36.8	28.5	69.6

Source: NMFS Blend/Catch Accounting PSC data.

Salmon Bycatch

Pacific salmon, including Chinook, chum, coho *(O. kisutch*), sockeye (*O. nerka*), and pink (*O. gorbuscha*) are taken incidentally in the groundfish fisheries within the GOA. Salmon are not generally caught with longline and pot gear. Most salmon bycatch in the GOA occurs in the trawl fisheries. Salmon PSC is currently grouped as Chinook salmon or 'other' salmon, which consists of the other four species combined. Over 95% of the 'other' salmon bycatch consists of chum salmon.

The majority of bycatch of Chinook and 'other' salmon in the GOA is seasonal and occurs during the pollock fishery. During 2003–2008, an average of 18,779 Chinook salmon per year were taken in the Central GOA groundfish fisheries and 4,229 Chinook salmon were taken in the Western GOA fisheries (Table 2-11). Only a small proportion of this bycatch occurred in the Pacific cod target fisheries in the Central GOA (911 salmon, 5%) and Western GOA (137 salmon, 3%). In an average year, the pollock fishery accounted for 75% of the Chinook salmon bycatch, the flatfish fisheries took 15%, and the Pacific cod fishery took 4%. Within the Pacific cod target fishery, most bycatch of Chinook salmon is by trawl vessels, but bycatch rates in the trawl fisheries are very low (0.1-0.2 salmon per mt of groundfish; Table 2-12). Bycatch of 'other' salmon averaged 3,525 in the Central GOA and 1,773 in the Western GOA during 2003-2008. The majority of other salmon bycatch has been taken in the flatfish fishery (44%), followed by the walleye pollock trawl fishery (30%), and the rockfish fishery (26%). During 2003-2008, an average of 61 other salmon were taken in the Pacific cod target fishery, accounting for only 1.2% of the other salmon bycatch. Bycatch rates of other salmon in all sectors are very low (<0.1 salmon per mt of groundfish).

Table 2-11 Chinook salmon bycatch (number of salmon) in the GOA Pacific cod target fisheries.

	Hook-and-line CP	Hook-and-line CV	Pot CP	Pot CV	Trawl CP	Trawl CV	Cod target total	All target total
Central Gulf								
2003	*	*	0	0	89	2,863	2,952	12,325
2004	*	7	0	0	44	769	819	13,343
2005	*	*	0	0	*	41	41	23,505
2006	0	0	0	0	*	667	687	13,993
2007	0	*	*	0	0	434	434	35,991
2008	0	0	0	0	*	529	533	13,520
Avg	0	2	0	0	44	884	911	18,779
Western Gulf								
2003	0	0	*	0	72	143	215	2,859
2004	6	0	0	0	92	*	101	4,172
2005	0	0	*	0	*	0	0	7,522
2006	0	0	0	0	0	201	201	4,888
2007	0	0	*	*	*	9	200	3,668
2008	0	*	*	0	*	107	107	2,268
Avg	1	0	0	0	55	92	137	4,229

Source: NMFS Blend/Catch Accounting PSC data.

Table 2-12 Chinook salmon bycatch rate (no. of salmon/mt groundfish) in the GOA Pacific cod target fisheries

	Hook-and-line CP	Hook-and-line CV	Pot CP	Pot CV	Trawl CP	Trawl CV
Central Gulf						
2003	*	*	0.0	0.0	0.1	0.2
2004	*	0.0	0.0	0.0	0.0	0.1
2005	*	*	0.0	0.0	*	0.0
2006	0.0	0.0	0.0	0.0	*	0.2
2007	0.0	*	*	0.0	0.0	0.1
2008	0.0	0.0	0.0	0.0	*	0.0
Avg	0.0	0.0	0.0	0.0	0.0	0.1
Western Gulf						
2003	0.0	0.0	*	0.0	0.2	0.1
2004	0.0	0.0	0.0	0.0	0.2	*
2005	0.0	0.0	*	0.0	*	0.0
2006	0.0	0.0	0.0	0.0	0.0	0.1
2007	0.0	0.0	*	*	*	0.0
2008	0.0	*	*	0.0	*	0.0
Avg	0.0	0.0	0.0	0.0	0.1	0.1

Source: NMFS Blend/Catch Accounting PSC data.

Crab Bycatch

Several species of crab may be taken incidentally in GOA groundfish fisheries, but this discussion focuses on *C. bairdi* Tanner crab and red king crab bycatch. Bycatch levels of red king crab in the GOA are relatively low, and averaged 173 red king crab per year during 2003–2008. On average, only 19 red king crab per year were taken in the Pacific cod target fisheries. The numbers of *C. bairdi* Tanner crab taken as bycatch in GOA groundfish fisheries are shown in Table 2-13. Bycatch of *C. bairdi* Tanner crabs in the GOA Pacific cod target fishery is highly variable. During recent years, bycatch in the Central GOA has ranged from 10,722 crabs in 2003 to 169,450 crabs in 2007. In the Western GOA, bycatch has ranged from 4,541 crabs in 2003 to 136,330 crabs in 2007. The majority of Tanner crab bycatch in the GOA Pacific cod target fishery occurs in the pot fisheries. On average from 2003–2008, pot gear accounted for more than 90% of Tanner crab bycatch in the Pacific cod target fisheries, and 43% of overall Tanner crab bycatch in the GOA. Bycatch of Tanner crabs in the Pacific cod pot fishery was notably higher from 2005–2008 than in 2003 and 2004. Bycatch rates are highest in the pot catcher vessel sector, averaging 6.3 crab/mt in the Central GOA and 4.4 crab/mt in the Western GOA (Table 2-14). In all other sectors, the bycatch rate is less than 1 crab/mt.

Table 2-13 Tanner crab bycatch (number of crab) in the GOA Pacific cod target fisheries.

	Hook-and-line CP	Hook-and-line CV	Pot CP	Pot CV	Trawl CP	Trawl CV	Cod target total	All target total
Central Gulf								
2003	*	*	*	9,187	0	1,532	10,722	144,649
2004	*	*	0	10,064	326	568	10,958	63,239
2005	*	910	0	89,080	*	270	90,437	182,631
2006	4	444	0	78,062	0	532	79,043	377,952
2007	0	114	*	157,042	0	11,965	169,450	353,778
2008	995	547	0	115,046	*	13,414	130,132	228,183
Avg	333	504	0	76,414	81	4,714	81,790	225,072
Western Gulf								
2003	0	0	*	3,845	0	695	4,541	10,672
2004	0	0	*	6,916	188	79	7,234	15,954
2005	265	136	*	26,111	*	1,045	28,439	62,776
2006	0	0	0	25,339	0	209	25,548	32,677
2007	6	0	*	127,925	*	2,985	136,330	138,732
2008	6	22	*	73,224	*	4,821	78,553	79,637
Avg	46	26	0	43,893	63	1,639	46,774	56,741

Table 2-14 Tanner crab bycatch rate (number of crab per mt of groundfish) in the Pacific cod target fisheries.

	Hook-and-line CP	Hook-and-line CV	Pot CP	Pot CV	Trawl CP	Trawl CV
Central Gulf						
2003	*	*	*	1.5	0.0	0.2
2004	*	*	0.0	1.0	0.2	0.0
2005	*	0.6	0.0	7.3	*	0.0
2006	0.0	0.1	0.0	6.3	0.0	0.1
2007	0.0	0.1	*	12.1	0.0	1.7
2008	0.5	0.2	0.0	9.4	*	1.1
Avg	0.2	0.2	0.0	6.3	0.0	0.5
Western Gulf						
2003	0.0	0.0	*	0.4	0.0	0.5
2004	0.0	0.0	*	0.5	0.3	0.0
2005	0.3	0.6	*	2.4	*	1.7
2006	0.0	0.0	0.0	2.7	0.0	0.1
2007	0.0	0.0	*	13.5	*	0.7
2008	0.0	0.1	*	7.0	*	1.7
Avg	0.1	0.1	0.0	4.4	0.1	0.8

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, GOA, 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, GOA), 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 2-15. 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 2-15 ESA-listed marine mammal species that occur in the GOA

Common Name	Scientific Name	ESA Status
Steller Sea Lion (Western Population)	*Eumetopias jubatus*	Endangered
Steller Sea Lion (Eastern Population)	*Eumetopias jubatus*	Threatened
Blue Whale	*Balaenoptera musculus*	Endangered
Fin Whale	*Balaenoptera physalus*	Endangered
Humpback Whale	*Megaptera novaeangliae*	Endangered
Right Whale	*Balaena glacialis*	Endangered
Sei Whale	*Balaenoptera borealis*	Endangered
Sperm Whale	*Physeter macrocephalus*	Endangered
Northern Sea Otter	*Enhydra lutris*	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 GOA, 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 2-16. 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 2-16 Incidental mortality of Steller sea lions in the GOA 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
	2002	23.2%	0	0	(CV = 0.83)
	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 GOA, including resident species, migratory species that nest in Alaska, and migratory species that occur in Alaska only outside of the breeding season. A list of species

is provided below.[2] The Groundfish PSEIS (NOAA 2004a) provides descriptions of the range, habitat, diet, abundance, and population status for these seabirds.

Species nesting in Alaska

Tubenoses-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

Tubenoses: 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 2-17), 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 2-17 ESA-listed and candidate seabird species that occur in the management area

Common Name	Scientific Name	ESA Status
Short-tailed Albatross	*Phoebaotria albatrus*	Endangered
Steller's Eider	*Polysticta stelleri*	Threatened
Spectacled Eider	*Somateria fishcheri*	Threatened
Kittlitz's Murrelet	*Brachyramphus brevirostris*	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.

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

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 1999 to 0.01 birds per 1,000 hooks from 2000-2004.

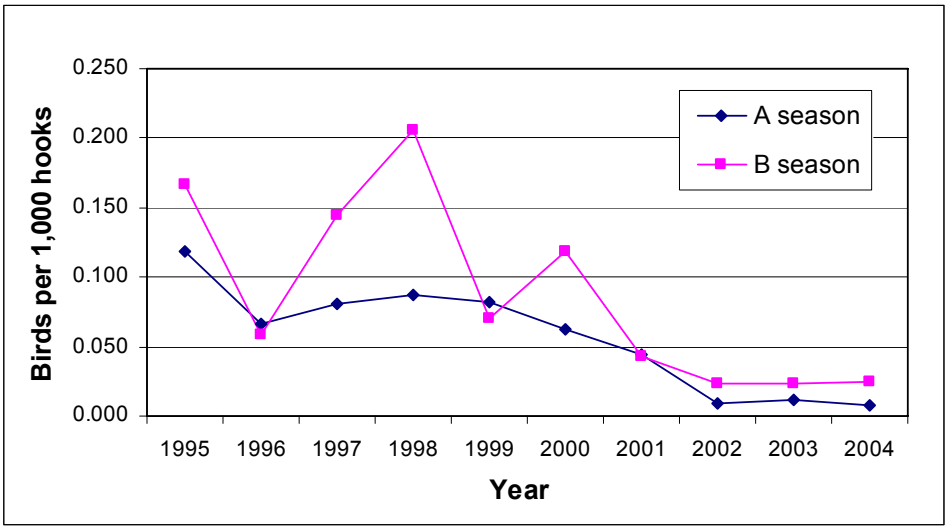

Figure 2-1 Seabird catch rates in the hook-and-line catcher processor sector by season, 1995-2004

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 GOA. If recent catch history (2000-2006 or 2002-2007) 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; NMFS 2007b). 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.

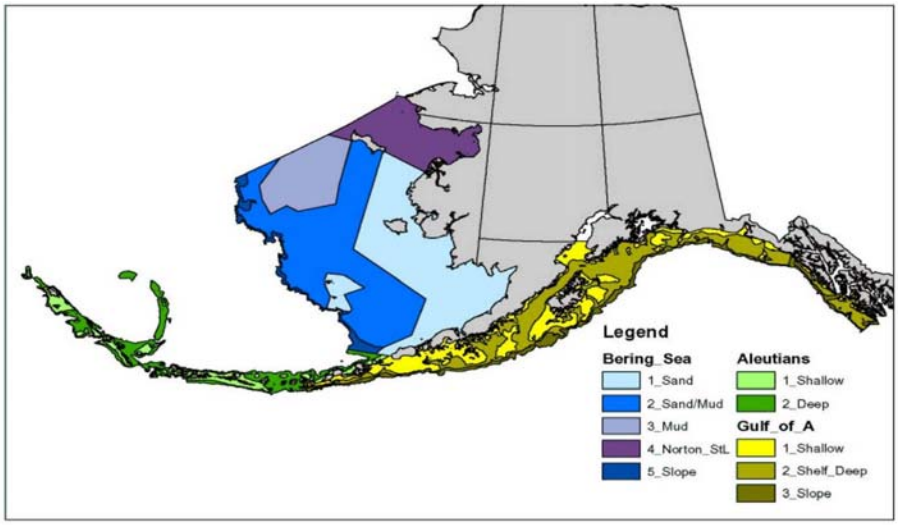

Figure 2-2 Surficial Sediment Textural Characteristics, according to Naidu (1988)

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 expected to be not 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, 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 and 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 2007b) and in the Harvest Specifications SAFE report (NMFS 2007c). 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, because allocations are based on historic catch. 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 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 Section 3.3.3.

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 GOA. 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 likely 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 future 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, discussed in detail in Section 3.3.5, 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.

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 GOA 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, environmenalt, 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 GOA Pacific cod fisheries

Pacific cod is the second most dominant species (after pollock) in the commercial groundfish catch in the GOA. 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 GOA, 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 GOA, total allowable catch (TAC), and acceptable biological catch (ABC), 1985-2007.

Year	Federal					Federal TAC	State		Total catch	ABC	Percent of ABC harvested
	Trawl	Longline	Pot	Jig	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	18.4%
1987	22,486	8,261	642	1,550	32,939	50,000	n/a	n/a	32,939	125,000	26.4%
1988	27,145	3,933	1,422	1,302	33,802	80,000	n/a	n/a	33,802	99,000	34.1%
1989	37,637	3,662	376	1,618	43,293	71,200	n/a	n/a	43,293	71,200	60.8%
1990	59,188	5,919	5,661	1,749	72,517	90,000	n/a	n/a	72,517	90,000	80.6%
1991	58,093	7,656	10,464	115	76,328	77,900	n/a	n/a	76,328	77,900	98.0%
1992	54,593	15,675	10,154	325	80,747	63,500	n/a	n/a	80,747	63,500	127.2%
1993	37,806	8,962	9,708	11	56,487	56,700	n/a	n/a	56,487	56,700	99.6%
1994	31,446	6,778	9,160	100	47,484	50,400	n/a	n/a	47,484	50,400	94.2%
1995	41,706	10,779	15,525	74	68,084	69,200	n/a	n/a	68,084	69,200	98.4%
1996	46,042	10,081	11,973	53	68,150	65,000	n/a	n/a	68,150	65,000	104.8%
1997	48,415	10,665	8,759	17	67,856	69,115	7,322	1,327	76,505	81,500	93.9%
1998	41,452	9,653	10,383	16	61,504	66,060	9,189	1,321	72,013	77,900	92.4%
1999	37,166	11,980	18,718	63	67,927	67,835	12,321	1,518	81,765	84,400	96.9%
2000	25,441	11,500	17,274	50	54,266	58,715	10,399	1,644	66,309	76,400	86.8%
2001	24,382	9,825	7,171	155	41,532	52,110	7,841	2,085	51,458	67,800	75.9%
2002	19,809	14,627	7,694	176	42,306	44,230	10,505	1,714	54,524	57,600	94.7%
2003	18,913	9,475	12,675	90	41,152	40,540	8,132	3,486	52,770	52,800	99.9%
2004	17,472	10,317	14,884	345	43,017	48,033	10,874	2,878	56,769	62,810	90.4%
2005	14,509	5,730	14,684	203	35,127	44,433	10,020	2,741	47,887	58,100	82.4%
2006	13,111	10,167	14,412	118	37,807	52,264	9,648	690	48,145	68,859	69.9%
2007	14,746	11,411	13,523	41	39,721	52,264	10,576	674	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 catch).

In the GOA, 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. 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 mt and 15,000 mt per year. Vessels using pot or 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 GOA 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 GOA. Trawl effort is also located near Chirikof, Cape Barnabus, Cape Chiniak, and Marmot Flats. The hook-and-line fishery primarily occurs at depths of 25 fathoms 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.

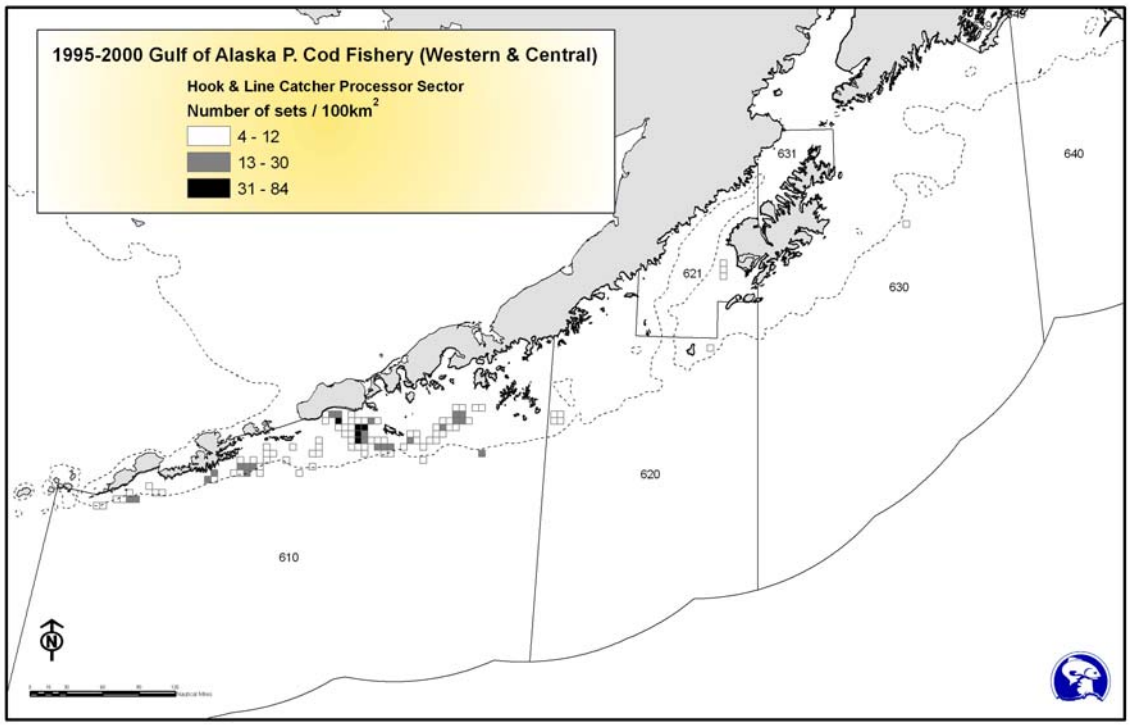

Figure 3-1 Location of observed hook-and-line catcher processor Pacific cod fishing activity, 1995–2000

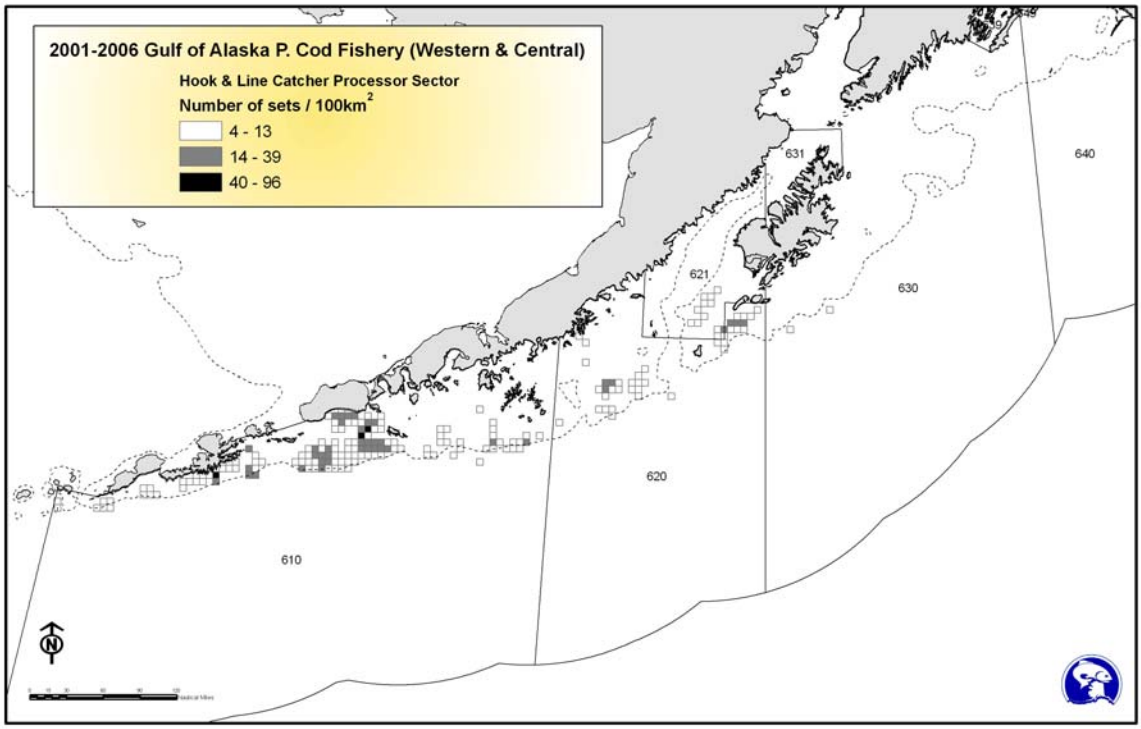

Figure 3-2 Location of observed hook-and-line catcher processor Pacific cod fishing activity, 2001-2006

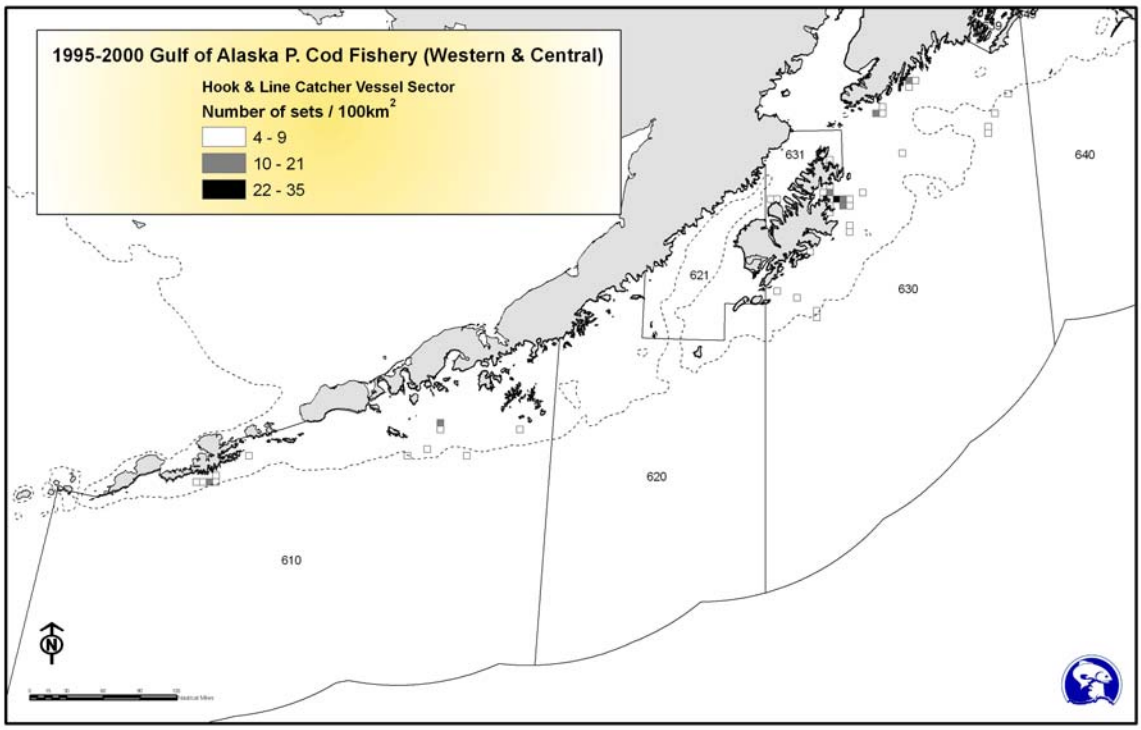

Figure 3-3 Location of observed hook-and-line catcher vessel Pacific cod fishing activity, 1995-2000

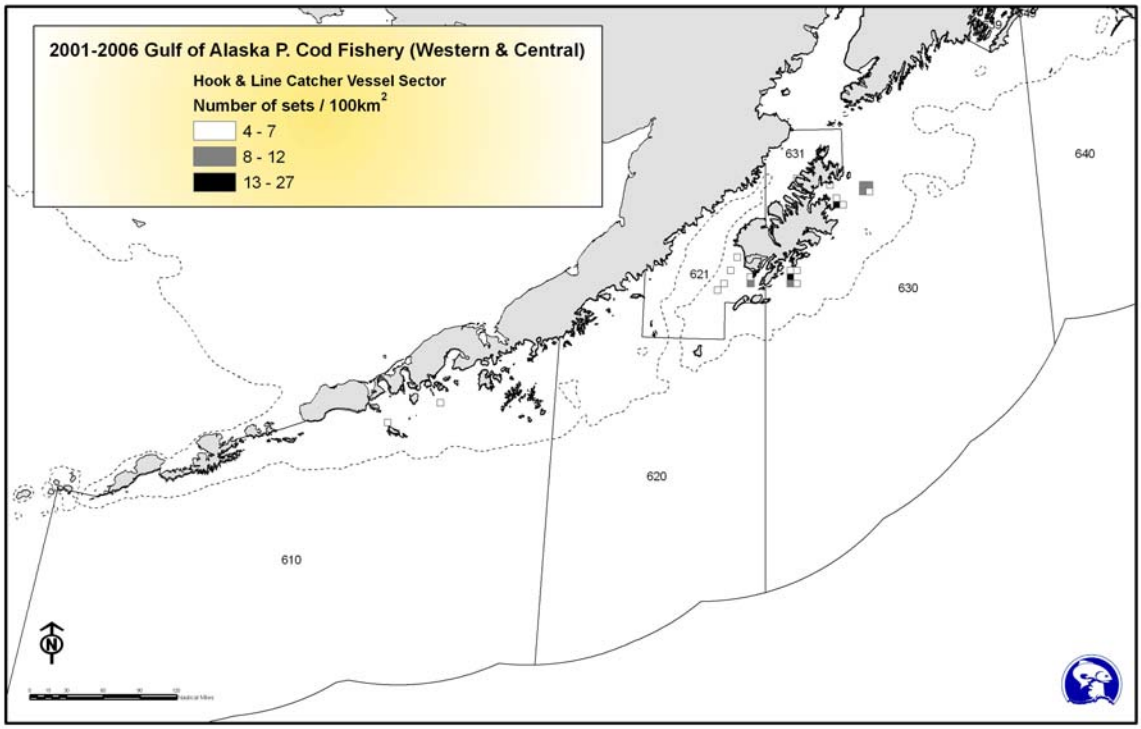

Figure 3-4 Location of observed hook-and-line catcher vessel Pacific cod fishing activity, 2001-2006

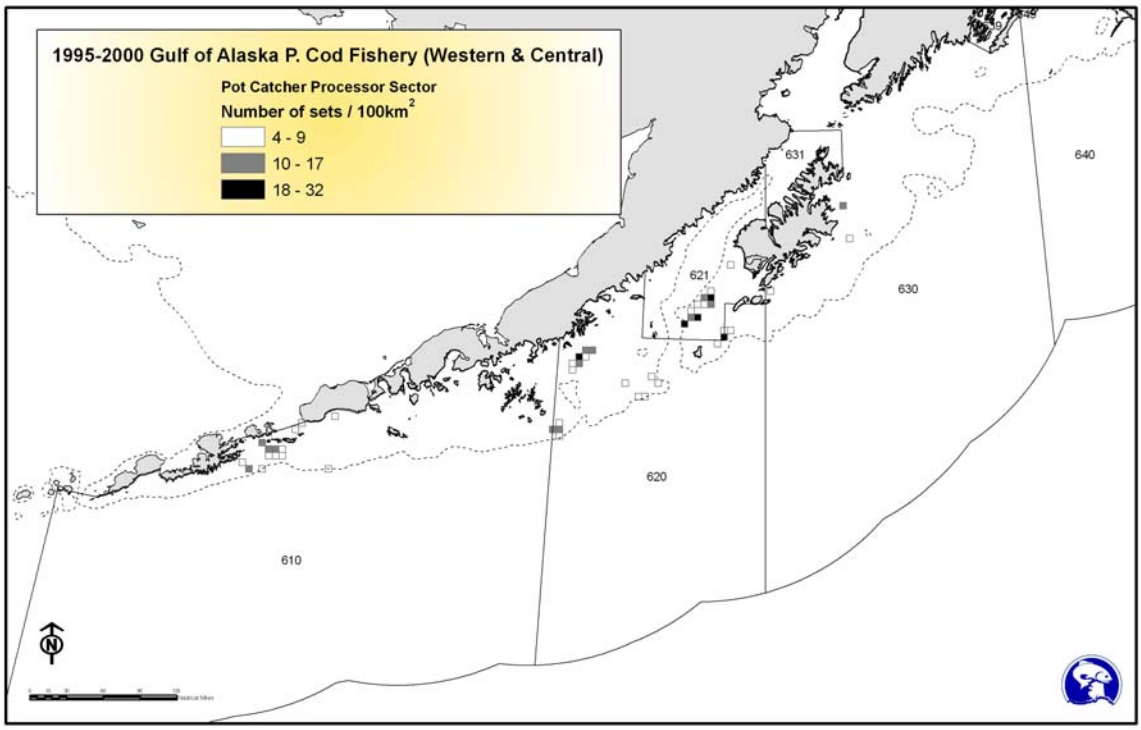

Figure 3-5 Location of observed pot catcher processor Pacific cod fishing activity, 1995-2000

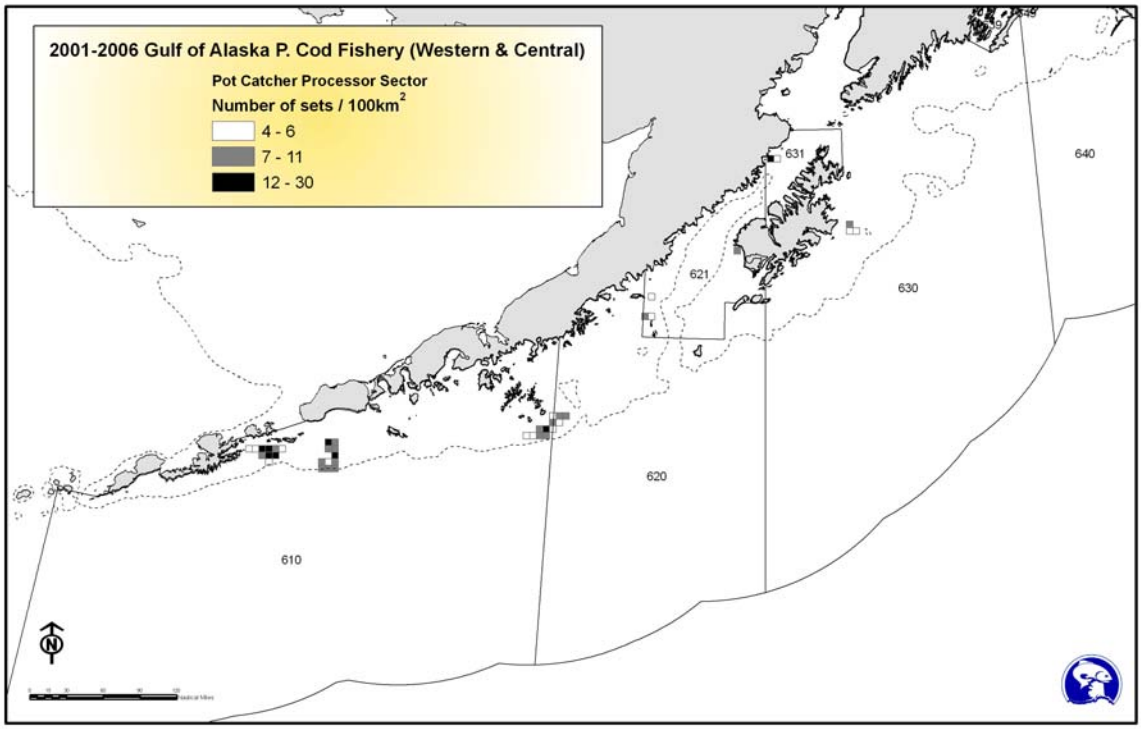

Figure 3-6 Location of observed pot catcher processor Pacific cod fishing activity, 2001-2006

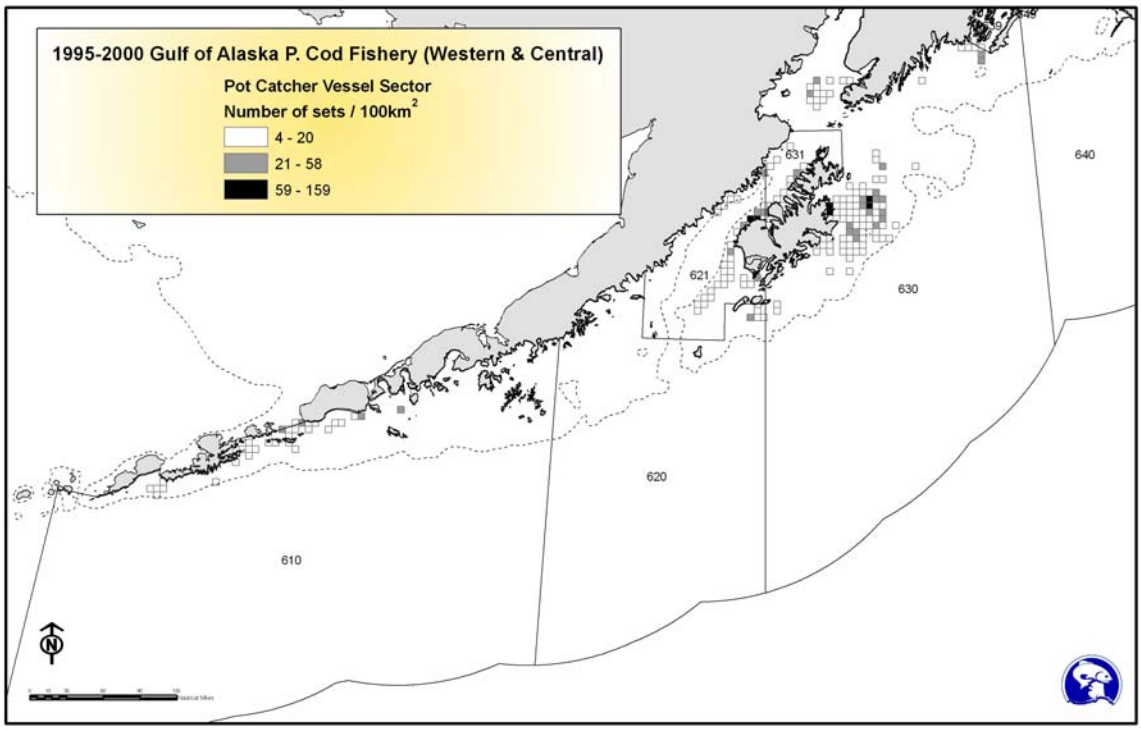

Figure 3-7 Location of observed pot catcher vessel Pacific cod fishing activity, 1995-2000

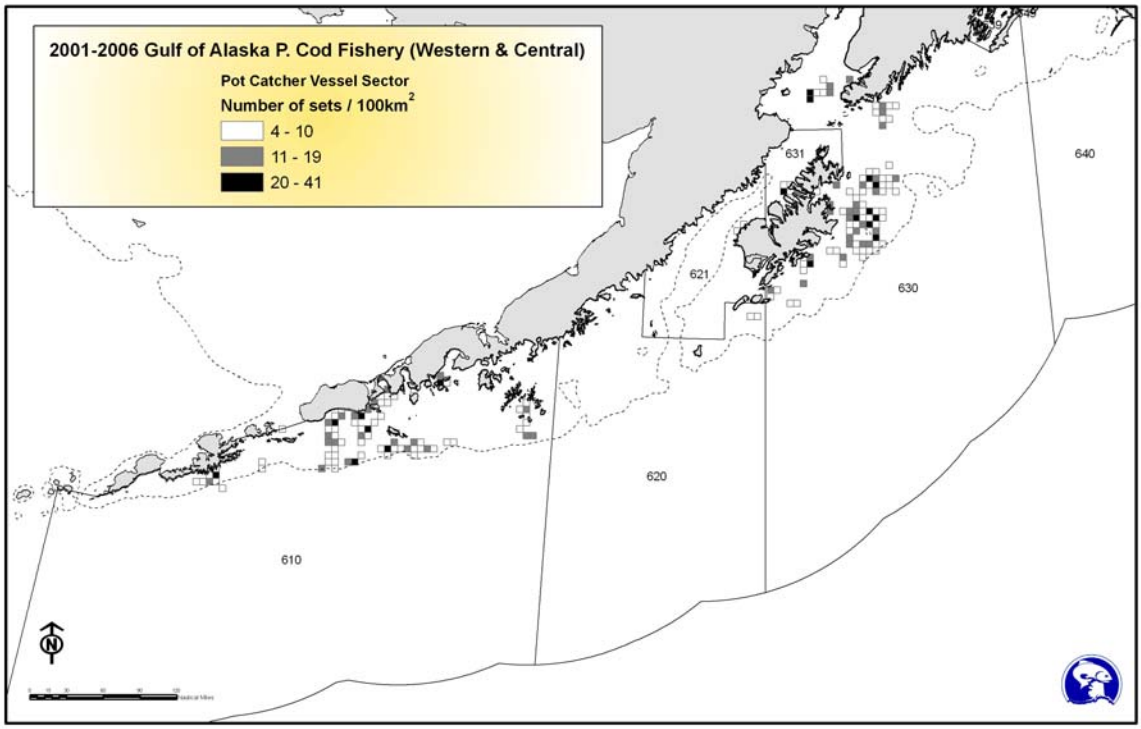

Figure 3-8 Location of observed pot catcher vessel Pacific cod fishing activity, 2001-2006

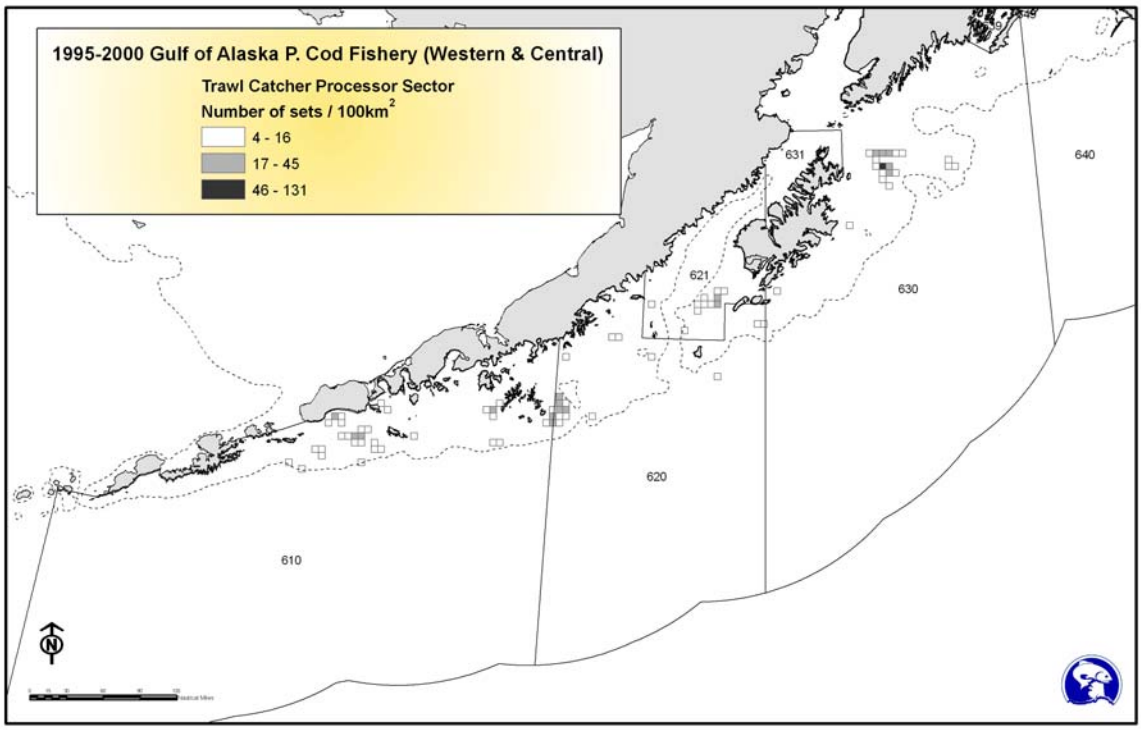

Figure 3-9 Location of observed trawl catcher processor Pacific cod fishing activity, 1995-2000

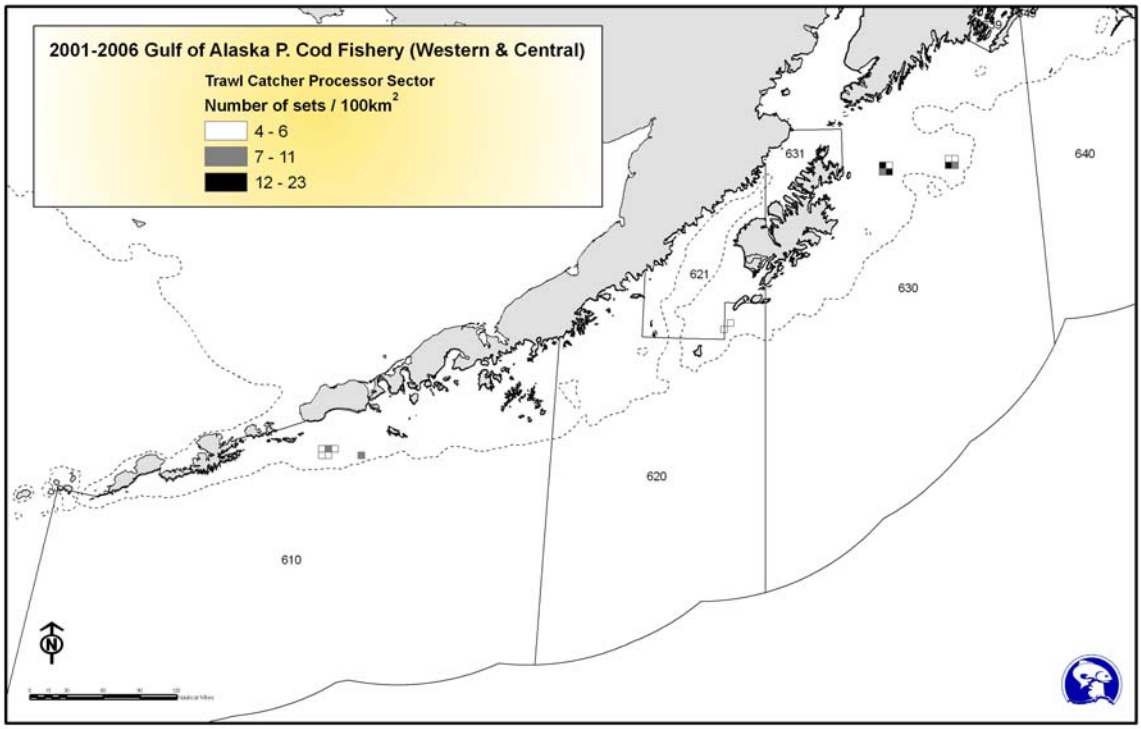

Figure 3-10 Location of observed trawl catcher processor Pacific cod fishing activity, 2001-2006

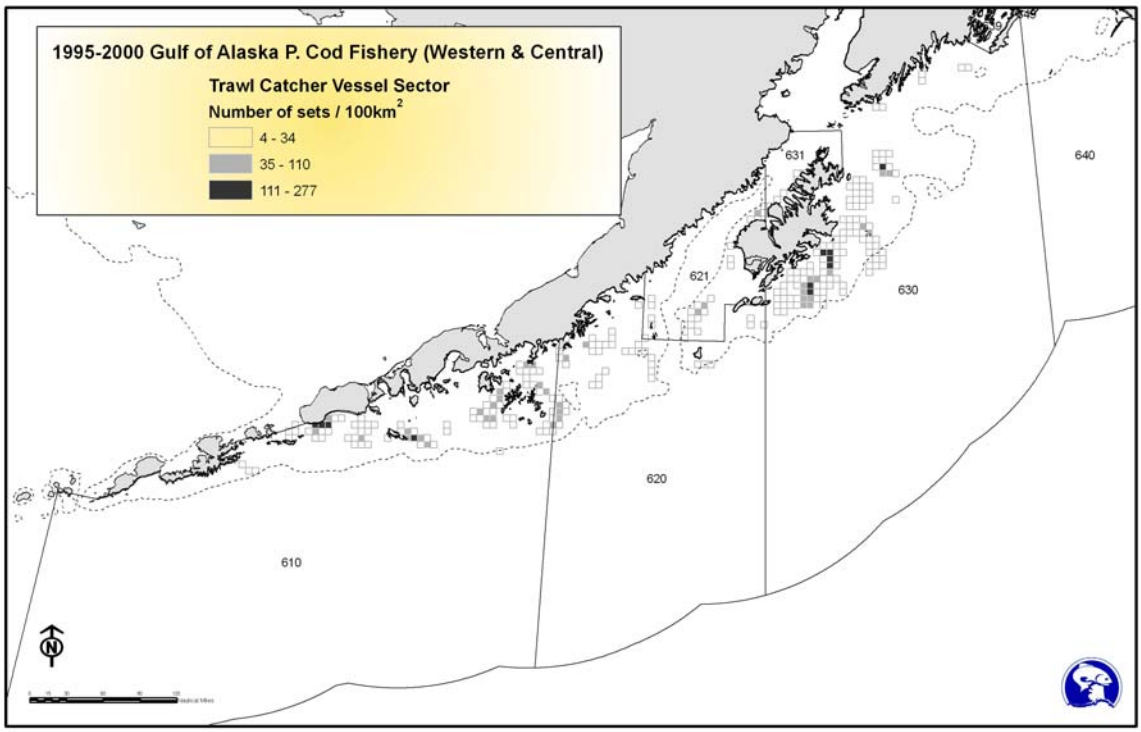

Figure 3-11 Location of observed trawl catcher vessel Pacific cod catch, 1995-2000

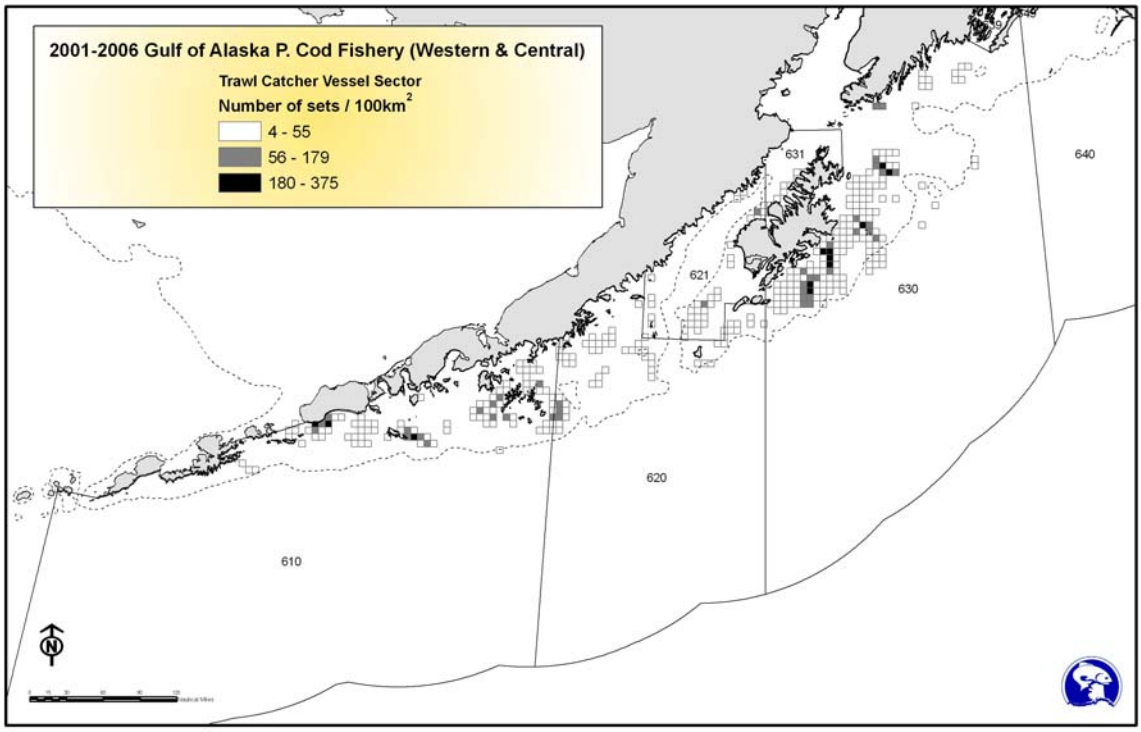

Figure 3-12 Location of observed trawl catcher vessel Pacific cod catch, 2001-2006

Additional descriptions of the GOA Pacific cod fisheries are included in the Groundfish Economic Stock Assessment and Fishery Evaluation (SAFE) report (Hiatt 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 GOA

This section describes current management of the GOA Pacific cod fishery, and highlights important regulatory changes in the management of the GOA Pacific cod fishery during 1992 through 2008. These regulatory changes are summarized in Table 3-2. Separate area TACs are identified for Pacific cod in the Western GOA, Central GOA, and Eastern GOA management subareas. Final 2008 harvest specifications apportioned 57% of the GOA TAC to the Central GOA (28,426 mt), 39% to the Western GOA (19,449 mt), and 5% to the Eastern GOA (2,394 mt). The total allowable catch (TAC) and percentage of TAC harvested in the Pacific cod fisheries in the Western and Central GOA are summarized in Table 3-3.

The GOA Pacific cod TACs are not divided among gear types, but are apportioned to the inshore and offshore processing sectors, with 90% allocated to the inshore component and 10% to the offshore component. The inshore/offshore apportionments were established in 1992 under GOA Amendment 20. Catcher processors and motherships participating in the directed Pacific cod fisheries must make an annual election to participate in either the inshore or offshore 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. In addition, the TACs are apportioned seasonally, with 60% allocated to the A season and 40% 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. This delayed start for the trawl season was implemented in 1993 under Amendments 19/24. The intent of the delayed start of the trawl season was to reduce Chinook salmon and halibut bycatch in the BSAI. In the following year, the BSAI Pacific cod TAC was allocated among the gear and operation types based on catch history. As a result, the different fixed and trawl gear season opening dates did not impact the ability of the sectors to maintain their historic shares of the BSAI TAC.

In the GOA, 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 Nov 1 for trawl vessels and December 31 for fixed gear vessels. NMFS 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 of Pacific cod 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 for incidental catch by other directed fisheries. Incidental catch continues to accrue 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 against the B season TAC. Incidental catch when the directed fisheries are closed is limited to a Maximum Retainable Amount (MRA). The MRA limits the amount of non-directed species catch that may be retained to a percent of directed species catch. For Pacific cod, the MRA with respect to all directed species, with the exception of arrowtooth flounder, is 20%. The MRA for Pacific cod in the directed arrowtooth flounder fishery in the GOA is 5%. When Pacific cod is not open for directed fishing, a vessel must retain Pacific cod up to the amount of the MRA.[3] There is no MRA for Pacific cod for catcher vessels participating in the Rockfish Pilot Program. Catcher vessels

[3] 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 prohibited retention (PSC) status

participating in the Rockfish Pilot Program receive an allocation of 2.09% of the Central GOA TAC. The MRA for Pacific cod is 4% for catcher processors participating in the Rockfish Pilot Program. Any Pacific cod caught in excess of the MRA must be discarded. Under the Improved Retention/Improved Utilization regulations, all Pacific cod 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 direct fishing.

Table 3-2 Regulatory changes impacting management of the GOA Pacific cod fishery, 1992 – 2008.

1992	GOA Amendment 20 established 90% inshore & 10% offshore processing sector apportionments. Catcher processors and motherships <125 ft LOA may elect annually to participate in the inshore sector. Inshore vessels are limited to processing <126 mt of pollock and Pacific cod (in the aggregate) per week. Later amendments extended these apportionments.
1993	BSAI/GOA Amendment 19/24 established Jan 20 start date for trawl gear in both the BSAI and GOA. Intent was to reduce halibut and Chinook salmon bycatch.
1994	BSAI Amendment 24. Established BSAI Pacific cod sector allocations. Later amendments (Am 46, Am 68, Am 77, Am 85) modified these allocations. Allocations to trawl, pot, and hook-and-line sectors were based on catch history. The allocation to the jig sector was higher than historic catch, with the intent of increasing entry level opportunities in the fishery.
1995	BSAI/GOA Amendment 23/28 established a moratorium on new vessel entry to the groundfish fisheries. A moratorium permit was issued to any vessel that made a legal landing during a specified qualification period.
1997	The Alaska Board of Fish established the GOA State waters Pacific cod fishery with initial GHLs of 15% of WGOA ABC and 15% of CGOA ABC.
1998	BSAI/GOA Amendment 49/49. Increased Retention/Increased Utilization regulations require 100% retention of pollock and Pacific cod beginning in 1998, and shallow water flatfish beginning in 2003, while the directed fisheries for these species are open. When the directed fisheries are closed, all catch up to the maximum retainable amount (MRA) must be retained.
1998	The American Fisheries Act was implemented, and AFA-permitted CPs were prohibited from participating in the GOA groundfish fisheries.
2000	Sideboards that limit the GOA groundfish catch of 95 non-exempt AFA CVs were established. 16 AFA CVs were exempted from the sideboard, because they are <125 ft LOA, have annual BSAI pollock landings of <5,100 mt, and made at least 40 landings of GOA groundfish from 1995-1997.
2000	BSAI/GOA Amendment 60/58. Groundfish LLP implemented. Vessels must hold a groundfish LLP with the appropriate gear (trawl or fixed gear), area (WG or CG), and operation type (CV or CP) endorsement to participate in the WGOA or CGOA groundfish fisheries in Federal waters. No LLP license is required to participate in the parallel waters fisheries.
2001	The WGOA and CGOA Pacific cod TACs were apportioned seasonally under the Steller sea lion management measures. 60% of each TAC is apportioned to the A season (Jan 1- June 10) and 40% is apportioned to the B season (Sept 1 - Dec 31). Incidental catch between the A and B seasons accrues to the B season TAC.
2006	GOA Pacific cod crab sideboards were implemented that limit the catch of 85 non-AFA vessels that qualified for initial allocations of C. opilio under the BSAI crab rationalization program (recent Council revisions exempt 3 vessels).
2007	Amendment 80 sideboards implemented – limit groundfish catch of Am 80 trawl CPs in the GOA. Pacific cod sideboards are 2.2% of the Western GOA TAC and 4.0% of the Central GOA TAC.
2008	BSAI/GOA Amendment 92/82. Trawl recency- final action taken by the Council in April 2008. When implemented, will reduce number of trawl CV licenses to 96 Central GOA license (from 176) and 77 WGOA licenses (from 160). Will reduce the number of CP licenses to 20 Central GOA and 19 Western GOA licenses from 27 and 26, respectively.

Table 3-3 Total catch of Pacific cod in the Federal Pacific cod fisheries in the Western and Central GOA

	Western Gulf			Central Gulf		
Year	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	13,407	20,141	66.6%	25,998	28,405	91.5%
2008	19,449	14,558	74.9%	28,420	27,308	96.1%

Source: NMFS Blend (1995-2002) and Catch Accounting (2003-2008) databases. 2008 catch through Nov 1.

Entry to the GOA Pacific cod fisheries in Federal waters has been restricted under the License Limitation Program (LLP) since 2000. Prior to implementation of the LLP, a moratorium on new vessel entry to the groundfish fisheries was established in 1995. The number of GOA LLPs is summarized in Table 3-18. When the AFA was implemented in 1998, AFA permitted CPs were prohibited from fishing in the GOA. In addition, groundfish harvests by several other groups of vessels are sideboarded in the GOA, including AFA CVs (2000), BSAI crab-qualified vessels (2006), and Amendment 80 CPs (2008). The LLP and the sideboards are described in more detail in Sections 3.1.6 and 3.1.7.

The directed fisheries for Pacific cod in State waters (0 nm 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 undertaken its own Pacific cod fisheries inside of 3 nm (referred to as the 'State waters fisheries'), which is allocated a portion of the Federal ABC.

3.1.2 State waters Pacific cod fisheries in the GOA

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 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 Pacific cod ABC. If the GHL is fully harvested, it can be increased on an annual basis up to 25% of the Pacific cod ABC in each GOA management area, the maximum level permitted by State regulation. In 1997, 15% of the Pacific cod ABC in each of the three GOA management subareas was allocated to the State waters fisheries. State waters allocations in the Western and Central GOA have increased to 25% of the Pacific cod ABCs and are currently at the maximum level permitted by State regulation. The Eastern GOA GHL was lowered to 10% of the ABC in 2004, because this allocation has not been fully utilized by the fishery (Table 3-4).

Table 3-4 Current allocations of Pacific cod to State waters fisheries in the GOA

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 GOA	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 GOA	25%		16.94%	8.06%
Western GOA	Alaska Peninsula	25%	85/15[1]	21.25%	3.75%
Eastern GOA	Prince William Sound	10%	none	n/a	n/a

1 Pot gear is capped at 85%.

Table 3-5 summarizes the GOA State waters Pacific cod fishery allocations, and gear and vessel length restrictions. The GOA 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% to the pot sector and 50% to the jig sector. In the Kodiak management area, vessels ≥58 feet LOA are capped at 25% of the GHL, prior to September 1. The Cook Inlet allocation is apportioned 75% to the pot sector and 25% to the jig sector. The Chignik allocation is apportioned 90% to the pot sector and 10% to the jig sector, and the fishery is limited to vessels <58 feet LOA. The South Alaska Peninsula GHL is not explicitly allocated between pot and jig gear, but the pot sector is capped at 85% of the GHL, and the fishery is limited to vessels <58 feet LOA. In sum, the State waters fisheries allocate a total of 16.94% of the Central GOA ABC to the pot sector and 8.06% of the Central GOA ABC to the jig sector. In addition, the pot and jig sectors are allocated 21.25% and 3.75%, respectively, of the Western GOA ABC (Table 3-4).

Table 3-5 Summary of GOA State waters Pacific cod fishery regulations.

Area	Pot allocation	Jig allocation	Allocation to ≤58 ft vessels	Allocation to >58 ft vessels	Super exclusive	Exclusive	Gear Limit
Kodiak	50%	50%	25% of pot cap	Capped at 25% prior to Sept 1	No	Yes-prior to Nov 1	60 pots/5 jigs
Cook Inlet	75%	25%	25% of pot cap	0%	No	Yes-prior to Nov 1	60 pots/5 jigs
Chignik	90%	10%	100%	0%	Yes	No	60 pots/ 5 jigs
South Peninsula	Capped at 85%	none	100%	0%	No	Yes-prior to Nov 1	60 pots/ 5 jigs

Source: ADFG, Nick Sagalkin.

Catch in each State management area during 1997-2008 is reported in Table 3-6. Pot allocations have generally been fully harvested in all management areas. Jig harvests were relatively high during 2003-2005, but decreased substantially during 2006-2008. A combination of poor weather conditions, difficulty finding fish in State waters, and high operating costs contributed to low levels of jig effort during these years. Total catch was substantially below the GHLs in all four Western and Central GOA management areas during 2006-2007, and in Kodiak during 2008. Most unharvested State waters GHL was unused jig GHL. Unharvested GHL 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 3-6 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
2008	895	2,462	3,357	4,736	71%	n/a	n/a	n/a	n/a	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%
2008	*	3,035	3,035	3,316	92%	638	5,393	5,750	6,482	89%

Source: Kodiak, Chignik, and South Alaska Peninsula management areas (Sagalkin, 2006). Cook Inlet (ADFG Fish Tickets). 2007 and 2008 catches from ADFG preliminary catch reports online.

In the Kodiak and South Alaska Peninsula areas, the State waters Pacific cod fisheries open 7 days after the Federal A season closes (Table 3-7). The Cook Inlet fishery opens 24 hours after the inshore Central GOA 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, if the Central GOA A season extends past March 1.

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 3-8). 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% of the State waters jig catch. Inclement weather conditions during the early A season (January/February), and again during the late B season, probably limits participation by jig vessels during the Federal Pacific cod seasons. The majority (83% to 88%) of State waters pot catch is by vessels that hold LLP licenses (Table 3-9).

Table 3-7 Recent season opening dates of the GOA Pacific cod State waters fisheries

	Kodiak		Chignik		Cook Inlet		Alaska Peninsula	
Year	Jig	Pot	Jig	Pot	Jig	Pot	Jig	Pot
2003	16-Feb	16-Feb	1-Mar	1-Mar	10-Feb	10-Feb	24-Feb	24-Feb
2004	7-Feb	7-Feb	1-Mar	1-Mar	1-Feb	1-Feb	2-Mar	2-Mar
2005	2-Feb	2-Feb	1-Mar	1-Mar	27-Jan	27-Jan	3-Mar	3-Mar
2006	7-Mar	7-Mar	1-Mar	1-Mar	1-Mar	1-Mar	9-Mar	9-Mar
2007	6-Mar	6-Mar	1-Mar	1-Mar	28-Feb	28-Feb	15-Mar	15-Mar
2008*	27-Feb	27-Feb	1-Mar	1-Mar	21-Feb	21-Feb	7-Mar	7-Mar

*The 2008 CGOA inshore parallel/Federal season closed 20-Feb, but reopened 29-Feb for 2 days to reach the TAC.

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 in both the Federal and State waters jig fisheries. The Council requested that staff work with ADFG and NMFS to discuss options for creating a workable jig fishery. These options are discussed in Section 3.2.5.

Table 3-8 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

		Number of jig vessels		Number of pot vessels		Percent of State waters catch by vessels fishing Federal season	
	Year	Federal	State	Federal	State	Jig	Pot
Western GOA	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 GOA	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 3-9 Percent of pot vessels participating in the GOA State waters Pacific cod fisheries that had groundfish LLP licenses, and percent of State waters catch by these vessels.

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

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

3.1.3 Catch History in the GOA Pacific Cod Fisheries

The problem statement notes that one reason for allocating the Western and Central GOA 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%) and offshore (10%) processing sectors. Inshore and offshore TACs are further apportioned between the A season (60%) and B season (40%). During some recent years, the GOA Pacific cod TACs have not been fully harvested. Inshore TACs have typically been fully harvested in the Central GOA, but in the Western GOA, only 68% to 75% of the inshore TAC was harvested during 2006-2008 (see Table 3-10).

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 the Western GOA offshore A season TAC was overharvested (220%; see Table 3-11).

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

		Inshore			Offshore		
Area	**Year**	**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	12,265	67.7%	2,014	1,142	56.7%
	2008	17,504	13,107	74.9%	1,945	1,451	74.6%
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	24,860	97.2%	2,840	1,138	40.1%
	2008	25,583	25,517	99.7%	2,837	1,791	63.1%

Source: NMFS Catch Accounting (2003-2008) and Blend databases (2001-2002). 2008 catch through Nov 1.

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 GOA. Incidental catch between the A and B seasons is substantial, particularly by the inshore sector in the Central GOA. Incidental catch made between the A and B season counts against the B season TAC. During recent years, B season TACs have not been fully harvested. During some years, the trawl and hook-and-line B seasons have ended before the TAC is fully harvested, due to halibut PSC limits. During 2005-2007, the fixed gear B seasons remained open until December 31, but inclement weather conditions, high operating costs, and difficulty finding fish limited B season harvests, particularly in the Western GOA.

Table 3-11 Pacific cod catch during the A and B seasons by the inshore and offshore sectors in the Western and Central GOA, 2003-2008

Western GOA

	Inshore						Offshore					
	A season			B season			A season			B season		
Year	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	1,430	19.7%	1208	643	53.2%	806	500	62.0%
2008	10,502	10,577	100.7%	7,002	2,530	36.1%	1,167	1,190	102.0%	778	261	33.5%

Central GOA

	Inshore						Offshore					
	A season			B season			A season			B season		
Year	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	9,626	94.1%	1,704	43	2.5%	1,136	1,096	96.5%
2008	15,350	15,280	99.5%	10,233	10,237	100.0%	1,706	1,680	98.5%	1,131	111	9.8%

Source: NMFS Annual Catch Reports, 2003-2008. 2008 catch through Nov 1.

Short A season lengths are another indication that the GOA Pacific cod fisheries are fully utilized. During recent years, the A season has closed approximately one month after the trawl gear opening on January 20 (see Table 3-12). In 2004 and 2005, the Central GOA inshore A seasons closed just 11 days and 7 days, respectively, after the trawl season opened on January 20. Halibut PSC limits have occasionally limited A season harvests by the trawl sector. In 2006, the trawl sector 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.

Table 3-12 Pacific cod A season closures for the Western and Central GOA, 2001-2008

	Western GOA				**Central GOA**			
	Inshore		Offshore		Inshore		Offshore	
Year	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	2-Mar	TAC	19-Feb	TAC	28-Feb	TAC	19-Feb	TAC
2007	8-Mar	TAC	14-Feb	TAC	27-Feb	TAC	14-Feb	TAC
2008	29-Feb	TAC	4-Mar	TAC	1-Mar	TAC	9-Mar	TAC

Source: NMFS Alaska region season closures summary.

Table 3-13 Pacific cod B season closures for the trawl and hook-and-line sectors in the Western and Central GOA, 2001-2008

		Inshore		Offshore		Inshore		Offshore	
		Trawl				Hook-and-line			
Area	Year	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	1-Nov	SSL reg	1-Nov	SSL reg	31-Dec	n/a	31-Dec	n/a
	2008	1-Nov	SSL reg	1-Nov	SSL reg	16-Oct	**HAL**	16-Oct	**HAL**
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	10-Sep	TAC	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	1-Nov	SSL reg	1-Nov	SSL reg	31-Dec	n/a	31-Dec	n/a
	2008	3-Oct	TAC	1-Nov	SSL reg	16-Oct	**HAL**	16-Oct	**HAL**

Source: NMFS Alaska region season closures summary. HAL = halibut PSC closure. TAC = TAC reached.
*The table shows the final B season closure date, and does not reflect the multiple, short openings of the trawl B seasons during 2006-2008. See text for details.

During some years, the B season has closed to hook-and-line and trawl gear before the TAC has been fully harvested. Halibut PSC limits closed all of the GOA hook-and-line B seasons and the Central GOA inshore trawl B season before the TACs were fully harvested during 3 of the past 8 years (see Table 3-13). The Western GOA inshore trawl season closed 6 of the past 8 years and the offshore trawl seasons closed 4 of the past 8 years due to halibut PSC limits. Both the trawl and hook-and-line sectors have worked with NMFS to better manage their B season halibut bycatch. There is a description of efforts made by the hook-and-line CP sector to work with NMFS to voluntarily manage B season halibut PSC in Section 3.2.7, which addresses proposed apportionments of the hook-and-line PSC limit to CPs and CVs.

Beginning in 2006, the trawl sector has extended its B season by working closely with NMFS inseason management to control halibut bycatch with a series of short openings during the B season. Table 3-13 shows the final B season closure date, but does not show the multiple, short trawl season openings during 2006-2008. This approach has been successful in limiting halibut PSC and allowing the trawl season to stay open longer. In 2004 and 2005, the trawl sector exceeded the 2,000 mt annual halibut limit by 400 mt (2004) and 100 mt (2005), because observer data was not processed quickly enough to allow inseason management to track halibut bycatch. As a result, NMFS was not able to close the trawl fisheries when the halibut limit was reached. In 2006, the trawl fisheries were managed with 12 hour openings to allow observer data to be processed in between the openings. Openings were held during daylight hours (7am to 7pm), because halibut bycatch is lower during the day. Consequently, the trawl sector was able to avoid halibut bycatch overruns and had an 8-day season in October 2006. In 2007, the trawl B season fisheries continued to be managed with 12 hour daylight openings. In addition, observers carried Rockfish Pilot Program laptop computers, when possible, and submitted data electronically to expedite processing of observer data and facilitate management of halibut bycatch. The trawl season did not close due to halibut PSC, and closed on Nov 1 due to Steller sea lion regulations. In 2008, the trawl fisheries

were managed with 2 day openers with voluntary nighttime stand downs. In 2008, the Central GOA inshore B season Pacific cod fishery closed when the TAC was fully harvested on October 3.

3.1.4 The harvest sector

The number of vessels participating in the directed Pacific cod fisheries in the Western and Central GOA during 1995-2007 is reported in Table 3-14. Participation by trawl catcher vessels has dropped substantially in both the Central and Western GOA. 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. 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 GOA dropped from 123 vessels in 1998, to 36 vessels in 2007. In the Western GOA, trawl CV participation dropped from 86 vessels in 1995, to 35 vessels in 2007.

There have been notable increases in participation in several of the fixed gear sectors. For example, participation by hook-and-line catcher vessels <60 ft LOA increased substantially in 2006 through 2008. In addition, the number of <60 ft LOA pot catcher vessels participating in the directed Pacific cod fisheries has increased since 2005. Participation by ≥60 ft pot CVs has declined somewhat during recent 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 sideboards prohibit 137 vessels from fishing for GOA Pacific cod, and limit Pacific cod harvests by 82[4] additional vessels to a sideboarded amount. Few pot catcher processors have participated in the directed Federal fishery in either the Western or Central GOA, with the exception of 1999, when 10 pot CPs fished in the Central GOA and 6 pot CPs fished in the Western GOA. 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 and the availability of halibut PSC during the B season. Jig catcher vessel participation has fluctuated in recent years in the Central GOA, with as many as 30 vessels participating in the fishery. In the Western GOA, jig participation peaked at 26 vessels in 2002 then dropped to fewer than 10 vessels in recent years.

Note that when the License Limitation Program was implemented in 2000, vessels without LLP licenses were no longer eligible to participate in the groundfish fisheries in Federal waters. However, vessels without an LLP license may participate in the parallel waters groundfish fisheries. The Council recently took final action on FMP amendments that extinguish 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 GOA 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 holders only need to have made 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 option selected by the Council allows licenses with at least 20 landings in either the WG or CG during 2005, 2006, or 2007 to retain the other area endorsement. Licenses have Central GOA area endorsements and 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

[4] Originally, 85 vessels were sideboarded. In Oct 2008 the Council took final action to exempt 3 CVs from the GOA Pacific cod sideboards for BSAI crab vessels.

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.

Western GOA

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	12	4	4	0	10	2	35	23	86	3	5
1996	12	3	7	3	7	0	34	4	54	3	12
1997	9	4	2	0	2	0	18	2	77	4	13
1998	4	0	1	0	2	0	32	21	66	4	0
1999	9	10	2	0	0	6	30	4	65	4	1
2000	10	2	2	1	2	2	37	44	51	3	1
2001	9	2	4	1	16	3	31	10	55	2	6
2002	7	4	10	3	26	2	33	15	44	2	4
2003	6	8	6	2	11	1	42	17	35	3	0
2004	3	4	11	3	22	1	53	28	29	3	0
2005	2	3	25	2	8	1	39	19	33	2	0
2006	7	5	17	3	1	0	33	18	36	2	1
2007	8	3	24	3	4	1	30	18	35	3	1
2008	10	2	27	6	8	1	43	16	28	2	2

Central GOA

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	62	58	101	4	6
1996	4	0	133	5	13	0	46	41	107	5	9
1997	1	0	159	11	9	0	39	22	120	4	2
1998	0	2	127	7	16	0	38	22	123	4	13
1999	3	2	158	22	10	10	44	40	90	3	11
2000	3	0	143	5	16	4	55	59	53	3	6
2001	1	0	112	3	14	3	34	28	70	3	2
2002	0	4	90	8	7	3	28	17	52	2	1
2003	2	2	69	4	7	0	22	13	52	1	3
2004	1	2	75	14	30	0	22	13	46	3	2
2005	1	1	93	14	26	0	25	22	44	3	1
2006	2	4	115	15	24	0	36	23	36	4	3
2007	3	2	128	23	18	1	40	23	36	1	2
2008	4	3	137	25	12	0	38	20	42	4	0

Source: NMFS Catch Accounting/Blend and ADFG fish tickets, 1995 – 2008.

3.1.5 Catch history in State and parallel waters fisheries

Pacific cod harvests in the State, parallel, and Federal (EEZ) waters during 1995 to 2007 are reported in Table 3-15 and Table 3-16. Pot vessels have generally harvested the majority of parallel and State waters catch in both the Western and Central GOA, but hook-and-line vessels had more parallel waters catch than pot vessels in the Central GOA in 2004 and 2006. In the Western GOA, trawl vessels harvested the majority of Federal waters catch during 1995-2000, but since 2001, fixed gear vessels have harvested the majority of Federal waters catch. In the Central GOA, trawl vessels harvested the majority of Federal waters catch from 1995-2004, but pot and hook-and-line catches have increased substantially in recent years and now comprise the majority of Federal waters harvests.

The proportion of Pacific cod harvested in the parallel and State waters Pacific cod fisheries has increased dramatically over the period from 1995 through 2007 (see Figure 3-13 and Figure 3-15). During the same time period, the total amount (mt) of catch in the parallel and State waters fisheries has fluctuated

somewhat, but has not increased (see Figure 3-14 and 3-16). In the Western GOA, the proportion of Pacific cod catch in the parallel and State waters fisheries (combined) increased from approximately 20% to 30% of total retained catch in the mid-1990s to more than 50% of total retained catch during recent years, peaking at 65% in 2006. The proportion of catch in parallel waters increased substantially beginning in 2003, and peaked at 38% of total retained catch in 2006. During the same time period, the amount (mt) of catch in the parallel and State waters fisheries increased slightly, and the amount of catch in Federal waters decreased sharply. Federal waters catches decreased from nearly 20,000 mt in 1999 to less than 10,000 mt during 2003-2007.

In the Central GOA, the proportion of catch in the parallel and State waters fisheries (combined) increased from approximately 20% to 25% of total retained catch in the mid-1990s to more than 30% of total retained catch during recent years, and peaked at 38% in 2005. Most of this increase was the result of increased harvests in the State waters fisheries. Parallel waters catches in the Central GOA have generally fluctuated between 10% and 20% of total retained catch. During the same time period, the total amount (mt) of catch in the parallel and State waters in the Central GOA remained fairly stable. Federal waters catches in the Central GOA decreased sharply during this time period, from nearly 36,000 mt in 1998 and 1999 to approximately half that amount during recent years. In both the Western and Central GOA, the Federal TAC has declined as a result of the decline in the ABC and allocation of 25% of the ABC to the State waters fishery. Most of this decline is reflected in decreased Federal waters catches, not parallel waters catches; parallel waters catches have remained fairly stable.

Table 3-15 Retained Pacific cod catch (mt) in parallel, State, and Federal waters in the Western GOA.

Western GOA													
	Parallel Waters Catch					State Waters Catch			Federal Waters Catch				
Year	HAL	Jig	Pot	Trawl	Total	Jig	Pot	Total	HAL	Jig	Pot	Trawl	Total
1995	37	46	1,793	2,006	3,883	--	--	--	5,630	1	663	11,285	17,579
1996	102	45	1,611	3,628	5,386	--	--	--	4,460	0	99	11,080	15,639
1997	16	4	939	3,516	4,476	158	4,162	4,320	4,061	1	101	15,332	19,496
1998	237	0	1,846	1,754	3,837	199	3,716	3,915	2,952	1	719	13,529	17,202
1999	15	0	1,377	2,408	3,800	321	5,042	5,362	5,171	0	1,638	12,888	19,698
2000	107	5	2,603	3,061	5,776	344	6,480	6,824	4,654	0	2,697	8,803	16,154
2001	21	154	1,494	1,074	2,744	1,376	4,727	6,103	4,051	3	2,082	5,731	11,867
2002	12	185	2,777	322	3,297	928	4,853	5,777	6,437	7	2,543	5,079	14,065
2003	26	42	5,915	141	6,124	1,647	3,590	5,237	4,263	4	3,736	1,566	9,569
2004	11	180	5,838	460	6,489	758	4,869	5,626	2,911	3	4,123	1,796	8,833
2005	252	46	2,828	1,324	4,450	558	4,608	5,165	753	0	3,729	3,334	7,816
2006	100	*	4,221	2,888	7,220	34	5,267	5,301	2,696	0	1,697	2,247	6,640
2007	191	1	2,965	1,127	4,285	109	5,641	5,750	3,268	0	1,995	3,683	8,946
Central GOA													
1995	2,046	40	7,155	619	9,859	--	--	--	2,634	12	6,605	25,002	34,252
1996	1,831	14	4,702	1,007	7,555	--	--	--	3,370	20	5,837	25,682	34,909
1997	1,832	17	4,573	435	6,857	1,168	3,160	4,328	4,629	4	3,847	26,231	34,711
1998	1,842	32	2,657	537	5,067	1,122	5,472	6,595	4,149	19	6,551	25,124	35,843
1999	2,167	22	4,437	577	7,204	1,197	7,279	8,476	4,320	1	10,683	20,899	35,904
2000	1,996	37	2,510	112	4,655	1,300	3,919	5,219	4,742	2	10,367	12,246	27,356
2001	1,166	10	1,476	102	2,754	708	3,114	3,822	4,526	1	2,617	17,309	24,453
2002	850	3	1,281	133	2,267	785	5,651	6,437	7,656	0	2,077	11,271	21,004
2003	1,272	7	1,631	195	3,104	1,839	4,543	6,381	3,776	8	1,576	15,430	20,790
2004	1,753	111	1,285	226	3,375	2,120	6,006	8,126	5,123	7	3,631	14,212	22,973
2005	1,596	135	1,841	188	3,760	2,183	5,412	7,596	2,942	1	6,329	9,123	18,394
2006	2,480	90	2,263	184	5,017	*	*	5,038	4,599	7	6,157	6,615	17,377
2007	1,711	29	2,447	68	4,255	*	*	5,500	6,006	7	6,180	8,741	20,935

Source: ADFG Fish Tickets (parallel and State waters catch), and NMFS Blend/Catch Accounting data.

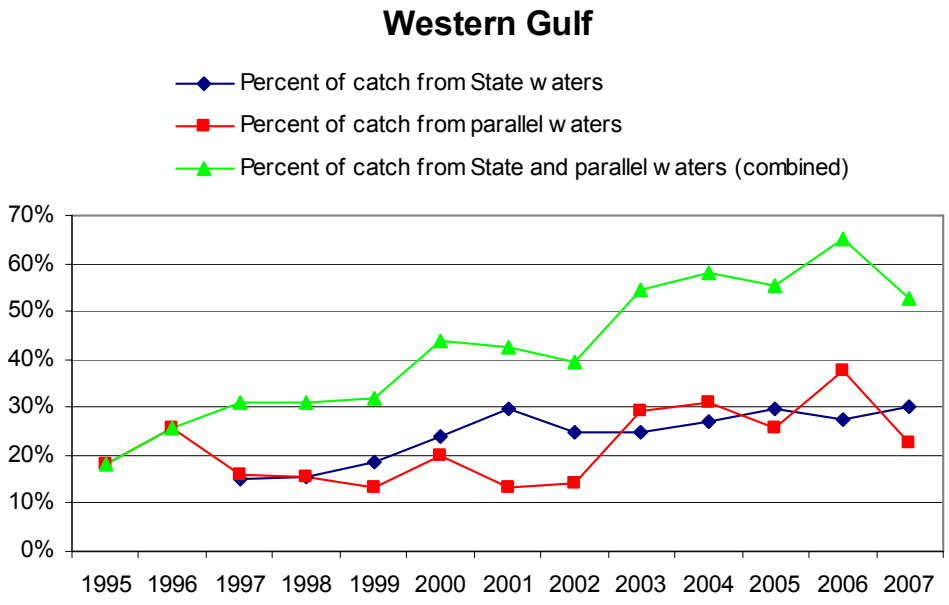

Figure 3-13. Percent of Western GOA Pacific cod catch from State and parallel waters.

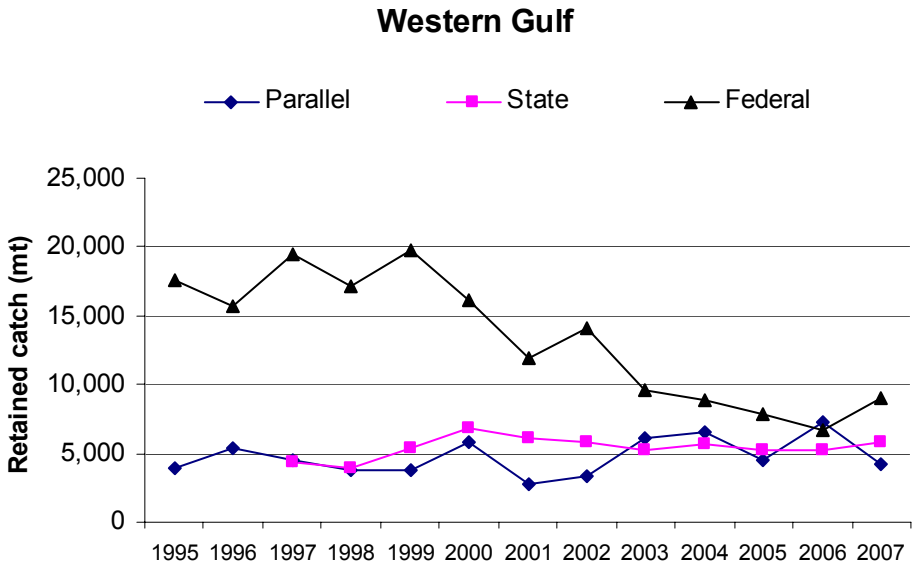

Figure 3-14. Amount (mt) of Western GOA Pacific cod catch from State, parallel, and Federal waters.

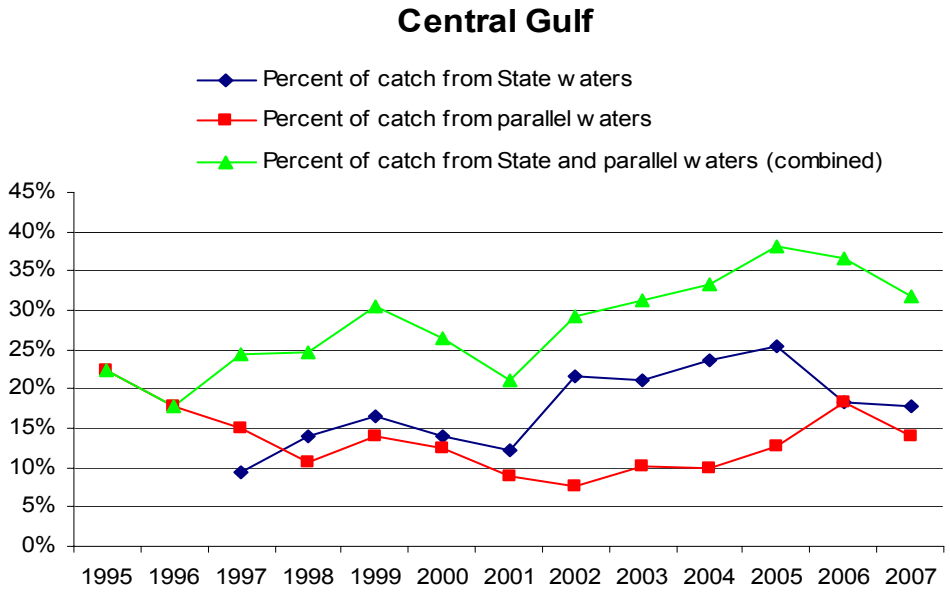

Figure 3-15. Percent of Central GOA Pacific cod catch from State and parallel waters.

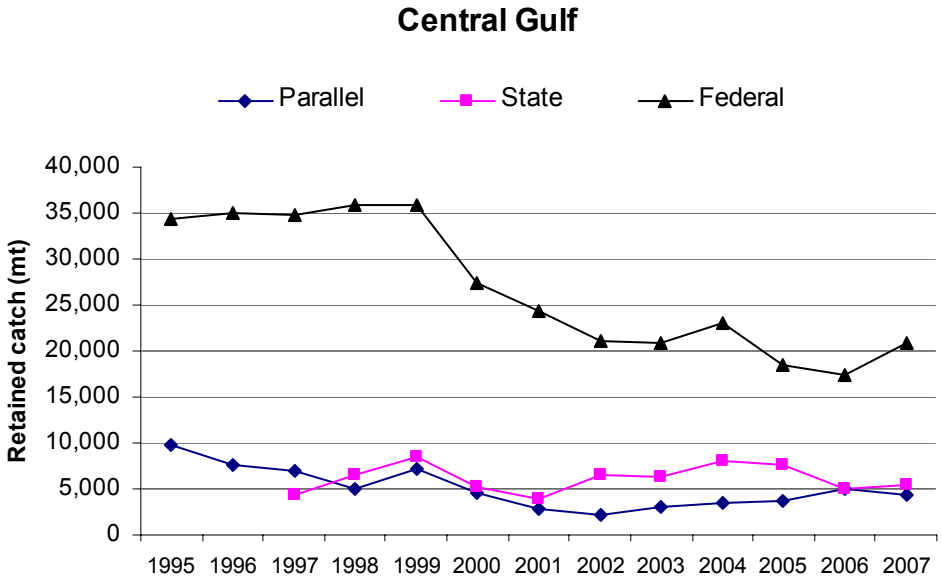

Figure 3-16. Amount (mt) of Central GOA Pacific cod catch from State, parallel, and Federal waters.

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% of the TAC was allocated to the A season (January 1 – June 10) and 40% to the B season (September 1 – December 31). Incidental catch of Pacific cod between the A and B seasons accrues 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 3-16 shows the percentage of retained Pacific cod catch landed by each sector before June 10. During 1995 through 2000, most sectors harvested 80% to 100% of their total annual Pacific cod catch prior to June 10. Since 2001, nearly all sectors land a substantially smaller proportion of their annual catch prior to June 10, with a few exceptions. Trawl catcher vessels in the Western GOA continue to catch more than 95% of their total annual catch during the A season. Most trawl catcher vessels only fish during the A season in the Western GOA, when Pacific cod are aggregated and catch rates are high. In contrast, in the Central GOA trawl catcher vessels have harvested approximately 60% of their annual catch during the A season and 40% during the B season during recent years.

If sector allocations are implemented, allocations would likely be apportioned between the A and B seasons. If each sector receives an annual allocation, and that allocation is apportioned 60% to the A season and 40% to the B season, sectors that have historically harvested most of their catch during the A season would need to change their annual fishing operations in order to fully harvest their B season allocations. An alternative approach would be to calculate sector allocations based on catch history during the A and B seasons. This approach is discussed in Section 3.2.4. Harvest data by year, sector, and season is reported in Appendix A.

Table 3-16 Percentage of Pacific cod caught before June 10 in the Western and Central GOA, 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 GOA	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 GOA	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: ADFG Fish Tickets (CVs) and NMFS Catch Accounting/Blend data (CPs), 1995-2006.

3.1.6 Sideboards on Pacific cod harvests

In developing the BSAI crab rationalization program, the Council imposed sideboards on harvests by crab vessels in the GOA 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 GOA that are prosecuted in January, when the Bering Sea *C. opilio* fishery is typically prosecuted. Only recipients of initial allocations[5] in the Bering Sea *C. opilio* fishery are subject to the sideboards. The sideboards limit vessels to their historic share of retained catch of GOA Pacific cod and other GOA groundfish during 1996-2000, excluding catch of fixed gear sablefish. Vessels with limited history in the GOA groundfish fisheries—less than 50 mt of catch during 1996 to 2000—are prohibited from directed fishing for Pacific cod in the GOA. Vessels that landed less than 100,000 pounds of Bering Sea *C. opilio* and more than 500 mt of Pacific cod in the GOA from 1996 to 2000 are exempt from the sideboards. Both vessels and LLP groundfish licenses associated with sideboarded vessels at the time sideboards were 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. Currently, there are 82 crab sideboarded vessels, 37 sideboarded licenses, and 137 vessels prohibited from directed fishing for cod.

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 95 non-exempt AFA vessels to their historic share of catch of GOA Pacific cod during 1995-1997. Halibut PSC 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 3-17 shows the percentage of the Western and Central GOA 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 2000; 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 accrue to the respective sector allocations and would also be capped at the sideboard amounts.

Table 3-17 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 GOA	A season	Inshore	10,876	14.23%	1,548	9.02%	981
		Offshore	1,208	10.26%	124	20.46%	247
Central GOA	A season	Inshore	15,339	7.22%	1,107	3.83%	587
		Offshore	1,709	7.21%	123	20.74%	353
Western GOA	B season	Inshore	7,251	14.23%	1,032	9.02%	654
		Offshore	806	10.26%	83	20.46%	165
Central GOA	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

[5] 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.

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 GOA TACs caught by Amendment 80 vessels during 1998-2004. In the Central GOA, Amendment 80 vessels are capped at 4.4% of the TAC, and in the Western GOA, 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 access to a specific amount of TAC (i.e., sideboards are not allocations).

3.1.7 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 participating in the GOA Pacific cod fisheries in Federal waters. Vessels less than 26 ft LOA and vessels fishing exclusively in the parallel waters fisheries are not required to have an LLP license. All vessels subject to the LLP requirement must have a Western or Central GOA area endorsement and the appropriate operation type designation (catcher vessel or catcher processor) and gear designation (trawl or non-trawl) to participate in the GOA Pacific cod fisheries. The number of LLP licenses with Western and Central GOA area endorsements and their respective gear and operation type designations are reported in Table 3-18.

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 GOA 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 GOA. 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 GOA 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.

Table 3-18 Number of valid LLPs in the Western and Central GOA, by operation type and gear endorsement

	Western GOA		Central GOA	
Gear Endorsement	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

[1] The 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. Most trawl CP licenses that qualify under the trawl recency action are Amendment 80 licenses (18 of 19 WG licenses, and 15 of 20 CG licenses). Source: NMFS Restricted Access Management (RAM) groundfish license file, January 2008.

3.1.8 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 GOA 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 were 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 GOA, 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.

Total incidental catch of Pacific cod in the Western and Central GOA, including both retained and discarded incidental catch, is reported by sector in Table 3-19. Incidental catch levels vary from year to year. Under current regulations, 20% of the TAC of each GOA species (including Pacific cod) may be held in reserve to accommodate incidental catch during other directed fisheries.

In both the Western and Central GOA, 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 percent of total catch has increased in recent years. Incidental catch in the Western GOA increased from 3% of total catch during 1995-2000 to 4% of total catch during 2001-2006. In the Central GOA, incidental catch increased from 11% of total catch during 1995-2000 to 18% of total catch during 2001-2006.

Incidental catch levels are relatively low in the Western GOA, because there is only a small flatfish fishery in the Western GOA. The trawl sectors primarily fish during the directed pollock and Pacific cod seasons in the Western GOA, and bycatch of Pacific cod during the directed pollock season is relatively low. In the Western GOA, approximately half of incidental catch occurs during the A season (prior to June 10), and nearly half occurs between the A and B seasons (June 10- September 1). There is relatively little trawl effort, and little incidental catch of Pacific cod, during the B season in the Western GOA. In the Central GOA, incidental catch levels are substantially higher than in the Western GOA, 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 3-20 is a result of the inclusion of halibut targeted bycatch in the Catch Accounting data (2003-present). In the Central GOA, about 40% of incidental catch occurred during the A season during 2001-2006, and 60% occurred during the B season.

Table 3-19 Total incidental catch (both retained and discarded; mt) of Pacific cod in the Western and Central GOA during the A (Jan 1–Jun 10) and B (Jun 10–Dec 31)* seasons, averaged from 1995-2000 and 2001-2006

		HAL CP		HAL CV		Trawl CP		Trawl CV		Incidental catch as percent of total catch
	Year	A	B	A	B	A	B	A	B	
Western GOA	1995-2000	26	17	6	20	231	130	112	53	3%
	2001-2006	*	*	16	32	185	153	35	98	4%
Central GOA	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. *Catch from June 10 – Sept 1 is counted against the B season TAC.

The majority of incidental catch of Pacific cod occurs in fisheries primarily or exclusively prosecuted by the trawl sector (see Table 3-20). In the Western GOA, the target fisheries with the most incidental catch of Pacific cod during 2001-2006 include arrowtooth flounder (22%), flathead sole (14%), midwater pollock (13%), halibut (12%), and rockfish (11%). In the Central GOA, the fisheries with the most incidental catch during 2001-2006 include shallow water flatfish (37%), rockfish (27%), and arrowtooth flounder (12%). In the Western GOA, 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 GOA, 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 GOA trawl catcher vessel allocation. A maximum of 2.09% of the Central GOA 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 3-20 Incidental catch of Pacific cod (mt) in the Western and Central GOA reported by target fishery, and percent of total incidental catch by each target fishery

	Western GOA				Central GOA			
	1995-2000 (average)		2001-2006 (average)		1995-2000 (average)		2001-2006 (average)	
Target	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.

Table 3-21 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 GOA

	HAL CP		HAL CV		Trawl CP		Trawl CV		Total		Percent of TOTAL catch discarded
Year	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 GOA

	HAL CP		HAL CV		Trawl CP		Trawl CV		Total		Percent of TOTAL catch discarded
Year	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.

In 1998, Pacific cod and pollock were designated as Improved Retention/Improved Utilization (IRIU) Species under Amendment 49 to the GOA FMP. Under IRIU regulations, all catch of Pacific cod and pollock must be retained when the directed fisheries are open, and all catch up to the maximum retainable allowance (MRA) must be retained when the fishery is closed to directed fishing. No economic discards of Pacific cod are allowed, but regulatory discards may occur for three 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 percent of directed species catch. For Pacific cod, the MRA with respect to all directed species, with the exception of arrowtooth flounder, is 20%. The MRA for Pacific cod in the directed arrowtooth flounder fishery in the GOA is 5%. When Pacific cod is not open for directed fishing, a vessel must retain Pacific cod up to the amount of the MRA.[6] 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 GOA, Pacific cod has occasionally been placed on PSC status (Table 3-21). During years

[6] 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.

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. Third, discards of previously caught fish and decomposed fish are allowed.

Discarded incidental catch of Pacific cod is reported by sector in Table 3-21. In the Western GOA, the discard rate of incidentally caught Pacific cod decreased from 40% during 1995-2000 to 23% during 2001-2006. In the Central GOA, the discard rate decreased from 41% to 28% during the same time periods. Total discards (mt) also decreased substantially in both the Western and Central GOA. The percent of total catch that was discarded has stayed about the same (1% in the Western GOA, 5% in the Central GOA), because TACs (and total catch) have decreased in recent years.

3.1.9 The processing sector

The number of shorebased processors, motherships, and catcher processors that received deliveries of Pacific cod from the Western and Central GOA Pacific cod fisheries are reported in Table 3-22. 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 precluded 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 GOA, Amendment 80 vessels are capped at 4.4% of the TAC, and in the Western GOA, Amendment 80 vessels may catch up to 2.0% 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.

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 GOA Pacific cod has declined somewhat since 1995. Mothership activity has declined substantially. No motherships have been active in the Central GOA Pacific cod fisheries since 2000. Similarly, in the Western GOA, 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 GOA ABCs.

Under the current inshore/offshore regulations, catcher processors and motherships participating in the offshore processing component are limited to processing 10% of the Western and Central GOA 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 per week. 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% of total catch. In the Western GOA, the total proportion of landings made to at-sea processors has often been more than 30% of total landings, and has been as high as 43%. In the Central GOA, at sea landings are typically 10% or less of retained catch.

Table 3-22 Number of processors receiving landings of Pacific cod from the Western and Central GOA fisheries, and retained catch (mt) from 1995-2007

Western GOA

	Shoreside		Motherships		Catcher Processors		Total At-sea	Grand Total	Percent processed at-sea
Year	No.	Mt	No.	Mt	No.	Mt	Mt	Mt	
1995	9	12,904	5	2234	32	6,323	8,641	21,462	40%
1996	7	15,728	5	120	37	5,178	5,310	21,025	25%
1997	9	19,286	3	553	30	4,132	4,697	23,972	20%
1998	14	*	1	*	23	3,476	3476**	21,039	17%**
1999	8	*	2	*	39	7,163	7163**	23,497	30%**
2000	7	15,978	3	301	29	5,650	5,951	21,930	27%
2001	11	8,933	0	0	32	5,678	5,678	14,611	39%
2002	10	10,108	0	0	31	7,254	7,254	17,362	42%
2003	8	11,008	0	0	31	4,685	4,685	15,693	30%
2004	9	11,646	0	0	26	3,676	3,676	15,322	24%
2005	6	11,170	0	0	24	1,096	1,096	12,266	9%
2006	8	*	1	*	25	2,909	2909**	13,860	21%**
2007	6	*	1	*	25	3,913	3913**	13,231	30%**

Central GOA

	Shoreside		Motherships		Catcher Processors		Total At-sea	Grand Total	Percent processed at-sea
Year	No.	Mt	No.	Mt	No.	Mt	Mt	Mt	
1995	15	40,434	4	1471	32	2,206	3,706	44,111	8%
1996	14	37,034	8	2006	27	3,424	5,446	42,464	13%
1997	16	*	1	*	23	830	830**	41,568	2%**
1998	15	35,943	4	344	24	4,623	5,010	40,910	12%
1999	21	*	1	*	35	4,846	4846**	43,108	11%**
2000	14	*	1	*	22	2,506	2506**	32,011	8%**
2001	13	24,370	0	0	16	2,838	2,838	27,207	10%
2002	12	20,667	0	0	19	2,603	2,603	23,271	11%
2003	12	21,208	0	0	21	2,687	2,687	23,894	11%
2004	11	24,125	0	0	15	2,222	2,222	26,348	8%
2005	15	21,168	0	0	18	986	986	22,154	4%
2006	12	20,621	0	0	20	1,774	1,774	22,394	8%
2007	12	22,884	0	0	15	2,306	2,306	25,190	9%

Source: Catch Accounting/Blend for motherships and catcher processors; ADFG Fish Tickets for Shoreside Plants.
** When mothership landings are confidential, the total and percent processed at-sea only includes catcher processor landings.

3.1.10 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 3-23). 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 $0.64 per pound, including bonuses. Gross revenues for all catcher vessel landings of GOA Pacific cod totaled $34.4 million in 2007, a 27% increase from 2006 revenues (Table 3-24). 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 3-23 Ex-vessel prices (dollars) per pound in the GOA 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 3-24 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.

3.1.11 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 3-25). The all products price is a weighted average of the prices for all products produced from Pacific cod. Table 3-26 shows the product mix from Pacific cod harvested in the GOA, 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 3-25 First wholesale price (dollars per pound) of Pacific cod products by processing sector, includes BSAI and GOA fisheries

	Whole fish		Head & gut		Fillets		Other products		All products	
Year	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 3-26 Products produced from Pacific cod harvested in the GOA, 2001-2006

	Whole fish		Head & gut		Fillets		Other products		Total
Year	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 all Alaska commercial fisheries by catcher vessels that participated in the directed Pacific cod fisheries in the Central or Western GOA are summarized in Table 3-27. Revenues are reported based on the sector that a vessel participated in during a given year in the Central or Western GOA directed Pacific cod fisheries. Table 3-27 also shows each sector's economic dependence on the GOA Pacific cod fisheries versus other Alaska fisheries. Non-AFA trawl CVs had the highest percentage of revenues from the GOA Pacific cod fisheries during 2001-2007 (25.1%). This sector was also highly dependent on other (non-cod) GOA groundfish fisheries (42.6% of revenues). Pot vessels that did not qualify for BSAI crab allocations were also highly dependent on GOA Pacific cod (19.7% of revenues), as well as the State GOA Pacific cod fisheries (11.5%) and IFQ halibut (25.1%). Crab-qualified pot CVs earned 14.6% of revenues from GOA Pacific cod during 2001-2007, and 65.3% of revenues from crab. AFA trawl CVs earned 9.3% of revenues from GOA Pacific cod, and 44.1% from BSAI groundfish. Hook-and-line CVs earned 8.4% from GOA Pacific cod and 58% from halibut IFQ. Finally, jig vessels earned 6.5% from the GOA Pacific cod fisheries, and also earned an additional 19.3% of revenues from the State GOA Pacific cod fisheries, and 43.3% of revenues from salmon.

First wholesale revenues for catcher processors that participated in the GOA Pacific cod fisheries are summarized in Table 3-28. 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% 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 (77%). GOA Pacific cod and sablefish each comprised 9% 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%), and the remainder of revenues were from the BSAI Pacific cod fishery.

Table 3-27 Catch (mt), ex vessel revenues, and percent of revenues in Alaska fisheries by vessels that participated in the GOA directed Pacific cod fisheries*, averaged from 2001-2007.

Sector	Fishery	Vessels	Tons	Revenues	Percent of revenues
Hook-and-line CV	**GOA Pacific Cod**	**132**	**5,564**	**$4,422,751**	**8.4%**
	State GOA Pacific Cod	24	1,006	$815,727	1.5%
	BSAI Other Groundfish	13	961	$1,416,293	2.7%
	BSAI Pacific Cod	17	1,040	$815,479	1.5%
	GOA Other Groundfish	69	3,933	$1,209,310	2.3%
	IFQ Halibut	105	4,630	$30,578,179	58.0%
	IFQ Sablefish	54	1,498	$7,295,575	13.8%
	Other	62	472	$247,664	0.5%
	Salmon	62	5,025	$3,517,411	6.7%
	Shellfish	20	508	$2,410,427	4.6%
	Total	569	24,636	$52,728,815	100.0%
Jig CV	**GOA Pacific Cod**	**28**	**149**	**$99,019**	**6.5%**
	State GOA Pacific Cod	21	425	$292,917	19.3%
	BSAI Other Groundfish	1	*	*	*
	BSAI Pacific Cod	3	28	$21,096	1.4%
	GOA Other Groundfish	6	7	$3,305	0.2%
	IFQ Halibut	6	65	$346,984	22.9%
	IFQ Sablefish	1	*	*	*
	Other	10	60	$38,358	2.5%
	Salmon	13	1,115	$655,908	43.3%
	Shellfish	4	12	$57,595	3.8%
	Total	100	1,860	$1,516,116	100.0%
Crab qualified Pot CV	**GOA Pacific Cod**	**13**	**2,285**	**$1,634,973**	**14.6%**
	State GOA Pacific Cod	2	*	*	*
	BSAI Other Groundfish	8	30	$81,569	0.7%
	BSAI Pacific Cod	8	1,856	$1,363,502	12.2%
	GOA Other Groundfish	4	2	$501	0.0%
	IFQ Halibut	2	*	*	*
	IFQ Sablefish	1	*	*	*
	Other	8	12	$13,542	0.1%
	Salmon	1	*	*	*
	Shellfish	12	1,285	$7,299,936	65.3%
	Total	56	5,714	$11,176,266	100.0%
Non Crab qualified Pot CV	**GOA Pacific Cod**	**87**	**9,583**	**$6,913,255**	**19.7%**
	State GOA Pacific Cod	62	5,973	$4,047,893	11.5%
	BSAI Other Groundfish	8	443	$421,760	1.2%
	BSAI Pacific Cod	13	2,476	$1,603,858	4.6%
	GOA Other Groundfish	35	6,673	$1,577,411	4.5%
	IFQ Halibut	36	1,431	$8,823,240	25.1%
	IFQ Sablefish	11	330	$1,555,630	4.4%
	Other	54	1,570	$608,213	1.7%
	Salmon	37	11,967	$5,219,824	14.9%
	Shellfish	30	787	$4,356,802	12.4%
	Total	382	41,233	$35,127,885	100.0%
AFA Trawl CV	**GOA Pacific Cod**	**23**	**4,118**	**$2,555,003**	**9.3%**
	BSAI Other Groundfish	7	56,857	$12,588,867	46.0%
	BSAI Pacific Cod	22	6,935	$4,394,038	16.1%
	GOA Other Groundfish	22	26,913	$6,937,573	25.3%
	IFQ Halibut	2	*	*	*
	Other	18	246	$38,493	0.1%
	Salmon	1	*	*	*
	Shellfish	5	36	$345,344	1.3%
	Total	99	95,190	$27,367,416	100.0%
Non-AFA Trawl CV	**GOA Pacific Cod**	**56**	**10,740**	**$6,889,921**	**25.1%**
	State GOA Pacific Cod	10	1,115	$693,049	2.5%
	BSAI Other Groundfish	10	1,181	$200,966	0.7%
	BSAI Pacific Cod	10	2,113	$1,332,543	4.9%
	GOA Other Groundfish	40	45,285	$11,713,152	42.6%
	IFQ Halibut	15	621	$3,629,660	13.2%
	IFQ Sablefish	6	201	$962,428	3.5%
	Other	34	1,600	$445,840	1.6%
	Salmon	11	3,337	$1,427,103	5.2%
	Shellfish	10	32	$169,377	0.6%
	Total	203	66,223	$27,464,040	100.0%

*Includes all Pacific cod catch (directed and non-directed) by vessels that participated in the directed Pacific cod fisheries.
Source: ADFG Fish Tickets and CFEC gross revenues data

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%
	GOA	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%
		GOA Total		35,176	$66,694,219	18%
		BSAI and GOA 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%
	GOA	Atka Mackerel	2	*	*	*
		Pacific Cod	6	2,828	$3,153,216	68%
		Rockfish	1	*	*	*
		GOA Total		2,828	$3,153,268	68%
		BSAI and GOA 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%
	GOA	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%
		GOA Total		121,024	$126,222,374	16%
		BSAI and GOA 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 Pacific cod catch

Retained catch of Pacific cod by the various sectors during 1995-2008 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 is reported by vessel length for hook-and-line, pot, and trawl CVs, and hook-and-line CPs. Catch and participation in the inshore and offshore processing components is also reported.

Catch history by each of the sectors from 1995-2008 in the Western and Central GOA Pacific cod fisheries is summarized in Table 3-29. The table shows 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 has been substantial year-to-year variability in catch shares. For example, in the Western GOA trawl catcher vessels have harvested as little as 8.7% of the annual catch (2003) and as much as 77.4% of the catch (1997). Similarly, pot catcher vessels have harvested as little as 4.3% of the Western GOA catch (1997) and as much as 63.4% of the catch (2004). 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. The problem statement notes that 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.

Table 3-29 Retained catch and percent of annual retained catch by each sector in the GOA Pacific cod fisheries.

Western GOA

	Hook-and-line CP		Hook-and-line CV		Jig CV		Pot CP		Pot CV		Trawl CP		Trawl CV	
	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	26.2%	35	0.2%	48	0.2%	104	0.5%	2,352	11.0%	587	2.7%	12,704	59.2%
1996	4,369	20.8%	193	0.9%	45	0.2%	*	*	1,689	8.0%	787	3.7%	13,921	66.2%
1997	3,837	16.0%	240	1.0%	5	0.0%	0	0.0%	1,041	4.3%	295	1.2%	18,554	77.4%
1998	3,168	15.0%	22	0.1%	1	0.0%	*	*	2,550	12.1%	276	1.3%	15,007	71.3%
1999	5,116	21.8%	70	0.3%	0	0.0%	1,424	6.1%	1,591	6.8%	623	2.7%	14,673	62.4%
2000	4,706	21.5%	54	0.2%	5	0.0%	*	*	5,107	23.3%	751	3.4%	11,113	50.7%
2001	3,969	27.2%	103	0.7%	157	1.1%	1,038	7.1%	2,538	17.4%	670	4.6%	6,135	42.0%
2002	6,411	36.9%	38	0.2%	193	1.1%	*	*	4,805	27.7%	327	1.9%	5,073	29.2%
2003	4,242	27.0%	47	0.3%	46	0.3%	*	*	9,549	60.8%	340	2.2%	1,367	8.7%
2004	2,893	18.9%	28	0.2%	183	1.2%	*	*	9,718	63.4%	539	3.5%	1,717	11.2%
2005	724	5.9%	281	2.3%	46	0.4%	*	*	6,402	52.2%	217	1.8%	4,441	36.2%
2006	2,691	19.4%	106	0.8%	*	*	0	0.0%	5,918	42.7%	218	1.6%	4,917	35.5%
2007	3,069	23.2%	390	2.9%	2	0.0%	*	*	4,646	35.1%	529	4.0%	4,281	32.4%
2008	3,071	21.5%	479	3.3%	44	0.3%	*	*	5,651	39.5%	378	2.6%	4,600	32.1%

Central GOA

	Hook-and-line CP		Hook-and-line CV		Jig CV		Pot CP		Pot CV		Trawl CP		Trawl CV	
	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%	51	0.1%	0	0.0%	13,760	31.2%	2,072	4.7%	23,548	53.4%
1996	710	1.7%	4,491	10.6%	34	0.1%	0	0.0%	10,539	24.8%	2,714	6.4%	23,975	56.5%
1997	*	*	6,401	15.4%	21	0.1%	0	0.0%	8,420	20.3%	770	1.9%	25,895	62.3%
1998	175	0.4%	5,815	14.2%	50	0.1%	0	0.0%	9,208	22.5%	4,447	10.9%	21,214	51.9%
1999	313	0.7%	6,174	14.3%	24	0.1%	2,938	6.8%	12,182	28.3%	1,595	3.7%	19,881	46.1%
2000	209	0.7%	6,529	20.4%	38	0.1%	910	2.8%	11,967	37.4%	1,387	4.3%	10,971	34.3%
2001	*	*	5,684	20.9%	11	0.0%	588	2.2%	3,505	12.9%	2,241	8.2%	15,169	55.8%
2002	1,638	7.0%	6,867	29.5%	3	0.0%	131	0.6%	3,228	13.9%	835	3.6%	10,568	45.4%
2003	1,462	6.1%	3,586	15.0%	16	0.1%	*	*	3,201	13.4%	1,219	5.1%	14,405	60.3%
2004	1,453	5.5%	5,423	20.6%	118	0.4%	0	0.0%	4,916	18.7%	770	2.9%	13,669	51.9%
2005	267	1.2%	4,271	19.3%	137	0.6%	0	0.0%	8,169	36.9%	719	3.2%	8,591	38.8%
2006	897	4.0%	6,183	27.6%	96	0.4%	0	0.0%	8,420	37.6%	877	3.9%	5,922	26.4%
2007	1,376	5.5%	6,341	25.2%	36	0.1%	*	*	8,286	32.9%	590	2.3%	8,220	32.6%
2008	1,755	7.0%	6,115	24.3%	27	0.1%	0	0.0%	5,216	20.7%	631	2.5%	11,465	45.5%

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 proposed sector allocations would divide the Western and Central GOA of Alaska Pacific cod TACs among the various gear sectors based on the historic distribution of catch. The Western and Central GOA 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, particularly in the Western GOA. Trawl vessels, and to a lesser extent, hook-and-line vessels, race to catch Pacific cod at the highest possible rate during the B season, with the knowledge that halibut PSC limits could close the B season at any time. Halibut PSC limits often constrain the length of the B season for 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 harvested. 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 ≥125 ft) and suboptions to divide the pot and hook-and-line catcher vessel allocations by vessel length (CVs <60 ft and ≥60 ft or <50 ft and ≥50 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 create a combines <60 ft pot and trawl catcher vessel allocation in the Western GOA. 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.

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 no longer be a limit on the amount of catch processed on a weekly basis by motherships (126 mt per week under the current inshore definition) or on the total catch processed by motherships. The Council added options under Component 8 to cap the amount of Pacific cod processed by motherships. These options are discussed in Section 3.2.8.

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 add Pacific cod endorsements to fixed gear licenses to limit entry into the directed Pacific cod fisheries in the Western and Central GOA. 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.

3.2.2 Options for Defining Qualifying Catch

The Council has defined qualifying catch as all retained catch of Pacific cod from the Federal and parallel fisheries. Each sector's allocation would support its own directed and incidental catch needs. The tables in Appendix A report annual catch by each sector in the Western and Central GOA Pacific cod fisheries during 1995-2008. Retained catch and retained catch in the directed Pacific cod fisheries are presented in separate tables. Note that some vessels have catch history in more than one sector. The tables also show each sector's annual harvest share as a percent 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 GOA 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 GOA. During 1995-2005, trawl catcher vessels had the largest average annual harvest share (47%) of Pacific cod in the Western GOA, followed by pot catcher vessels (26%), and hook-and-line catcher processors (22%). From 2000 to 2006, pot catcher vessels harvested a larger share (41%) than trawl catcher vessels (31%). Similarly, in the Central GOA, trawl catcher vessels harvested the largest share (51%) of Pacific cod during 1995-2005, but the trawl share decreased to 45% 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% during 1995-2005 to 22% during 2000-2006. Jig catcher vessels typically harvested less than 1% of the total catch of Pacific cod in the Western and Central GOA. 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 GOA no catcher processors produced meal from Pacific cod during 1995 through 2007. 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 GOA, approximately 1.0% of retained catch by trawl catcher vessels was destined for meal production between 1995 and 2005. From 2000 to 2006, approximately 1.7% of Central GOA trawl catcher vessel catch was destined for meal production. In general, catch destined for meal production comprised less than 1% 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.

3.2.3 Comparison of catch history using different data sets

The Council elected to calculate qualifying catch based on Blend and Catch Accounting data for catcher processors and Fish Tickets for catcher vessels. **Appendix B** includes tables that compare total retained catch based on the Blend and Catch Accounting data to catch estimates based on Fish Tickets and WPRs, and a description of the reasons for the differences between data sets.

3.2.4 Options for Calculating Sector Allocations

Options include three qualifying periods:

- Qualifying years 1995-2005: average of best 5 or 7 years
- Qualifying years 2000-2006: average of best 3 or 5 years
- Qualifying years 2002-2007: 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 Table 3-30 and Table 3-31. It should be noted that the Council deleted Option 2 under Component 3, which would calculate qualifying catch as directed catch only. The Council requested that staff leave this information in the analysis in order to facilitate consideration of a compromise proposal (e.g., averaging across all options). This information may be found in Appendix D.

The qualification period that includes earlier years (1995-2005) generally favors the trawl catcher vessel sector, particularly in the Western GOA. The qualification period that only includes more recent years (2000-2006 or 2002-2007) 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. For example, the trawl catcher vessel allocation could range from 26.0% to 46.6% of the Western GOA TAC and 41.3% to 48.1% of the Central GOA TAC. Similarly, the pot catcher vessel allocation could range from 27.9% to 45.7% of the Western GOA TAC and 24.7% to 28.1% of the Central GOA TAC.

The Council has indicated its intent to reduce the Central GOA trawl catcher vessel B season allocation by the percentage of the Pacific cod TAC allocated to the Central GOA Rockfish Pilot Program. A fixed percentage of the Central GOA 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% of the Central GOA Pacific cod TAC, and is taken off the B season 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.

Table 3-30 Potential percent allocations of the Western and Central GOA Pacific cod TACs.

Western Gulf	Period	HAL CP	HAL CV	Jig CV	Pot CP	Pot CV	Trawl CP	Trawl CV
All Cod	1995-2005: Best 7 years	19.7%	0.6%	0.5%	2.2%	27.9%	2.5%	46.6%
	1995-2005: Best 5 years	18.6%	0.7%	0.5%	2.5%	30.4%	2.4%	44.9%
	2000-2006: Best 5 years	21.6%	0.7%	0.7%	2.3%	40.5%	2.6%	31.7%
	2000-2006: Best 3 years	21.4%	0.9%	0.8%	2.7%	41.3%	2.7%	30.2%
	2002-2007: Best 5 years	22.6%	1.2%	0.6%	1.6%	45.7%	2.4%	26.0%
	2002-2007: Best 3 years	22.2%	1.5%	0.7%	1.8%	44.9%	2.5%	26.5%
Central Gulf	Period	HAL CP	HAL CV	Jig CV	Pot CP	Pot CV	Trawl CP	Trawl CV
All Cod	1995-2005: Best 7 years	2.8%	17.3%	0.2%	1.5%	24.7%	5.3%	48.1%
	1995-2005: Best 5 years	3.4%	17.6%	0.2%	2.0%	25.2%	5.6%	45.9%
	2000-2006: Best 5 years	4.2%	20.8%	0.3%	1.0%	25.3%	4.4%	44.1%
	2000-2006: Best 3 years	4.7%	19.4%	0.4%	1.4%	27.9%	4.4%	41.9%
	2002-2007: Best 5 years	5.2%	22.6%	0.3%	0.4%	25.8%	3.5%	42.3%
	2002-2007: Best 3 years	4.9%	21.5%	0.4%	0.5%	28.1%	3.3%	41.3%

There is a suboption to establish separate allocations for hook-and-line catcher processors based on vessel length (<125 ft and ≥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 ≥60 ft, or <50 ft and ≥50 ft for hook-and-line vessels in the CGOA). 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 ≥60 ft LOA vessels in both the Western and Central GOA. This division would ensure that larger pot vessels would not encroach on historic catch shares of smaller vessels.

In other cases, these divisions result in allocations that may be too small to allow NOAA fisheries to open directed fisheries for some sectors. The Council removed the option to establish separate allocations for trawl catcher processors <125 feet and ≥125 ft, because dividing the 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 GOA TACs caught by Amendment 80 vessels during 1998-2004. In the Central GOA, Amendment 80 vessels are capped at 4.4% of the TAC, and in the Western GOA, Amendment 80 vessels may catch up to 2.0% 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 GOA 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 GOA has been by vessels less than 125 feet LOA, but the allocation to vessels ≥125 ft LOA would likely be sufficient (approximately 3% to 5% of the TAC) to support a directed fishery. In the Central GOA, hook-and-line catcher processors <125 feet LOA would receive less than 1% of the TAC, and large CPs would receive 2% to 4% 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 3-31 Potential percent allocations of the Western and Central GOA Pacific cod TACs under suboptions to split sectors by vessel length (LOA)

Western Gulf	Period	HAL CP <125	HAL CP ≥125	TRW CP <125	TRW CP ≥125	TRW CV <60	TRW CV ≥60
All Cod	1995-2005: Best 7 years	16.8%	2.9%	1.1%	1.4%	32.8%	13.8%
	1995-2005: Best 5 years	15.4%	3.1%	0.8%	1.6%	30.9%	14.1%
	2000-2006: Best 5 years	18.1%	3.6%	1.4%	1.2%	24.6%	7.1%
	2000-2006: Best 3 years	17.6%	3.7%	1.3%	1.4%	23.6%	6.6%
	2002-2007: Best 5 years	17.5%	5.1%	1.5%	0.9%	21.4%	4.5%
	2002-2007: Best 3 years	17.6%	4.6%	1.6%	0.9%	23.0%	3.5%
Central Gulf	Period						
All Cod	1995-2005: Best 7 years	0.8%	2.1%	1.1%	4.3%	8.0%	40.1%
	1995-2005: Best 5 years	0.8%	2.7%	1.0%	4.6%	8.5%	37.4%
	2000-2006: Best 5 years	0.6%	3.6%	1.7%	2.8%	1.7%	42.4%
	2000-2006: Best 3 years	0.5%	4.1%	1.4%	3.0%	1.7%	40.1%
	2002-2007: Best 5 years	0.8%	4.4%	1.7%	1.8%	1.1%	41.1%
	2002-2007: Best 3 years	0.5%	4.4%	1.4%	1.9%	1.5%	39.8%

Western Gulf	Period	HAL CV <50	HAL CV ≥50	HAL CV <60	HAL CV ≥60	Pot CV <50	Pot CV ≥50	Pot CV <60	Pot CV ≥60
All Cod	1995-2005: Best 7 years	0.3%	0.4%	0.4%	0.2%	1.4%	26.5%	13.5%	14.4%
	1995-2005: Best 5 years	0.3%	0.4%	0.4%	0.3%	1.0%	29.3%	14.3%	16.1%
	2000-2006: Best 5 years	0.3%	0.4%	0.6%	0.1%	1.4%	39.1%	18.9%	21.6%
	2000-2006: Best 3 years	0.4%	0.4%	0.7%	0.1%	1.4%	40.0%	19.8%	21.5%
	2002-2007: Best 5 years	0.6%	0.6%	1.1%	0.0%	1.7%	44.0%	20.8%	24.9%
	2002-2007: Best 3 years	0.8%	0.7%	1.5%	0.0%	1.5%	43.4%	21.6%	23.3%
Central Gulf	Period								
All Cod	1995-2005: Best 7 years	12.5%	4.8%	16.0%	1.3%	1.5%	23.2%	11.4%	13.3%
	1995-2005: Best 5 years	12.8%	4.9%	16.3%	1.4%	1.4%	23.9%	11.3%	13.9%
	2000-2006: Best 5 years	14.6%	6.2%	19.0%	1.8%	0.6%	24.6%	10.9%	14.4%
	2000-2006: Best 3 years	13.9%	5.5%	18.0%	1.4%	0.7%	27.2%	11.4%	16.4%
	2002-2007: Best 5 years	15.4%	7.1%	20.5%	2.0%	0.5%	25.3%	12.1%	13.7%
	2002-2007: Best 3 years	14.7%	6.9%	19.8%	1.7%	0.5%	27.6%	13.0%	15.2%

In both the Western and Central GOA, hook-and-line catcher vessels <60 ft LOA have historically taken a higher proportion of the catch than larger vessels. However, in the Western GOA, the entire hook-and-line catcher vessel allocation would amount to 1.5% or less 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 GOA, hook-and-line CVs <60 feet in length would receive approximately 16.0% to

20.5% of the TAC, but ≥60 ft LOA vessels would receive only 1% to 2% 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 ft and 60 ft LOA participating in the directed fishery in the Central GOA has increased during recent years, 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 GOA, 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 GOA 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% of the Central GOA TAC, rather than the 1% to 2% that would be allocated to vessels ≥60 feet LOA.

Finally, there is a suboption to create a combined <60 ft LOA pot and trawl catcher vessel allocation in the Western GOA. The amount of this allocation may be calculated by simply adding the <60 ft pot and <60 ft trawl CV allocations under each option for calculating allocations. This combined <60 ft pot and trawl CV allocation would range up to 46.3% of the Western GOA TAC, depending on the qualifying years selected.

Seasonal apportionment of sector allocations

If Pacific cod sector allocations are implemented, each sector's allocation could be apportioned between the A season (60%) and B season (40%). 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 to assess consistency with Steller Sea Lion protection measures and the revised Biological Opinion.

Potential options for apportioning allocations seasonally could include:

1) Apportion each sector's annual allocation 60% to the A season and 40% to the B season.
2) Apportion each sector's annual allocation based on that sector's seasonal catch history during the qualifying years, while maintaining the overall 60/40 apportionment of the TAC.

If each sector allocation is simply apportioned 60/40 to the A/B seasons, some sectors would have to alter their harvest patterns to fully utilize their allocations. For example, in the Western GOA, the trawl CV sector typically harvests more than 95% of its catch during the A season. Few trawl catcher vessels participate in the directed Pacific cod fishery during the B season in the Western GOA. If the trawl catcher vessel allocation is apportioned 60/40 to the A/B seasons, the sector might only harvest 60% of its annual allocation if there is little effort during the B season.

An alternative is to apportion sector allocations based on each sector's seasonal catch history. This approach would allow sectors to maintain their existing seasonal harvest patterns. Since 2001, the GOA Pacific cod TACs have been apportioned 60/40 to the A/B seasons. Prior to 2001, the TACs were not seasonally apportioned. For purposes of calculating seasonal catch history, the A season was defined as Jan 1 – June 10, and the B season was defined as June 11 – Dec 31, across all years (1995-2007).

Sector allocations are calculated based on retained catch history. Prior to 2001, the TAC was not apportioned between the A and B seasons, and most harvests occurred prior to June 10. Even after Steller sea lion measures were in place, catch has not always been distributed 60/40 between the A/B seasons. The reason is that the A season TACs are generally fully harvested, but the B season TACs often are not fully harvested. For example, during recent years, a large proportion of the Western GOA B season TAC has not been harvested. As a result, approximately 80% of the Western GOA retained catch has occurred

during the A season, and 20% during the B season. Since only 60% of the A season TAC may be harvested during the A season, and allocations are specified as a percentage of the TAC, the A and B season percent sector allocations had to be adjusted proportionally across all sectors so that the A season allocations sum to 60% (rather than 80%). Any downward adjustment to a sector's A season allocation resulted in a proportional upward adjustment to its B season allocation, so that the A and B season allocations sum to the annual allocation that sector would receive based on its annual catch history. In Appendix A, Table A-19 through Table A-24 summarize the breakdown of the annual sector allocations into A and B season allocations. The A and B season allocations shown in these tables sum to the annual allocations shown in Table 3-30 and Table 3-31. In all of these tables, sector allocations are shown as a percentage of the annual Western GOA or Central GOA TAC.

Table 3-32 and Table 3-33 show how each sector's allocation would be seasonally apportioned if seasonal catch history is used to determine apportionments. In the Central GOA, most sector allocations would be apportioned to within ±10% of the 60/40 TAC apportionment, although there are some exceptions, depending on the qualifying years selected. For example, the trawl CP sector harvests much of its annual catch as incidental catch during the flatfish fisheries, largely after June 10, and would receive more of its allocation during the B season. In the Western GOA, the jig CV, pot CP, and trawl CP sectors would be allocated a larger proportion of their catch during the B season. In the Western GOA, the trawl CV sector mostly has catch history during the A season, and would be apportioned up to 74% of its allocation during the A season. Even though the trawl CV sector has relatively little B season catch history in the Western GOA, it would receive approximately 25-30% of its allocation during the B season. This is the result of the proportional distribution of unused B season TAC among all of the sectors, based on the expansion of each sector's B season history to sum to 40% of the TAC across all sectors. In effect, each sector receives its full A season catch history plus an additional allocation for the B season that consists of the TAC that has not been fully harvested in recent years.

Table 3-32 Percent apportionment of Western GOA sector allocations between the A season (Jan 1 – June 10) and B season (June 10 – Dec 31).

Western Gulf		HAL CP	HAL CP	HAL CV	HAL CV	JIG CV	JIG CV	POT CP	POT CP	POT CV	POT CV	TRW CP	TRW CP	TRW CV	TRW CV
		A	B	A	B	A	B	A	B	A	B	A	B	A	B
All Cod	1995-2005: Best 7 years	62.2%	37.8%	56.2%	43.8%	23.6%	76.4%	41.8%	58.2%	50.0%	50.0%	46.6%	53.4%	67.1%	32.9%
	1995-2005: Best 5 years	61.0%	39.0%	57.5%	42.5%	19.3%	80.7%	40.5%	59.5%	50.8%	49.2%	48.1%	51.9%	68.1%	31.9%
	2000-2006: Best 5 years	60.1%	39.9%	51.7%	48.3%	20.6%	79.4%	35.9%	64.1%	55.0%	45.0%	37.8%	62.2%	70.8%	29.2%
	2000-2006: Best 3 years	62.6%	37.4%	52.8%	47.2%	17.5%	82.5%	29.8%	70.2%	54.0%	46.0%	40.8%	59.2%	72.2%	27.8%
	2002-2007: Best 5 years	54.9%	45.1%	55.9%	44.1%	29.8%	70.2%	41.8%	58.2%	57.2%	42.8%	42.0%	58.0%	73.1%	26.9%
	2002-2007: Best 3 years	59.1%	40.9%	57.0%	43.0%	32.2%	67.8%	34.6%	65.4%	54.6%	45.4%	41.2%	58.8%	74.2%	25.8%
Directed Cod	1995-2005: Best 7 years	61.9%	38.1%	59.1%	40.9%	23.2%	76.8%	41.6%	58.4%	49.6%	50.4%	54.5%	45.5%	67.0%	33.0%
	1995-2005: Best 5 years	60.8%	39.2%	59.1%	40.9%	19.1%	80.9%	40.3%	59.7%	50.7%	49.3%	56.8%	43.2%	67.9%	32.1%
	2000-2006: Best 5 years	59.6%	40.4%	54.8%	45.2%	20.3%	79.7%	35.8%	64.2%	54.5%	45.5%	39.2%	60.8%	70.9%	29.1%
	2000-2006: Best 3 years	62.2%	37.8%	55.1%	44.9%	17.1%	82.9%	29.6%	70.4%	53.5%	46.5%	43.5%	56.5%	72.3%	27.7%
	2002-2007: Best 5 years	54.4%	45.6%	58.2%	41.8%	28.3%	71.7%	41.6%	58.4%	56.7%	43.3%	45.4%	54.6%	73.0%	27.0%
	2002-2007: Best 3 years	58.7%	41.3%	59.3%	40.7%	31.9%	68.1%	34.6%	65.4%	54.2%	45.8%	39.5%	60.5%	74.1%	25.9%

Table 3-33 Percent apportionment of Central GOA sector allocations between the A season (Jan 1 – June 10) and B season (June 10 – Dec 31).

Central Gulf		HAL CP	HAL CP	HAL CV	HAL CV	JIG CV	JIG CV	POT CP	POT CP	POT CV	POT CV	TRW CP	TRW CP	TRW CV	TRW CV
		A	B	A	B	A	B	A	B	A	B	A	B	A	B
All Cod	1995-2005: Best 7 years	73.9%	26.1%	66.5%	33.5%	56.8%	43.2%	29.7%	70.3%	68.3%	31.7%	44.5%	55.5%	55.3%	44.7%
	1995-2005: Best 5 years	73.7%	26.3%	65.0%	35.0%	54.9%	45.1%	29.7%	70.3%	66.2%	33.8%	45.9%	54.1%	56.7%	43.3%
	2000-2006: Best 5 years	70.1%	29.9%	74.0%	26.0%	64.1%	35.9%	72.7%	27.3%	67.6%	32.4%	47.1%	52.9%	49.0%	51.0%
	2000-2006: Best 3 years	86.1%	13.9%	74.1%	25.9%	63.0%	37.0%	74.5%	25.5%	69.0%	31.0%	56.0%	44.0%	44.4%	55.6%
	2002-2007: Best 5 years	63.2%	36.8%	67.8%	32.2%	64.9%	35.1%	2.7%	97.3%	64.8%	35.2%	26.6%	73.4%	55.7%	44.3%
	2002-2007: Best 3 years	88.1%	11.9%	66.3%	33.7%	64.5%	35.5%	2.6%	97.4%	61.0%	39.0%	31.8%	68.2%	55.6%	44.4%
Directed Cod	1995-2005: Best 7 years	71.4%	28.6%	64.3%	35.7%	55.3%	44.7%	30.9%	69.1%	65.9%	34.1%	44.1%	55.9%	56.6%	43.4%
	1995-2005: Best 5 years	71.0%	29.0%	62.6%	37.4%	53.5%	46.5%	30.8%	69.2%	63.8%	36.2%	50.9%	49.1%	57.9%	42.1%
	2000-2006: Best 5 years	66.6%	33.4%	70.0%	30.0%	60.3%	39.7%	68.0%	32.0%	63.6%	36.4%	40.5%	59.5%	52.4%	47.6%
	2000-2006: Best 3 years	82.5%	17.5%	70.9%	29.1%	59.8%	40.2%	70.5%	29.5%	65.6%	34.4%	52.0%	48.0%	47.0%	53.0%
	2002-2007: Best 5 years	60.4%	39.6%	64.1%	35.9%	61.0%	39.0%	1.4%	98.6%	61.1%	38.9%	8.7%	91.3%	59.5%	40.5%
	2002-2007: Best 3 years	83.7%	16.3%	63.1%	36.9%	60.7%	39.3%	1.4%	98.6%	57.5%	42.5%	4.1%	95.9%	60.1%	39.9%

Limiting entry to sectors based on vessel capacity

The Council asked that staff explore ways in which vessel capacity limits could be used in addition to vessel length to restrict participation in certain sectors. The problem identified is that new, high capacity 58 ft LOA vessels are being built and are entering the GOA Pacific cod fisheries, and existing 58 ft LOA vessels are being rebuilt with expanded capacity. Most of these high capacity 58 ft LOA vessels are relatively recent entrants into the GOA Pacific cod fishery. The GOA State waters Pacific cod fisheries limit the proportion of the GHL that may be harvested by vessels >58 ft LOA (see Table 3-5). This creates an incentive for 58 ft LOA vessels to maximize their hold capacity. In addition, vessels <60 ft LOA do not have to participate in the Federal Observer program. For these reasons, the incentive exists for additional vessels in this class to enter the GOA Pacific cod fisheries. If the catcher vessel allocations are split at 60 feet, this may leave smaller, lower capacity vessels vulnerable to an influx of effort by high capacity, <60 ft LOA vessels.

Under Component 2 of the current motion, the Council is considering an option that would preclude vessels from participating in the <60 ft LOA sectors if they exceed a capacity limit. Catch by these vessels could instead count against the allocations to vessels ≥60 ft LOA. It is not clear if under this option, the catch history of these high capacity <60 ft LOA vessels would be counted toward the allocations to vessels ≥60 ft LOA. One advantage of this approach is that it protects <60 ft vessels from an influx of effort by high capacity, 58 ft vessels. However, this option penalizes the ≥60 vessels by increasing the number of vessels fishing off the ≥60 ft allocations. Even if the catch history of the high capacity <60 ft LOA vessels is applied to the >60 ft LOA allocations, the majority of high capacity, <60 ft LOA vessels are recent entrants to the fisheries and do not have much catch history. Table 3-34 shows the number and catch history of 58 to 59 ft LOA vessels ≥100 gross tons and <100 gross tons in the Western and Central GOA Pacific cod fisheries during 2001-2008. Prior to 2008, there were only 1 or 2 pot or hook-and-line vessels that exceed 100 gross tons participating in the Western and Central GOA Pacific cod fisheries, and catch data for these vessels cannot be reported due to confidentiality restrictions. In 2008, there was an increase in effort by 58 to 59 ft LOA vessels in these sectors, and their catch is reported in the table.

Table 3-34 Catch by 58 to 59 ft LOA vessels less than 100 gross tons and greater than 100 gross tons in the Western and Central GOA.

	Hook-and-line				Pot				Trawl			
	<100 gross tons		≥100 gross tons		<100 gross tons		≥100 gross tons		<100 gross tons		≥100 gross tons	
Year	Vessels	Catch	Vessels	Catch	Vessels	Catch	Vessels	Catch	Vessels	Catch	Vessels	Catch
Western GOA												
2003	6	14	0	0	21	3,384	1	*	21	717	3	*
2004	9	14	0	0	29	2,702	2	*	18	1,255	2	*
2005	14	65	1	*	22	654	2	*	22	3,213	2	*
2006	11	60	1	*	15	734	0	0	22	3,813	2	*
2007	17	155	1	*	15	872	2	*	23	3,684	2	*
2008	23	260	3	24	27	1,655	4	530	22	3,897	3	693
Central GOA												
2003	24	522	1	*	11	998	0	0	8	414	1	*
2004	27	589	2	*	9	1,464	1	*	5	61	1	*
2005	30	550	2	*	9	2,044	1	*	4	3	0	0
2006	28	1,514	1	*	15	2,587	1	*	4	34	0	0
2007	39	1,378	2	*	21	3,201	2	*	2	*	0	0
2008	50	1,421	6	507	17	2,024	4	174	1	0	2	*

Source: ADFG Fish Tickets (2003-2007) and NMFS Catch Accounting (2008).

Under Component 2, in order to limit entry to the <60 ft sectors, the Council would need to establish a capacity limit for <60 ft LOA vessels. There are several sources of data on vessel measurements. Vessels that obtain Federal fisheries permits (FFPs) are required to submit accurate measurements of the vessel's length overall (LOA)[7] in feet, registered length in feet, and gross tonnage. However, these measurements are self-reported, and no documentation is required to verify the measurements. Vessels that obtain CFEC permits are also required to submit length and tonnage measurements, but these measurements are also self-reported. The U.S. Coast Guard (USCG) maintains a vessel database with length, breadth, depth, and gross and net tonnage measurements. When vessels initially register with the USCG, they are required to submit documentation to verify these measurements.

These existing data sources are incomplete and, in many cases, inconsistent. For example, there are 1,473 unique vessels that participated in the GOA Pacific cod fisheries during 1995 through 2007 (excluding vessels that participated exclusively in the State waters fisheries). Of these 1,473 vessels, nearly half of the CFEC, NMFS, and USCG gross tonnage measurements differ. These inconsistencies are a clear indication that a consistent method for measuring gross tonnage needs to be identified, and that existing data sources need to be updated and verified if capacity is going to be used to limit entry to sectors.

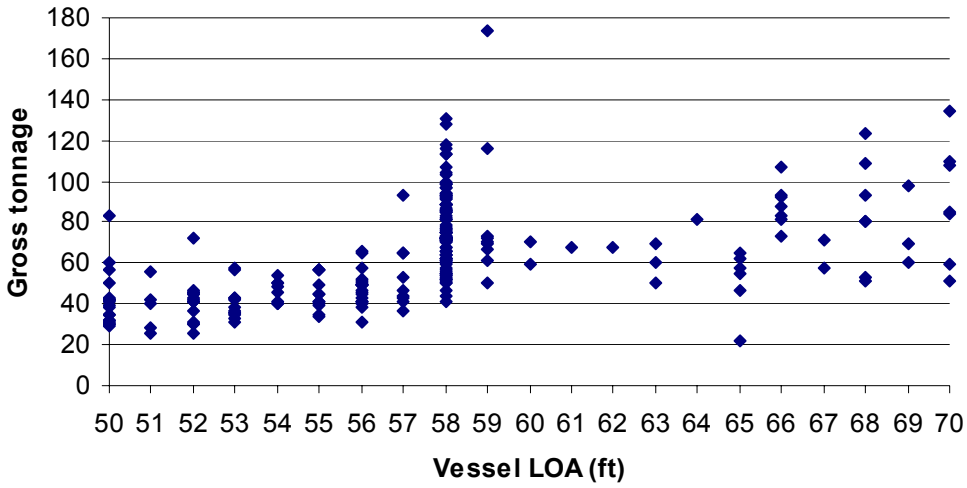

Figure 3-17 Gross tonnage of catcher vessels 50-70 ft LOA that participated in the GOA Pacific cod fisheries during 1995-2007.

Source: Vessel length overall is from NMFS; Gross tonnage is from USCG vessel database.

Figure 3-17 shows a plot of vessel length overall versus gross tonnage (using LOA from the NMFS database and gross tonnage from the USCG database), and includes all vessels 50 to 70 ft LOA that participated in the GOA Pacific cod fisheries during 1995 through 2007. In general, there is a linear relationship between vessel length and gross tonnage. There is a substantial spike in gross tonnage for vessels 58 ft and 59 ft LOA. The 58 ft LOA vessels range up to 129 tons.

[7] The LOA of a vessel is defined as the centerline longitudinal distance, rounded to the nearest foot, measured between: (a) the outside foremost part of the vessel visible above the waterline, including bulwarks, but excluding bowsprits and similar fittings or attachments, and (b) the outside aftermost part of the vessel visible above the waterline including bulwarks, but excluding rudders, outboard motor brackets, and similar fittings or attachments (see http://alaskafisheries.noaa.gov/ram/FFPAPP.pdf).

Table 3-35 Number of vessels in each gross tonnage (reported) and simple gross tonnage (calculated) size class for vessels 50 to 70 ft LOA that participated in the GOA Pacific cod fisheries since 2000.

Gross tonnage (reported to USCG)

Length overall	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120	>120	Total
50 ft	2	13	6	2	1							24
51 ft	2	2	1									5
52 ft	1	5	13	1	1							21
53 ft		7	4	2								13
54 ft		3	4	2	1							10
55 ft		4	4	4								12
56 ft	1	2	12	7	2							24
57 ft	1	1	4	1	2			1				10
58 ft		1	7	16	20	31	14	14	4	4	3	114
59 ft			1		6	1				1	1	10
60 ft				1	1							2
61 ft						1						1
62 ft						1						1
63 ft				1	2							3
64 ft							1					1
65 ft	1			3	3							7
66 ft						1	3		2	1		7
67 ft					1		1					2
68 ft				2	2				1	1	1	7
69 ft					1	1				1		3
70 ft				1	1	1	1	1	1		1	7
Total	8	38	56	43	44	37	20	16	8	8	6	284

Simple gross tonnage (0.67 x LOA x width x depth)

Length overall	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120	>120	Total
50 ft	2	12	6	2	1		1					24
51 ft	2		2	1								5
52 ft	1	6	12	1		1						21
53 ft		8	3	2								13
54 ft		2	5	3								10
55 ft		3	6	3								12
56 ft	1	2	14	5	2							24
57 ft	1	1	4	1	2			1				10
58 ft			4	18	17	33	17	15	4	4	2	114
59 ft				1	3	4				1	1	10
60 ft				1		1						2
61 ft					1							1
62 ft					1							1
63 ft				1	2							3
64 ft							1					1
65 ft	1		1	2	3							7
66 ft						1	3	2	1			7
67 ft				1		1						2
68 ft				2			2	1	1		1	7
69 ft					2			1				3
70 ft				2			2		1	1	1	7
Total	8	34	57	46	34	41	26	20	7	6	5	284

Source: USCG vessel database (gross tonnage, width, and depth); NMFS vessel database (LOA).

Gross tonnage measurements may not be comparable across vessels, because vessels differ in their hold configurations. An alternative approach that was discussed during public testimony and Council deliberations was to use simple gross tonnage as a measure of vessel capacity. Simple gross tonnage for vessels with ship-shaped and cylindrical hulls is calculated as the product of 0.67 times the length overall, width, and depth of the vessel (46 CFR Subpart E). Table 3-35 shows gross tonnage and simple gross tonnage measurements for vessels 50 to 70 ft LOA. As with Figure 3-17, gross tonnage is from the USCG database, and the width and depth measurements used to calculate simple gross tonnage are from the USCG databases; length overall, also used to calculate simple gross tonnage, is from the NMFS database. In general, gross tonnage measurements are similar to simple gross tonnage measurements for most vessels. When gross tonnage and simple gross tonnage measurements are substantially different for a given vessel, this could be due to a vessel's unusual hold configuration, or could be the result of errors in one or more of the measurements (width, depth, LOA, or gross tonnage) shown in the NMFS or USCG vessel databases. Table 3-35 shows how many vessels 50 to 70 ft LOA have a gross tonnage and simple gross tonnage in each of the ranges shown. One potential break point is at 70 tons. Few boats <58 ft LOA exceed 70 tons, but a substantial number of 58 ft boats exceed this capacity. Another potential break point is at 100 tons. There are only eleven 58 ft and three 59 ft vessels that have participated in the GOA Pacific cod fishery that exceed 100 gross tons.

Another potential approach to the vessel capacity issue is to limit LLP licenses to the capacity of the vessel that they are assigned to as of an effective date. Capacity could be defined as gross tonnage or simple gross tonnage. Vessels would be required to report these measurement(s) to RAM, and RAM would add the capacity endorsement to each license. A license could not be assigned to a vessel that exceeds the capacity limit, in addition to the MLOA, on the license. This would prevent new, high capacity 58 ft LOA vessels from entering the GOA groundfish fisheries, and would also prevent existing vessels from being rebuilt beyond a specified capacity, unless the vessel obtains an LLP with a sufficiently large capacity endorsement.

3.2.5 Component 5: Jig Allocation

The Council is considering options to set aside 1%, 3%, 5%, or 7% 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%, if 90% 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% per year, if 90% 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 pot and hook-and-line catcher vessels <60 ft LOA is not seasonally apportioned. This sector receives an initial allocation of 2% of the BSAI Pacific cod TAC, and also receives a rollover of any unused jig quota. The jig allocation is 1.4% of the BSAI Pacific cod TAC, and this allocation is seasonally apportioned.

During recent years, the jig sector has harvested less than 1% of the Western and Central GOA Pacific cod TACs (see Appendix A). In 2006 and 2007, the jig sector harvested 0.4% and 0.1% of the retained catch of Pacific cod in the Central GOA, respectively. Only 2 jig vessels participated in the Western GOA cod fishery in 2006, and their catch is not reportable. In 2007, 4 jig vessels caught less than 0.1% of the total retained catch of Pacific cod in the Western GOA. Based on 2006 and 2007 catch levels, the

jig sector would not fully use a 1% allocation, and would not be eligible for an increased allocation, unless catch levels increased substantially.

However, jig catch has fluctuated considerably, and during several recent years (2001, 2002, and 2004) the jig share has exceeded 1% of the total retained catch of Pacific cod in the Western GOA. Under options being considered by the Council, these catch levels would trigger a stairstep increase in the Western GOA jig allocation to 2% 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% increments, if it is not 90% harvested during three consecutive years, but the jig allocation would not fall below the initial level established in this action.

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 GHLs have been underharvested in recent years, and jig harvests have been particularly low, resulting in unharvested 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 the State of Alaska and NMFS to explore options for management of the GOA Pacific cod jig fishery that create a workable fishery and minimize the amount of stranded quota, focusing on Option 1, out of the two options advanced for analysis:

Option 1 State parallel/Federal managed Pacific cod jig fishery. Federal jig allocation managed 0-200 miles through a parallel /Federal fishery management structure. Any State waters jig GHL could (under subsequent action by the Alaska Board of Fisheries) be added to this Federal jig allocation so that the jig sector is fishing off of a single account.

Option 2 State managed Pacific cod jig fishery. Federal management authority delegated to the State of Alaska to manage the Pacific cod jig fisheries in the Western and Central GOA from 0-200 miles.

Most (more than 90%) of jig catch is typically harvested during the State waters fisheries, and the majority of jig landings occur during March through May (see Figure 3-18). 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 3-36). 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.

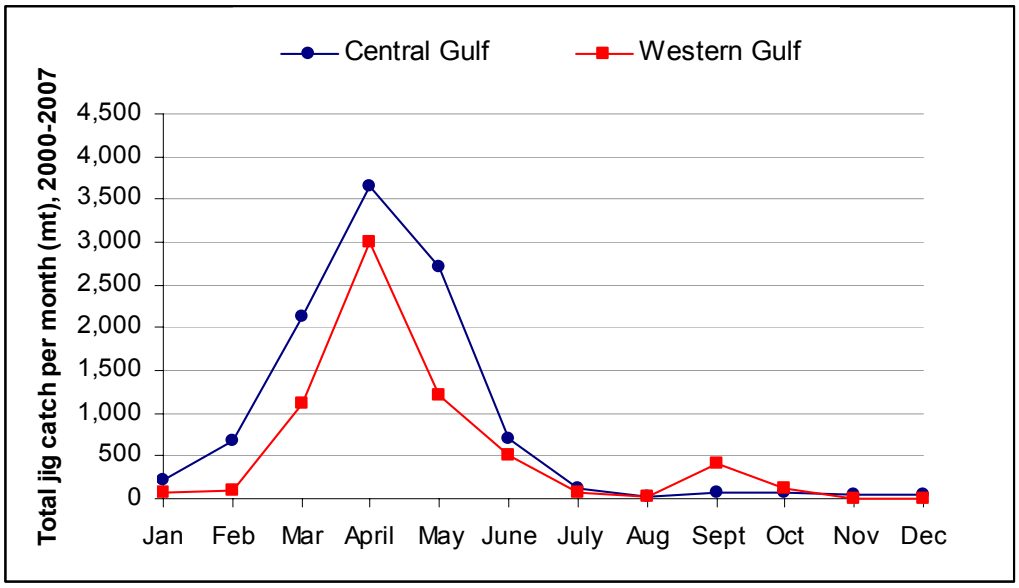

Figure 3-18. Total monthly Pacific cod catch (mt) by vessels using jig gear during 2000-2007.

Table 3-36 Number of jig vessels with groundfish and Pacific cod catch in the Western and Central GOA, and number of vessels that hold LLP licenses

	Central GOA				Western GOA			
	All groundfish		Pacific cod		All groundfish		Pacific cod	
Year	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 State parallel/Federal managed Pacific cod jig fishery

Under this option, the jig allocations of the Western and Central GOA TACs would be managed under a parallel/Federal management structure. The State waters jig GHL could (under subsequent action by the Alaska Board of Fisheries) be added to the Federal jig allocation so that the jig sector is fishing off of a single account, and managed under a parallel/Federal management structure. It should be noted that there is currently no framework in place for the State to add the State waters jig GHL to the Federal jig allocation. The sector allocation regulations could specify that if the Board of Fisheries chooses not to take the jig GHL, it would then roll into the Federal jig allocation. Otherwise, the jig GHL would be proportionally divided into all of the Federal sector allocations.

Currently, the State allocations to the jig sector include 50% of the Kodiak GHL, 25% of the Cook Inlet GHL, 15% of the South Alaska Peninsula GHL, and 10% of the Chignik GHL. In sum, these allocations amount to 8.06% of the Central GOA ABC and 3.75% of the Western GOA ABC. Under current State

regulations, unharvested jig GHL 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% 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 against the GHLs. Jig catch in the parallel and Federal waters fisheries would be accounted for by NOAA fisheries and would count against 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 in Federal waters, and
(2) Exempt jig vessels from being required to hold 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 1- Distinct parallel/Federal and State waters fisheries

- 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 1- Distinct parallel/Federal and State waters fisheries

- 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 jig vessel participation during the Federal and parallel waters fisheries. Federal waters would be closed to jig vessels during March-August.

Under Option 1, the State jig GHL could at some point be added to the Federal jig allocations and managed as a single jig allocation in each of the respective GOA management subareas under a parallel/Federal fishery management structure. There are additional advantages and disadvantages to combined allocations:

Advantages to Option 1- Combined parallel/Federal and State jig allocations

- 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.
- Facilitates rollover of unharvested jig allocation to other sectors.
- Facilitates stairstep increases (or decreases) to the jig allocation.

Disadvantages to Option 1- Combined parallel/Federal and State jig allocations

- Pot vessels participating only in the State waters fishery may no longer have access to any rolled over jig quota.

OPTION 2 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 rockfish and blue rockfish were transferred to the State and these species were removed from the GOA FMP, under Amendment 46 to the GOA 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 must 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.

Under this option, Pacific cod would remain in the GOA FMP and the GOA Pacific cod jig fishery would be managed jointly by the State of Alaska and the Federal government. 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 Montoring 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 limitation 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. There would not be timing conflicts between the Federal and State seasons, because the jig allocation would be managed as a single fishery. This option also has the potential to minimize the amount of stranded jig allocation. 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.

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 State and Federal waters during the entire year. On a fixed date (e.g., September 1) any jig allocation 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 State-managed option, which could also be open year-round, is that under the State-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 allocation, the stairstep up (and down) provisions outlined by the Council could be applied to this allocation, providing the jig sector the flexibility to grow, but ensuring that any unharvested 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.

- Facilitates rollover of unharvested jig allocation to other sectors.
- Facilitates stairstep increases (or decreases) to the jig allocation.

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

3.2.6 Component 6: Rollover provisions for unharvested sector allocations

Rollover provisions would make unharvested Pacific cod available to other sectors. The Council initially outlined options to roll over unharvested sector allocations 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 unharvested sector allocations 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 not be harvested.

3.2.7 Component 7: Allocation of the hook-and-line halibut PSC limit

The Council is considering options to allocate the GOA hook-and-line halibut PSC limit 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 GOA (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 GOA 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 3-4). The majority (86%) of PSC is apportioned to the first season (Jan 1– June 10). Only 2% (5 mt) is apportioned to the second season (June 10–September 1), and 12% (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), 2004 (on Oct 2), and 2008 (on Oct 16).

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 GOA. The hook-and-line catcher vessel fleet is mostly based in the Central GOA 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 GOA 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 GOA 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 GOA Pacific cod allocations to each sector. To calculate PSC allocations, the Western and Central GOA 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%. The potential halibut PSC allocations, under each of the eight options for calculating sector allocations, are shown in Table 3-37.

Table 3-37 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	52.1%	47.9%	151.1	138.9
	1995-2005	Best 5 years	52.8%	47.2%	153.2	136.8
	2000-2006	Best 5 years	52.9%	47.1%	153.3	136.7
	2000-2006	Best 3 years	51.0%	49.0%	147.8	142.2
	2002-2007	Best 5 years	53.1%	46.9%	153.9	136.1
	2002-2007	Best 3 years	52.9%	47.1%	153.5	136.5

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

Under Option 2, the hook-and-line CV sector would receive an allocation of 147.8 to 153.9 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 2-8 for a summary of annual halibut PSC by sector). Hook-and-line CPs would be allocated 136.1 to 142.2 mt of PSC, which is also somewhat less than this sector's highest annual PSC of 162.6 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.

3.2.8 Component 8: Community Protection Provisions

Mothership processing cap

Under Component 8, which addresses community protection measures, there are 2 options for capping the percentage of the Western and Central GOA TACs processed by motherships. The intent of these options is to protect community participation in the processing of Pacific cod, and to protect the community delivery patterns established by the inshore/offshore regulations, if harvest sector allocations replace the current processing sector allocations. For the purpose of these options, motherships include catcher processors receiving deliveries over the side and mobile floating processors. Motherships do not include inshore floating processors operating at a single geographic location during a given year.

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) of an aggregated amount of pollock and Pacific cod. Vessels include catcher processors and motherships.
(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% of the Western and Central GOA Pacific cod TACs, and the offshore component is allocated 10% of the Pacific cod TACs. The inshore/offshore processing allocations were established under Amendment 20 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 states 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 20 was to protect the inshore processing component from preemption by the offshore fleet.

Shoreside processors currently process nearly all Pacific cod harvested by catcher vessels in the Western and Central GOA. Few motherships have participated in the GOA Pacific cod fisheries during recent years (see Table 3-22). In 2006 and 2007, a single mothership operated in the Western GOA. Under the current inshore/offshore regulations, the offshore component is limited to processing 10% 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. Under Component 8, the Council added options to ensure stability in the distribution of catch among the processing sectors by capping mothership processing shares:

Options include:

Option 1: 0% cap (no processing of Pacific cod by motherships)
Option 2: A percentage based on the same qualification criteria selected for the harvesting sector allocations, but calculated from mothership processing activity.

During 1998 through 2007, the majority (>80%) of groundfish processed by motherships in the WGOA and CGOA has consisted of Pacific cod. In addition to Pacific cod, motherships also process small amounts of pollock, rockfish, and flatfish. All directed pollock catch is required to be delivered inshore. The number of motherships that processed Pacific cod in the WGOA and CGOA, and the amount (mt) processed is summarized in Table 3-22. In the CGOA, no motherships have processed Pacific cod or other groundfish since 2001. In the WGOA, no motherships were active from 2001-2005. In 2006 and 2007, one mothership processed Pacific cod, and in 2008, 3 motherships processed Pacific cod.

Under Option 1, the 0% cap would, in effect, mean that no motherships would be allowed to process groundfish in the Western or Central GOA, because nearly all groundfish deliveries are likely to include at least small amounts of incidentally caught Pacific cod. If motherships are prohibited from processing Pacific cod, this incidental catch would have to be discarded at the plant. This practice would conflict with current discard regulations. Under the Increased Retention/Increased Utilization (IRIU) regulations, when the directed Pacific cod fishery is open, incidentally caught Pacific cod cannot be discarded. When the directed Pacific cod fishery is closed, Pacific cod must be retained up to the maximum retainable amount (MRA). The MRA is 20% for most directed groundfish fisheries in the GOA, and 5% for arrowtooth flounder. Therefore, at all times during the fishing year, retention of at least some portion of incidentally caught Pacific cod is required.

If the Council's intent under Option 1 is to allow motherships to continue processing catch from other directed fisheries besides Pacific cod, Option 1 could be revised so that the 0% mothership processing cap applies only to directed landings of Pacific cod. Motherships could then receive groundfish landings from other directed groundfish fisheries. A directed landing of Pacific cod is defined in regulation as a landing where Pacific cod comprises more than 20% of the landing by weight (679.26). In some cases, a catcher vessel that wishes to deliver to a mothership may not know, until its catch is weighed, if it will make a directed Pacific cod landing. If the amount of Pacific cod exceeds the MRA, excess Pacific cod would need to be discarded. However, discards are not allowed while the directed Pacific cod fishery is open. Therefore, the regulation could be written such that mothership deliveries are allowed only when the directed Pacific cod fishery is closed.

Table 3-38 Percentage of the Western and Central GOA that could be processed by motherships during each qualifying period.

			Western GOA	Central GOA
All cod	1995-2005	Best 7 years	2.56%	1.57%
	1995-2005	Best 5 years	3.46%	2.20%
	2000-2006	Best 5 years	0.62%	*
	2000-2006	Best 3 years	1.03%	*
	2002-2007	Best 5 years	0.76%	0.00%
	2002-2007	Best 3 years	1.27%	0.00%

Source: ADFG Fish Tickets.

Under Option 2, motherships would be allowed to process a fixed percentage of the WGOA and CGOA TACs. The mothership processing caps would be calculated based on mothership processing activity in each management area, during the same years used to calculate the harvest sector allocations. If mothership processing history from 1995 through 2005 is used to calculate the processing cap, the WGOA cap would be either 2.56% or 3.46% of the TAC, and the CGOA cap would be either 1.57% or 2.2% of the TAC (see Table 3-38). Most of this processing history occurred during 1995-1999. If processing history during either 2000-2006 or 2002-2007 is used, the cap would range up to 1.27% of the WGOA TAC. If the cap is based on history from 2000-2006, the amount of the CGOA cap is confidential, because fewer than 3 motherships processed CGOA Pacific cod during these years. In the CGOA, there was no mothership processing during 2002-2007, and the cap would be 0%.

The Council could choose different options for the WGOA and CGOA. If the Council chooses a percentage cap, the regulation could be written such that Pacific cod deliveries would be limited to the cap while the directed Pacific cod fishery is open (for a given sector). Any landings that are made while the directed Pacific cod season is open would count toward the mothership cap. Once the cap is reached, no mothership deliveries could be made until the directed Pacific cod season for that sector is closed. At that point, deliveries would be allowed, and could include cod harvested incidentally in other directed groundfish fisheries.

Offshore catcher processor cap in Western GOA

Under Component 8, there is also a suboption which would cap the combined Western GOA offshore catcher processor allocations (sum of pot CP, hook-and-line CP, and trawl CP) to a total of 10%, 15%, or 20% of the Western GOA Pacific cod TAC. Adjustments to achieve this limit would be applied proportionately to the other Western GOA sector allocations. Under the existing inshore/offshore regulations, the offshore sector is capped at processing no more than 10% of the WGOA and CGOA Pacific cod TACs. The 10% cap applies to catcher processors and motherships operating in the offshore sector. The GOA Pacific cod harvest sector allocations could supersede the inshore/offshore processing sector allocations. If this occurs, each catcher processor sector could receive a single allocation based on its combined inshore and offshore catch history.

Catch history of catcher processors operating in the offshore processing component in the WGOA is summarized in Appendix A. Figure 3-19 shows the percent of retained catch harvested by the offshore CP sectors (sum of pot CP, hook-and-line CP, and trawl CP). The offshore catcher processor sectors harvested a maximum of 11.9% of retained WGOA catch in 2003, and a minimum of 0.7% of WGOA retained catch in 1998. If sector allocations are based on catch history using any combination of years from 1995 through 2007, the offshore catcher processor catch history would contribute, on average, less

than 10% of the Western GOA Pacific cod TAC to the CP allocations, and the proposed cap on Western GOA offshore CP allocations would not be exceeded.

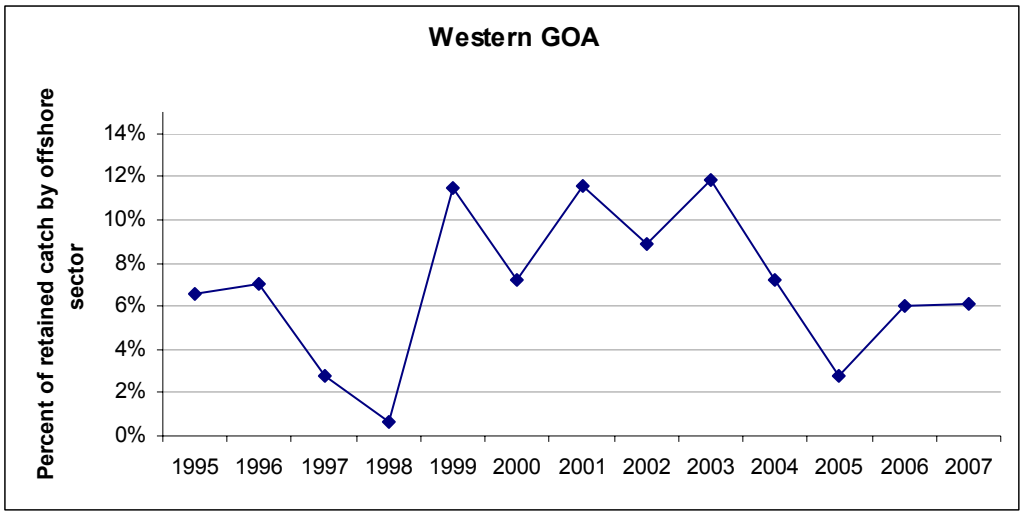

Figure 3-19 Percent of retained catch harvested by the WGOA offshore sector (sum of pot, hook-and-line, and trawl CP catch).

3.2.9 Component 9: Adjustments to Sector Allocations

Under Component 9, allocations to any sector based on catch history may be adjusted upward or downward by 5% or 10% of the TAC. For example, a sector might receive an allocation of 15% of the TAC based on catch history. The allocation could be adjusted upward, to 20% or 25% of the TAC, or downward, to 10% or 5% of the TAC. Any adjustments would be applied proportionately to other sector allocations so that allocations sum to 100% of the TAC. Adjustments to allocations would be made to address Steller sea lion mitigation, bycatch reduction, prohibited species catch mortality, or other conservation and social objectives.

Steller sea lion mitigation

In November 2000, NMFS issued a biological opinion which determined that the pollock, Pacific cod, and Atka mackerel fisheries in the BSAI and GOA, as prosecuted at that time, were likely to jeopardize the continued existence of the western population of Steller sea lions and adversely modify its critical habitat. NMFS completed a Steller Sea Lion Protection Measures Final Supplemental Environmental Impact Statement (SEIS) in November 2001 (NMFS 2001). As a result, protection measures were implemented to mitigate the direct and indirect effects of commercial fishing activities on Steller sea lions. These protection measures added to a suite of management measures implemented beginning in 1990, when Steller sea lions were initially listed as threatened. A history of Steller sea lion protection measures is described in the SEIS (NMFS 2001).

Protection measures that impact the GOA Pacific cod fishery include the following:

(1) In 2001, the GOA Pacific cod fishing season was divided into two periods: 60% of the TAC was apportioned to the A season (January 1 – June 10) and 40% to the B season (September 1 – December 31). The purpose of dividing the fishing season was to temporally disperse fishing effort for Pacific cod

by all gear groups. If Pacific cod sector allocations are implemented, the TAC will continue to be apportioned seasonally.

(2) Area closures limit fishing near rookeries and haulouts. The size of the closed area varies by gear group, and ranges up to 20nm from selected rookeries. Fish removals near haulouts and rookeries were determined to have the most impact on Steller sea lion recruitment and survival. In general, the size of the area closures is larger for trawl vessels than for fixed gear vessels. The area closures were established based on telemetry data and visual observations which indicated that Steller sea lions forage in the areas surrounding haulouts and rookeries.

(3) Vessels participating in the directed Pacific cod fishery in Federal waters using trawl, pot, or hook-and-line gear are required to have an FFP with a directed Pacific cod fishery endorsement, and are required to use VMS to facilitate enforcement of closed areas. Vessels using jig gear are exempt from this requirement.

In addition to the Steller sea lion area closures, bottom trawling has been prohibited in State waters (0-3 nm) since 2000, with the exception of some areas in the South Alaska Peninsula management area, and in Cook Inlet since 2001. As a result of these closures, most trawl catch of Pacific cod is from Federal waters. In contrast, a large proportion of pot, hook-and-line, and jig catch is from the parallel and State waters fisheries. A summary of the GOA area closures is in Section 2.x.

The Council has requested a new Biological Opinion to evaluate the status quo impact of the groundfish fisheries on Steller sea lions. The Biological Opinion will incorporate new scientific information on the interactions between Steller sea lions and the fisheries, and is tentatively scheduled for Council review in August 2009. In sum, a suite of SSL mitigation measures are currently in place for the GOA Pacific cod fishery. The measures differ for trawl, pot, longline, and jig gear, and were designed to mitigate the potential impacts of the fishing activities of each gear group.

Bycatch reduction and prohibited species catch mortality

Bycatch of halibut, salmon, and crab in the Pacific cod target fisheries, and bycatch rates by the different gear and operation types, are summarized in Chapter 2. There is also a summary of observer coverage in the GOA Pacific cod fisheries during 2004-2007 (see Table 2-5). It is important to note that observer coverage in some sectors is quite low, due to the predominance of <60 ft LOA vessels in certain sectors. Chinook and 'other' salmon bycatch rates are generally low in the GOA Pacific cod target fisheries (see Table 2-11 and Table 2-12). During 2003 through 2008, Pacific cod target fisheries accounted for an average of 4% of Chinook bycatch and 1% of other salmon bycatch in the GOA. Most salmon bycatch in the Pacific cod target fisheries is taken with trawl gear. Tanner (*C. bairdi*) crab bycatch rates are relatively high in the GOA Pacific cod target fisheries. During 2003-2008, the Pacific cod pot fisheries accounted for an average of 44% of all Tanner crab bycatch in the GOA. Pot bycatch of Tanner crab was particularly high in 2007 and 2008 both in terms of the number of crab caught and the bycatch rate (see Table 2-13 and Table 2-14).

Halibut PSC, bycatch rates, and bycatch mortality rates are summarized in Tables 2-8, 2-9, and 2-10. Halibut bycatch and bycatch mortality rates are generally lower during the A season, when cod are aggregated and catch rates are high. Halibut PSC limits sometimes close the hook-and-line and trawl B seasons before the Pacific cod TAC is fully harvested.

Seabird bycatch and incidental take of marine mammals in the GOA Pacific cod target fisheries are also summarized in Chapter 2. Hook-and-line vessels account for the majority of seabird bycatch in the GOA, but bycatch rates have been reduced substantially since 2001 as a result of the widespread use of seabird

avoidance techniques such as paired streamer lines. Incidental take of Steller sea lions in the GOA fisheries is uncommon. One incidental take was observed in the GOA Pacific cod trawl fisheries during 2004-2007.

The problem statement notes that competition among sectors in the GOA Pacific cod fishery may contribute to higher rates of bycatch and groundfish discards. One of the purposes of the sector allocations is to stabilize the distribution of catch among sectors. The problem statement also notes that dividing the TACs among sectors may facilitate the development of management measures and fishing practices to address bycatch reduction and PSC mortality issues.

Other conservation or social objectives

The analysis currently includes extensive information on the potential impacts of GOA Pacific cod sector allocations on harvesters, processors, and communities. If the Council wishes to pursue allocations based on conservation or other social objectives, it should 1) identify those objectives, and 2) specify how the objectives will be weighted.

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 GOA, 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 3-39 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 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 fisheries. Increased participation in the parallel waters fisheries by vessels without LLPs or Pacific cod endorsements on LLPs could erode historic catch shares of long-term participants in the fisheries that contributed catch history to sector allocations. 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 GOA, 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% of the catch by hook-and-line catcher vessels in the Central GOA. Overall, vessels without LLP licenses harvest a small proportion of the retained catch of Pacific cod in the Central GOA (2%) and Western GOA (5%). The majority of this catch was by pot vessels. Hook-and-line vessels without LLPs harvested 11% of the Western GOA hook-and-line catch during 2002-2007, but hook-and-line catcher vessels typically catch less than 1% of the Western GOA 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% of the Western and Central GOA catch.

Table 3-39 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 GOA	2002-2007 average	63	106	15	45	5	211	1	*	362
Western GOA	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 GOA	2002-2007 average	2%	69%	3%	*	2%
Western GOA	2002-2007 average	11%	64%	9%	*	5%

Source: ADFG Fish Tickets and RAM groundfish license file, October 2008. *Withheld due to confidentiality.
Notes: Excludes State waters fisheries. Includes IFQ fisheries, because IFQ participants may retain groundfish without an LLP (and are required to retain Pacific cod up to the MRA).

Second, Pacific cod endorsements could restrict vessels to using a specific gear type in the directed Pacific cod fisheries, but may not prevent vessels that have 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 vessels 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 discards and PSC) on the actual mode of operation of the vessel.

Finally, it is important to note that the State of Alaska does not legally recognize Federal allocations between catcher vessels and catcher processors using the same gear type to harvest fish in the same management area. For example, the BSAI Pacific cod fishery is allocated by gear type and processing sector. The State recognizes allocations by gear type, but does not recognize the separate pot and hook-and-line CP and CV allocations.[8] If the directed fishery for one of the pot or hook-and-line sectors is open in Federal waters, any vessel using that gear type and meeting any applicable vessel length restrictions is eligible to participate in the parallel waters fishery. In 2008, pot catcher processors continued to fish in the Aleutian Islands parallel waters fishery even after the Amendment 85 pot CP allocation had been fully harvested, because the adjacent Federal waters fishery was still open to pot catcher vessels. In the same way, catcher vessels may participate in the parallel waters fishery even if it is only open to catcher processors in adjacent Federal waters.

The Council is currently considering options to address these parallel waters issues in the BSAI Pacific cod fishery. The Council and NOAA fisheries have broad authority over vessels that hold Federal permits and licenses. This authority may extend into the parallel waters fisheries. Vessels that hold Federal fisheries permits or LLP licenses may be subject to Federal groundfish regulations, even while fishing in State waters adjacent to the GOA or BSAI. For example, vessels that hold FFPs are subject to Federal recordkeeping and reporting, observer, and VMS requirements while fishing in Federal, parallel, or State waters fisheries. In 2006, sideboards were implemented that limit harvests of GOA Pacific cod by vessels that received initial allocations of *C. opilio* crab quota. The sideboard regulations were written such that vessels cannot circumvent sideboard closures by fishing in parallel waters fisheries. Vessels that hold *either* an FFP or an LLP are subject to the sideboards while participating in any groundfish fishery in the parallel waters fisheries in the GOA (680.22). Options that the Council is considering for the BSAI Pacific cod fishery include extending the LLP and Pacific cod endorsement requirement to parallel waters for CPs only; and requiring CPs to surrender Federal permits and licenses if they choose to fish in the BSAI Pacific cod parallel waters fishery. The Council is scheduled to review the draft analysis of the proposed action in February 2009.

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

[8] State v. Grunert, 139 P.2d 1226 (Alaska 2006); Grunert v. State, 109 P.2d 924 (Alaska 2005). In the 2005 case, the Alaska Supreme Court ruled that the Board of Fisheries could not allocate within a single fishery. 109 P.2d at 931-32. In the 2006 case, the Court held that 'fisheries' could only be distinguished by differences in the gear that is actually used to harvest the fish. 139 P.2d at 1235-39.

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 GOA 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 GOA area endorsements; 49 of these licenses have Central GOA endorsements and 31 licenses have Western GOA endorsements. A total of 19 Western GOA licenses and 18 Central GOA licenses have at least one hook-and-line landing in the directed Pacific cod fisheries during 2000-2008 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 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 GOA 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.

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 GOA, trawl catcher vessels would receive a substantially larger allocation if 1995-2005 is selected as the qualifying period instead of 2000-2006 or 2002-2007. For pot catcher vessels in the Western GOA, the opposite is true. In the Central GOA, 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. An increase in the jig allocation would impose costs on the other sectors by proportionally reducing their Pacific cod allocations. Options include a provision for increasing the percentage of TAC allocated to jig vessels if the jig allocation is at least 90% harvested during a given year. During recent years, less than 1% of the Western and Central GOA TACs were harvested by jig vessels. Under the proposed options, the jig allocation could increase on a stairstep basis by 1% to 3% per year, starting at 1%, if at least 90% of the jig allocation is harvested in a given year. Under the proposed 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 GOA, 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 are provided with the opportunity to fish year round in both parallel and Federal waters, 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 GOA area endorsements that do not have recent landings in the Federal groundfish fisheries. Recent increases in the ex-vessel price of Pacific cod have the potential to attract latent effort to re-enter the fisheries, although the increase in price may be offset by increased fuel costs. The Council is currently considering extinguishing fixed gear LLP licenses that do not have recent groundfish landings in the GOA. 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 GOA by approximately 50%, and will reduce the number of trawl catcher processor licenses by approximately 25%.

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 GOA 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 GOA 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% to the inshore processing sector and 10% 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 GOA 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, 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 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% of the Western and Central GOA 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% 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 GOA. The GOA Pacific cod TACs are allocated to the inshore processing component (90%) and the offshore component (10%).

The TACs are also apportioned between the A season (60%) and B season (40%). When inshore/offshore and seasonal apportionments are taken into consideration, there are currently 8 distinct Pacific cod TACs in the Western and Central GOA. Halibut PSC is currently managed on a GOA-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 GOA. 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 GOA-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.

In-depth profiles of GOA 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

The majority of the catcher processor fleet is based in the Seattle area, but a number of vessels are home ported in Alaska communities. A total of 69 CPs fished for Pacific cod in the GOA during 2000 through 2008. Of these vessels, 48 are home ported in the greater Seattle area and 19 are home ported in Alaska Table 3-40). In addition, CDQ groups own a percentage of several companies that own catcher processors that participate in the GOA Pacific cod fisheries. Each of the CDQ groups has made several equity acquisitions, and all six CDQ groups have acquired ownership interests in hook-and-line catcher processors that area used to harvest Pacific cod. In the BSAI, virtually all of the Pacific cod CDQ is fished by hook-and-line catcher processors, although several of the groups have ownership interest in other vessels that only fish for Pacific cod in the non-CDQ fisheries. Table 3-41 provides a summary of CDQ ownership interests in vessels that fish in both the GOA and BSAI Pacific cod fisheries. This information was provided to the Council for inclusion in the BSAI Amendment 85 analysis in 2006. The table may not include vessels that fish in the GOA but not in the BSAI, and ownership interests may have changed since 2006. If the Council would like updated information on CDQ ownership interests in vessels that participate in the GOA Pacific cod fisheries, staff could request that the CDQ groups provide this information. However, it is important to note that CDQ groups provide this information on a voluntary basis.

Table 3-40 Home ports for catcher processors that participated in the GOA Pacific cod fisheries. 2000-2008.

Home port	Hook-and-line	Pot	Trawl	Total
Adak	1			1
Dutch Harbor			4	4
Homer	1			1
Juneau	2		1	3
Kodiak	5	1	2	8
Petersburg	3			3
Seattle, WA	27	5	16	48
Sitka	1			1
Grand Total	40	6	23	69

Note: Some vessels may have participated in more that one gear group, but are shown under only one group in this table.
*Home port based on NMFS Alaska region vessel database

Most catcher processors offload processed fish in Alaska communities and pay a 3% fishery resource landing tax to the State. The fishery resource landing tax is levied on fishery resources processed outside 3 miles and first landed in Alaska, or any processed fishery resource subject to Section 210(f) of the AFA. The tax is based on the unprocessed value of the resource, which is determined by multiplying a statewide average price (determined by ADFG) by the unprocessed weight. The tax is primarily collected from floating processors which process fish outside State waters and bring their product into Alaska for transshipment.

Revenues from the fishery resource landing tax are allocated to municipalities within Alaska in a two stage process. First, revenues are allocated among the 19 Fisheries Management Areas (FMA) within Alaska based on the ratio of the management area's fishery resource landing tax production value to the value for all management areas combined. Second, payments to municipalities within each FMA are determined under one of two methods. If available funds are less than $4,000 multiplied by the number of municipalities in the FMA, then 50% of funds are divided equally among communities and 50% are distributed based on the population of each community. If available funds are more than $4,000 multiplied by the number of municipalities in the FMA, then municipalities apply for funds based on the cost of fisheries business impacts experienced by the community and other considerations. In 2006 and 2007, approximately $600,000 and $1.2 million in fishery resource landing tax revenues were distributed to Alaska communities. During these years, the majority of funds were distributed to Unalaska, Akutan, Atka, Adak, and Aleutians East Borough.

Industry representatives have indicated that offloads of GOA Pacific cod are primarily made in Dutch Harbor/Unalaska. Council staff does not have access to tax records or offload information for individual vessels or entities, and cannot estimate the amount of fishery resource landing tax paid by each of the CP sectors for GOA Pacific cod offloads. If it is assumed that the majority of Pacific cod product is offloaded in Alaska communities, the CP sectors would pay taxes to the State in proportion to the unprocessed value of their annual retained catch.

Table 3-41 CDQ group ownership interest in vessels that participate in the GOA and BSAI Pacific cod fisheries.

Vessel	Percent ownership	Company/Partner	Description
APICDA			
Bering Prowler	20%	Prowler Fisheries	Longline CP; 124' LOA
Prowler	20%	Prowler Fisheries	Longline CP; 124' LOA
Ocean Prowler	20%	Prowler Fisheries	Longline CP; 155' LOA
BBEDC			
Bristol Leader LLC	50%	Alaskan Leader	Longline CP; 167' LOA
Bering Leader LLC	50%	Alaskan Leader	Longline CP; under construction
CBSFA			
Deep Pacific	2.89%	Pacific Longline Co.	Longline CP; 130' LOA
Lilli Ann	2.89%	Pacific Longline Co.	Longline CP; 141' LOA
North Cape	2.89%	Pacific Longline Co.	Longline CP; 124' LOA
CVRF			
Deep Pacific	35%	Pacific Longline Co.	Longline CP; 130' LOA
Lilli Ann	35%	Pacific Longline Co.	Longline CP; 141' LOA
North Cape	35%	Pacific Longline Co.	Longline CP; 124' LOA
Ocean Prowler	20%	Prowler Fisheries	Longline CP; 155' LOA
Prowler	20%	Prowler Fisheries	Longline CP; 124' LOA
Bering Prowler	20%	Prowler Fisheries	Longline CP; 124' LOA
Silver Spray	50%	Silver Spray Seafoods	Pot CP; 124' LOA
NSEDC			
Norton Sound	51.78%	Glacier Fish Co.	Longline CP; 136' LOA
Glacier Bay	50%	Glacier Fish Co.	Longline CP; 178' LOA
YDFDA			
Baranof	41%	Romanzof Fishing Co.	Combo (pot/longline) CP; 180' LOA
Courageous	100%	N/A	Combo (pot/longline) CP; 180' LOA

Source: CDQ groups, as of October 2005. Note that this list only includes vessels that participated in both the BSAI and GOA Pacific cod fisheries during at least one year, and may not include vessels that have only fished in the GOA.

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 GOA 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 3-42 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.

Table 3-42 Number of catcher vessels that participated in the Western and Central GOA Pacific cod fisheries and percent of retained Pacific cod catch within each sector, reported by vessel owner residency

Western GOA

		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 GOA

		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

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% of Central GOA catch and 61% of Western GOA catch was harvested by vessels owned by Alaska residents. In both management areas, most (88% to 99%) 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 vessel owners from outside of Alaska in the Central GOA (66%) and Western GOA (44%) during 2001-2006. In the Western GOA, 61% 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, 2000-2006, or 2002-2007. Under any of these options, 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 or 2002-2007, 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 GOA.

The distribution of Pacific cod catch among Alaska communities is also reported in Table 3-42. In the Western GOA, a total of 48% of trawl catch and 58% 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%) and Kodiak (24%). Overall, a substantial proportion of Western GOA catch was harvested by residents of Sand Point (21%), King Cove (17%), and Kodiak (11%), and this was mostly comprised of trawl and pot catch. Consequently, the different potential allocations of the Western GOA TAC 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% of the overall Central GOA 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% of the <60 ft LOA hook-and-line catch, and 11% of the overall Central GOA catch. If the Council chooses to base allocations on recent catch history (2000-2006), a larger proportion of the Central GOA TACs will be distributed to the pot and hook-and-line sectors. These allocations may distribute more catch to residents of Alaska communities, who in recent years have harvested the majority of the Central GOA 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 3-43). In the Western GOA, and to a lesser extent in the Central GOA, 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% of catcher vessel harvests from the Western GOA and 3% of harvests from the Central GOA were delivered to floating processors, and during 2001-2006 deliveries to floating processors declined to 6% and less than 1% 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 GOA 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% of Western GOA catch was delivered to Dutch Harbor during 2001-2006, but this catch is only a small fraction of the seafood processed there.

Most Central GOA 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 GOA 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% of Central GOA catch was delivered to Kodiak, 7% was delivered to Homer, and 5% was delivered to Seward. During 2001-2006, 96% of Central GOA catch was delivered to Kodiak, and only 3% 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 GOA is delivered to Kodiak, allocating the Central GOA 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% to 31% of revenues for Kodiak processors (EDAW, 2005). In 2006, GOA Pacific cod comprised 16% of the revenues and pounds processed by Kodiak processors. During recent years, 8 to 10 shorebased plants in Kodiak have processed Pacific cod.

Table 3-43 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 GOA	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 GOA	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. 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 accruing to vessel owners and permit holders that reside 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 GOA that are eligible for the Community Quota Entity (CQE) program (see Table 3-44). 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.

Table 3-44 Communities eligible for the Community Quota Entity (CQE) program in Southwest and Southcentral Alaska

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

[1]2000 U.S. Census estimates.

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 3-45 and Table 3-46. Also reported is the percentage of annual gross revenues from all Alaska fisheries comprised by the Western and Central GOA 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% 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% of gross revenues for vessel owners from Sand Point. The majority of revenues to accruing 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 show similar patterns. Two CQE communities that did not have vessel owners participating in the Western or Central GOA Pacific cod fisheries during 2001-2006 each had 1 permit holder who participated in the fisheries (Karluk and Ouzinkie). Revenues from the Western and Central GOA Pacific cod fisheries to permit holders from Old Harbor were nearly 9% of total revenues to

those permit holders 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 3-45 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.

			1995-2000				2001-2006			
Community	CQE	Fishery	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	*	*	1.3%
Anchorage		WG Fixed	11	315,567	632	0.3%	10	745,721	1,319	0.8%
Anchorage		WG Trawl	2	*	*	0.3%	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	*	*	*
Old Harbor	Y	CG Fixed	15	1,529,369	2,690	14.2%	8	752,900	1,045	9.1%
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 3-46 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.

			1995-2000				2001-2006			
	CQE	Fishery	Num. permits	Total revenues	Catch (mt)	Percent of total revenues	Num. permits	Total revenues	Catch (mt)	Percent of total revenues
Anchor Point		CG Fixed	32	1,765,585	2,868	9.3%	12	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	2	*	*	*	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%	8	1,464,760	1,944	24.1%
Dutch Harbor		CG Fixed	1	*	*	*	3	*	*	*
Dutch Harbor		WG Fixed	6	14,532	25	0.1%	9	157,331	282	1.1%
False Pass		WG Fixed	1	*	*	*	6	1,003,001	1,794	14.5%
Homer		CG Fixed	142	10,642,044	17,046	5.0%	87	11,893,987	16,402	5.3%
Homer		CG Trawl	2	*	*	*	2	*	*	*
Homer		WG Fixed	5	51,838	78	0.0%	15	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	9	359,168	1,048	0.8%	0	0	0	0.0%
King Cove	Y	WG Fixed	37	2,400,817	5,427	5.1%	28	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	226	31,863,260	54,735	6.0%	171	22,666,177	31,071	4.3%
Kodiak		CG Trawl	77	22,500,055	46,700	4.2%	52	19,652,860	33,153	3.7%
Kodiak		WG Fixed	18	443,516	706	0.1%	36	2,722,832	4,957	0.5%
Kodiak		WG Trawl	11	841,940	2,258	0.2%	11	94,668	174	0.0%
Larsen Bay	Y	CG Fixed	8	175,944	289	4.4%	2	*	*	*
Nikolaevsk		CG Fixed	12	451,691	722	8.1%	7	708,638	1,000	11.2%
Nikolaevsk		WG Fixed	1	*	*	*	1	*	*	*
Old Harbor	Y	CG Fixed	16	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	2	*	*	*	1	*	*	*
Petersburg		WG Fixed	0	0	0	0.0%	1	*	*	*
Petersburg		WG Trawl	0	0	0	0.0%	1	*	*	*
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	35	3,392,085	9,745	3.4%	11	46,494	72	0.1%
Sand Point	Y	WG Fixed	47	1,353,621	2,647	1.4%	58	4,358,252	7,800	5.8%
Sand Point	Y	WG Trawl	38	13,582,980	32,726	13.7%	25	5,026,755	8,908	6.7%
Seldovia	Y	CG Fixed	13	3,375,317	5,731	15.4%	4	1,094,642	1,530	6.9%
Seward		CG Fixed	20	989,446	1,659	2.9%	9	266,946	331	0.8%
Seward		WG Fixed	1	*	*	*	0	0	0	0.0%
Sitka		CG Fixed	4	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	9	75,737	103	0.4%	6	348,687	433	1.6%
Unalaska		WG Trawl	1	*	*	*	0	0	0	0.0%
Wasilla		CG Fixed	7	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%	1	*	*	*
Willow		CG Fixed	4	651,469	849	21.7%	6	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 either limit or 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 impact the number of vessels or licenses actively participating in either the trawl or fixed gear Pacific cod fisheries in the GOA, because licenses with recent participation in the fisheries will not be extinguished. 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, possibly beginning in 2000 or 2002. 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 and fixed gear allocations would not be eligible to fish those allocations if they did not have any groundfish landings during recent years. During 1995-1999, the number of trawl and fixed gear vessels participating in the GOA Pacific cod fisheries was substantially higher than during 2000-2006. In addition, since 2000 some vessels are limited to Pacific cod sideboards in the GOA. In 2000, sideboards were implemented that limit 95 non-exempt AFA vessels to their retained catch history from 1995-1997. In 2006, another set of sideboards were implemented that limit 82 crab-qualified vessels and 37 groundfish LLP licenses to their retained catch history of Pacific cod from 1996-2000. Finally, in 2008 Amendment 80 sideboards were implemented to limit vessels in that program to their historic catch of Pacific cod from 1998-2004 in the GOA. The overall effect of these actions is to limit the number of participating vessels and the amount of catch by specific groups of vessels in the GOA Pacific cod fisheries.

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, 2000-2006, or 2002-2007. 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 Council recently took final action on an amendment to exempt several vessels from the GOA Pacific cod sideboards for BSAI crab vessels. The Council is also considering an amendment to lift the sideboard after a specified date during the B season. 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 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, all else being equal.

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 GOA Pacific cod fisheries desire 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 GOA. 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 GOA, 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, as such, 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 GOA, 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 GOA 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 retained catch history over a series of years during 1995-2005 or 2000-2006. 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 GOA 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 (e.g., vessels less than, and vessels 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 GOA Pacific cod TACs are established on an annual basis during the harvest specifications process. NOAA fisheries conducts annual GOA 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.

The RIR presents information on the impact of the proposed action on vessel owners and permit holders (skippers) who are residents of Alaska and other states, and effects on the distribution of catch to shorebased processors. This action does not appear to have a disproportionate effect on residents of a particular State or on specific fishing communities. If sector allocations are made based on catch history, the proposed action may provide stability to the harvesting sectors and to the communities in which participants in the fisheries reside.

Major ports in Alaska that process catch from the Western and Central GOA 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 bycatch rates in the GOA Pacific cod fishery by sector. Because sector allocations will reflect historic levels of catch by each sector, bycatch 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 GOA, 1995-2008.

	HAL CP			HAL CV			Jig CV			Pot CP			Pot CV			Trawl CP			Trawl CV		
	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total
1995	18	5,632	26.2%	20	35	0.2%	13	48	0.2%	3	104	0.5%	58	2,352	11.0%	11	587	2.7%	104	12,704	59.2%
1996	17	4,369	20.8%	15	193	0.9%	14	45	0.2%	1	*	*	38	1,689	8.0%	19	787	3.7%	62	13,921	66.2%
1997	13	3,837	16.0%	21	240	1.0%	6	5	0.0%	0	0	0.0%	20	1,041	4.3%	17	295	1.2%	90	18,554	77.4%
1998	7	3,168	15.0%	16	22	0.1%	4	1	0.0%	1	*	*	53	2,550	12.1%	15	276	1.3%	98	15,007	71.3%
1999	20	5,116	21.8%	27	70	0.3%	0	0	0.0%	6	1,424	6.1%	34	1,591	6.8%	13	623	2.7%	78	14,673	62.4%
2000	14	4,706	21.5%	29	54	0.2%	4	5	0.0%	2	*	*	81	5,107	23.3%	13	751	3.4%	57	11,113	50.7%
2001	16	3,969	27.2%	30	103	0.7%	17	157	1.1%	3	1,038	7.1%	46	2,538	17.4%	13	670	4.6%	56	6,135	42.0%
2002	16	6,411	36.9%	30	38	0.2%	31	193	1.1%	2	*	*	48	4,805	27.7%	13	327	1.9%	48	5,073	29.2%
2003	19	4,242	27.0%	25	47	0.3%	11	46	0.3%	1	*	*	60	9,549	60.8%	11	340	2.2%	40	1,367	8.7%
2004	12	2,893	18.9%	32	28	0.2%	23	183	1.2%	1	*	*	81	9,718	63.4%	13	539	3.5%	34	1,717	11.2%
2005	10	724	5.9%	46	281	2.3%	9	46	0.4%	1	*	*	59	6,402	52.2%	13	217	1.8%	37	4,441	36.2%
2006	14	2,691	19.4%	37	106	0.8%	2	*	*	0	0	0.0%	51	5,918	42.7%	11	218	1.6%	37	4,917	35.5%
2007	12	3,069	23.2%	58	390	2.9%	4	2	0.0%	1	*	*	48	4,646	35.1%	12	529	4.0%	39	4,281	32.4%
2008	14	3,071	21.5%	89	479	3.3%	8	44	0.3%	1	*	*	59	5,651	39.5%	11	378	2.6%	29	4,600	32.1%

Table A-2. Retained catch of Pacific cod (mt) from the directed Pacific cod fishery in the Western GOA, 1995-2008.

	HAL CP			HAL CV			Jig CV			Pot CP			Pot CV			Trawl CP			Trawl CV		
	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total
1995	16	5,133	24.6%	4	21	0.1%	10	43	0.2%	2	*	*	58	2,352	11.3%	8	559	2.7%	86	12,695	60.7%
1996	15	4,365	20.9%	10	187	0.9%	7	40	0.2%	0	0	0.0%	38	1,689	8.1%	15	764	3.7%	54	13,823	66.2%
1997	13	3,821	16.0%	3	225	0.9%	2	*	*	0	0	0.0%	20	1,041	4.4%	17	274	1.1%	78	18,501	77.5%
1998	4	3,131	15.3%	1	*	*	2	*	*	0	0	0.0%	53	2,550	12.4%	4	107	0.5%	66	14,719	71.7%
1999	19	5,085	21.9%	2	*	*	0	0	0.0%	6	1,424	6.1%	34	1,591	6.8%	5	481	2.1%	65	14,636	62.9%
2000	12	4,323	20.6%	3	29	0.1%	2	*	*	2	*	*	81	5,107	24.3%	4	384	1.8%	51	10,946	52.2%
2001	13	3,919	27.9%	7	91	0.6%	16	157	1.1%	3	1,038	7.4%	42	2,196	15.6%	12	597	4.2%	55	6,071	43.2%
2002	11	6,333	37.3%	13	8	0.0%	26	187	1.1%	2	*	*	48	4,755	28.0%	6	135	0.8%	44	5,038	29.7%
2003	14	4,139	27.2%	8	26	0.2%	11	46	0.3%	1	*	*	60	9,543	62.7%	3	130	0.9%	35	1,235	8.1%
2004	8	2,859	19.2%	14	9	0.1%	22	183	1.2%	1	*	*	81	9,715	65.3%	3	192	1.3%	31	1,683	11.3%
2005	5	693	5.8%	27	254	2.1%	8	46	0.4%	1	*	*	58	6,380	53.6%	2	*	*	35	4,363	36.7%
2006	12	2,651	19.5%	20	87	0.6%	1	*	*	0	0	0.0%	51	5,918	43.5%	3	103	0.8%	36	4,852	35.6%
2007	11	3,028	23.8%	27	357	2.8%	4	2	0.0%	1	*	*	48	4,646	36.5%	5	120	0.9%	37	4,262	33.5%
2008	12	3,039	21.9%	33	380	2.7%	8	44	0.3%	1	*	*	59	5,628	40.5%	4	147	1.1%	28	4,552	32.8%

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 GOA, 1995-2008.

	HAL CP			HAL CV			Jig CV			Pot CP			Pot CV			Trawl CP			Trawl CV		
	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total
1995	8	134	0.3%	380	4,546	10.3%	29	51	0.1%	0	0	0.0%	122	13,760	31.2%	24	2,072	4.7%	114	23,548	53.4%
1996	4	710	1.7%	173	4,491	10.6%	17	34	0.1%	0	0	0.0%	87	10,539	24.8%	23	2,714	6.4%	112	23,975	56.5%
1997	2	*	*	308	6,401	15.4%	19	21	0.1%	0	0	0.0%	61	8,420	20.3%	21	770	1.9%	128	25,895	62.3%
1998	7	175	0.4%	270	5,815	14.2%	18	50	0.1%	0	0	0.0%	61	9,208	22.5%	17	4,447	10.9%	137	21,214	51.9%
1999	9	313	0.7%	313	6,174	14.3%	10	24	0.1%	11	2,938	6.8%	84	12,182	28.3%	15	1,595	3.7%	100	19,881	46.1%
2000	8	209	0.7%	340	6,529	20.4%	17	38	0.1%	4	910	2.8%	114	11,967	37.4%	10	1,387	4.3%	59	10,971	34.3%
2001	2	*	*	274	5,684	20.9%	15	11	0.0%	3	588	2.2%	62	3,505	12.9%	11	2,241	8.2%	73	15,169	55.8%
2002	7	1,638	7.0%	210	6,867	29.5%	8	3	0.0%	3	131	0.6%	45	3,228	13.9%	9	835	3.6%	67	10,568	45.4%
2003	8	1,462	6.1%	187	3,586	15.0%	12	16	0.1%	1	*	*	35	3,201	13.4%	12	1,219	5.1%	55	14,405	60.3%
2004	5	1,453	5.5%	192	5,423	20.6%	36	118	0.4%	0	0	0.0%	35	4,916	18.7%	10	770	2.9%	55	13,669	51.9%
2005	7	267	1.2%	192	4,271	19.3%	30	137	0.6%	0	0	0.0%	47	8,169	36.9%	11	719	3.2%	50	8,591	38.8%
2006	9	897	4.0%	208	6,183	27.6%	26	96	0.4%	0	0	0.0%	59	8,420	37.6%	11	877	3.9%	47	5,922	26.4%
2007	7	1,376	5.5%	238	6,341	25.2%	18	36	0.1%	1	*	*	63	8,286	32.9%	7	590	2.3%	39	8,220	32.6%
2008	13	1,755	7.0%	316	6,115	24.3%	14	27	0.1%	0	0	0.0%	58	5,216	20.7%	9	631	2.5%	44	11,465	45.5%

Source: ADFG Fish Tickets (CVs) and NMFS Blend (1995-2002) and Catch Accounting (2003-2008) databases.

Table A-4. Retained catch of Pacific cod (mt) from the directed Pacific cod fishery in the Central GOA, 1995-2008.

	HAL CP			HAL CV			Jig CV			Pot CP			Pot CV			Trawl CP			Trawl CV		
	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total
1995	2	*	*	120	4,344	10.8%	15	42	0.1%	0	0	0.0%	120	13,067	32.5%	10	1,507	3.7%	101	21,175	52.6%
1996	4	710	1.7%	140	4,464	10.7%	13	34	0.1%	0	0	0.0%	87	10,539	25.3%	12	2,354	5.6%	108	23,595	56.6%
1997	1	*	*	173	6,258	15.7%	9	18	0.0%	0	0	0.0%	61	8,398	21.0%	6	537	1.3%	120	24,652	61.7%
1998	2	*	*	140	5,629	15.0%	16	50	0.1%	0	0	0.0%	60	9,207	24.5%	17	3,041	8.1%	123	19,531	51.9%
1999	5	308	0.7%	186	5,973	14.5%	10	24	0.1%	10	2,462	6.0%	84	12,182	29.6%	14	1,379	3.3%	92	18,884	45.8%
2000	5	208	0.7%	148	6,372	21.9%	16	38	0.1%	4	910	3.1%	114	11,967	41.2%	9	1,096	3.8%	53	8,452	29.1%
2001	1	*	*	122	5,550	22.8%	14	11	0.0%	3	588	2.4%	62	3,497	14.3%	9	1,999	8.2%	70	12,743	52.2%
2002	4	1,622	8.2%	100	6,751	34.0%	7	3	0.0%	3	131	0.7%	45	3,228	16.2%	3	212	1.1%	52	7,920	39.9%
2003	4	1,412	6.9%	74	3,365	16.5%	7	15	0.1%	0	0	0.0%	35	3,201	15.7%	8	644	3.1%	52	11,803	57.7%
2004	3	1,451	6.1%	92	5,272	22.3%	30	114	0.5%	0	0	0.0%	35	4,916	20.8%	5	502	2.1%	49	11,345	48.1%
2005	2	*	*	107	4,209	21.2%	26	134	0.7%	0	0	0.0%	47	8,169	41.2%	4	308	1.6%	44	6,746	34.1%
2006	6	889	4.4%	131	6,093	30.1%	24	93	0.5%	0	0	0.0%	59	8,420	41.5%	7	302	1.5%	39	4,471	22.1%
2007	5	1,364	5.9%	151	6,198	26.8%	18	36	0.2%	1	*	*	63	8,286	35.8%	3	342	1.5%	36	6,592	28.5%
2008	7	1,741	7.8%	162	5,857	26.3%	12	25	0.1%	0	0	0.0%	58	5,216	23.4%	4	182	0.8%	42	9,261	41.6%

Source: ADFG Fish Tickets (CVs) and NMFS Blend (1995-2002) and Catch Accounting (2003-2008) databases.

Table A-5. Retained catch of Pacific cod (mt) from the Western GOA during the A season (Jan 1- June 10), 1995-2007.

	HAL CP			HAL CV			Jig CV			Pot CP			Pot CV			Trawl CP			Trawl CV		
	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total
1995	16	5,622	26.2%	5	21	0.1%	12	*	*	2	*	*	58	2,352	11.0%	8	576	2.7%	103	12,700	59.2%
1996	16	*	*	14	*	*	9	43	0.2%	1	*	*	38	1,689	8.0%	16	779	3.7%	60	13,918	66.2%
1997	12	3,821	15.9%	12	235	1.0%	4	*	*	0	0	0.0%	20	1,041	4.3%	10	246	1.0%	85	18,539	77.3%
1998	6	3,157	15.0%	7	13	0.1%	0	0	0.0%	1	*	*	32	1,783	8.5%	9	152	0.7%	86	14,931	70.9%
1999	20	5,111	21.8%	15	60	0.3%	0	0	0.0%	6	*	*	34	1,591	6.8%	7	517	2.2%	70	14,663	62.4%
2000	14	*	*	13	38	0.2%	2	*	*	2	*	*	81	5,107	23.3%	8	600	2.7%	53	10,961	50.0%
2001	11	3,953	27.1%	15	94	0.6%	1	*	*	3	*	*	38	1,745	11.9%	9	292	2.0%	52	5,754	39.4%
2002	14	4,543	26.2%	10	23	0.1%	3	4	0.0%	0	0	0.0%	42	3,201	18.4%	7	166	1.0%	38	4,937	28.4%
2003	18	3,664	23.4%	11	34	0.2%	0	0	0.0%	1	*	*	42	6,704	42.7%	7	127	0.8%	36	1,315	8.4%
2004	11	2,034	13.3%	8	11	0.1%	17	119	0.8%	1	*	*	68	6,725	43.9%	7	241	1.6%	27	1,670	10.9%
2005	8	336	2.7%	19	197	1.6%	6	43	0.4%	1	*	*	56	5,052	41.2%	6	156	1.3%	31	4,340	35.4%
2006	8	1,507	10.9%	11	57	0.4%	1	*	*	0	0	0.0%	49	5,548	40.0%	4	151	1.1%	35	4,834	34.9%
2007	9	2,476	18.7%	27	333	2.5%	1	*	*	1	*	*	44	3,604	27.2%	7	385	2.9%	31	4,247	32.1%

Table A-6. Retained catch of Pacific cod (mt) from the Western GOA during the B season (June 10- Dec 31), 1995-2007.

	HAL CP			HAL CV			Jig CV			Pot CP			Pot CV			Trawl CP			Trawl CV		
	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total
1995	4	10	0.0%	15	13	0.1%	2	*	*	1	*	*	0	0	0.0%	3	11	0.1%	11	4	0.0%
1996	1	*	*	1	*	*	5	2	0.0%	0	0	0.0%	0	0	0.0%	4	8	0.0%	5	3	0.0%
1997	4	16	0.1%	11	5	0.0%	2	*	*	0	0	0.0%	0	0	0.0%	8	49	0.2%	28	14	0.1%
1998	4	11	0.1%	13	8	0.0%	4	1	0.0%	0	0	0.0%	26	767	3.6%	8	124	0.6%	42	76	0.4%
1999	3	5	0.0%	14	10	0.0%	0	0	0.0%	2	*	*	0	0	0.0%	9	106	0.5%	30	10	0.0%
2000	2	*	*	16	16	0.1%	2	*	*	0	0	0.0%	0	0	0.0%	9	150	0.7%	18	152	0.7%
2001	6	16	0.1%	19	9	0.1%	17	*	*	1	*	*	14	794	5.4%	9	378	2.6%	28	381	2.6%
2002	8	1,868	10.8%	25	15	0.1%	29	189	1.1%	2	*	*	17	1,604	9.2%	11	162	0.9%	33	136	0.8%
2003	5	578	3.7%	16	12	0.1%	11	46	0.3%	1	*	*	39	2,845	18.1%	7	213	1.4%	21	52	0.3%
2004	5	859	5.6%	27	17	0.1%	7	65	0.4%	1	*	*	31	2,993	19.5%	12	298	1.9%	22	47	0.3%
2005	5	388	3.2%	34	84	0.7%	3	3	0.0%	0	0	0.0%	17	1,349	11.0%	9	61	0.5%	27	101	0.8%
2006	11	1,183	8.5%	32	48	0.3%	1	*	*	0	0	0.0%	9	369	2.7%	10	67	0.5%	23	82	0.6%
2007	6	593	4.5%	45	57	0.4%	3	*	*	0	0	0.0%	14	1,042	7.9%	10	144	1.1%	20	34	0.3%

Table A-7. Retained catch of Pacific cod (mt) from the Central GOA during the A season (Jan 1- June 10), 1995-2007.

	HAL CP			HAL CV			Jig CV			Pot CP			Pot CV			Trawl CP			Trawl CV		
	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total
1995	5	126	0.3%	208	4,395	10.0%	16	42	0.1%	0	0	0.0%	120	13,101	29.7%	13	1,632	3.7%	107	21,552	48.9%
1996	4	710	1.7%	167	4,489	10.6%	17	34	0.1%	0	0	0.0%	87	10,539	24.8%	19	2,673	6.3%	112	*	*
1997	1	*	*	210	6,134	14.8%	13	20	0.0%	0	0	0.0%	60	8,306	20.0%	8	224	0.5%	130	20,852	50.2%
1998	1	*	*	185	5,691	13.9%	17	*	*	0	0	0.0%	59	9,202	22.5%	12	1,294	3.2%	144	18,367	44.9%
1999	5	303	0.7%	222	6,062	14.1%	7	21	0.0%	1	*	*	64	11,053	25.6%	9	453	1.1%	97	14,682	34.1%
2000	6	*	*	248	6,454	20.2%	16	*	*	4	*	*	114	11,967	37.4%	7	948	3.0%	55	9,225	28.8%
2001	1	*	*	204	5,554	20.4%	14	*	*	3	588	2.2%	55	3,139	11.5%	7	1,699	6.2%	73	6,707	24.7%
2002	6	*	*	161	5,732	24.6%	8	3	0.0%	2	*	*	38	2,667	11.5%	6	427	1.8%	58	8,623	37.1%
2003	8	*	*	145	3,322	13.9%	11	*	*	1	*	*	35	*	*	7	442	1.9%	51	8,171	34.2%
2004	5	1,453	5.5%	132	4,273	16.2%	29	66	0.3%	0	0	0.0%	31	3,739	14.2%	5	98	0.4%	45	6,464	24.5%
2005	6	*	*	134	2,853	12.9%	24	96	0.4%	0	0	0.0%	38	4,437	20.0%	6	132	0.6%	45	4,707	21.2%
2006	3	7	0.0%	117	4,374	19.5%	24	82	0.4%	0	0	0.0%	47	6,467	28.9%	3	155	0.7%	45	4,198	18.7%
2007	2	*	*	150	3,896	15.5%	11	18	0.1%	1	*	*	58	5,693	22.6%	3	214	0.8%	39	4,948	19.6%

Table A-8. Retained catch of Pacific cod (mt) from the Central GOA during the B season (June 10- Dec 31), 1995-2007.

	HAL CP			HAL CV			Jig CV			Pot CP			Pot CV			Trawl CP			Trawl CV		
	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total
1995	4	7	0.0%	221	151	0.3%	14	9	0.0%	0	0	0.0%	18	659	1.5%	21	441	1.0%	46	1,996	4.5%
1996	0	0	0.0%	8	3	0.0%	0	0	0.0%	0	0	0.0%	0	0	0.0%	6	41	0.1%	2	*	*
1997	1	*	*	174	266	0.6%	6	1	0.0%	0	0	0.0%	8	114	0.3%	18	546	1.3%	72	5,044	12.1%
1998	6	*	*	148	124	0.3%	1	*	*	0	0	0.0%	3	6	0.0%	12	3,153	7.7%	80	2,847	7.0%
1999	5	10	0.0%	176	112	0.3%	4	3	0.0%	11	*	*	27	1,129	2.6%	14	1,142	2.6%	74	5,199	12.1%
2000	2	*	*	173	75	0.2%	1	*	*	2	*	*	0	0	0.0%	10	439	1.4%	40	1,747	5.5%
2001	1	*	*	141	130	0.5%	1	*	*	0	0	0.0%	14	366	1.3%	9	542	2.0%	53	8,462	31.1%
2002	2	*	*	115	1,135	4.9%	0	0	0.0%	2	*	*	10	561	2.4%	7	408	1.8%	50	1,946	8.4%
2003	1	*	*	90	264	1.1%	1	*	*	0	0	0.0%	2	*	*	10	777	3.3%	43	6,234	26.1%
2004	0	0	0.0%	114	1,150	4.4%	13	51	0.2%	0	0	0.0%	15	1,177	4.5%	9	672	2.5%	50	7,205	27.3%
2005	2	*	*	113	1,418	6.4%	12	40	0.2%	0	0	0.0%	27	3,732	16.8%	11	588	2.7%	41	3,885	17.5%
2006	6	889	4.0%	158	1,808	8.1%	7	14	0.1%	0	0	0.0%	29	1,953	8.7%	11	722	3.2%	33	1,724	7.7%
2007	5	*	*	194	2,445	9.7%	8	19	0.1%	1	*	*	25	2,594	10.3%	7	376	1.5%	30	3,271	13.0%

Table A-9. Retained catch of Pacific cod (mt) from the Western GOA from 1995-2007 reported by vessel length.

	HAL CP <125			HAL CP >=125			TRW CP <125			TRW CP >=125			TRW CV <60			TRW CV >=60		
Year	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total
1995	12	4,974	23.2%	6	658	3.1%	3	40	0.2%	8	547	2.5%	41	5,842	27.2%	63	6,862	32.0%
1996	13	3,842	18.3%	4	526	2.5%	4	55	0.3%	15	732	3.5%	40	10,932	52.0%	22	2,990	14.2%
1997	9	3,642	15.2%	4	195	0.8%	4	156	0.7%	13	138	0.6%	41	13,045	54.4%	49	5,509	23.0%
1998	5	*	*	2	*	*	4	190	0.9%	11	86	0.4%	41	11,094	52.7%	57	3,913	18.6%
1999	10	4,021	17.1%	10	1,095	4.7%	4	558	2.4%	9	66	0.3%	42	10,549	44.9%	36	4,124	17.6%
2000	10	4,538	20.7%	4	168	0.8%	3	451	2.1%	10	300	1.4%	39	8,360	38.1%	18	2,753	12.6%
2001	11	3,904	26.7%	5	65	0.4%	3	268	1.8%	10	403	2.8%	37	4,773	32.7%	19	1,362	9.3%
2002	9	5,472	31.5%	7	939	5.4%	2	*	*	11	*	*	30	3,268	18.8%	18	1,806	10.4%
2003	7	2,671	17.0%	12	1,572	10.0%	4	262	1.7%	7	77	0.5%	24	850	5.4%	16	518	3.3%
2004	4	2,160	14.1%	8	733	4.8%	3	260	1.7%	10	279	1.8%	20	1,526	10.0%	14	191	1.2%
2005	4	484	3.9%	6	241	2.0%	3	163	1.3%	10	54	0.4%	24	3,688	30.1%	13	753	6.1%
2006	8	1,966	14.2%	6	725	5.2%	3	134	1.0%	8	84	0.6%	25	4,255	30.7%	12	662	4.8%
2007	8	2,706	20.5%	4	363	2.7%	3	365	2.8%	9	163	1.2%	25	3,928	29.7%	14	353	2.7%

Source: ADFG Fish Tickets (CVs) and NMFS Blend/ Catch Accounting. Vessel lengths based on LOA in NMFS AKR vessel database; previous version of this table based on CFEC vessel lengths.

Table A-10. Retained catch of Pacific cod (mt) from the directed Pacific cod fishery in the Western GOA from 1995-2007 reported by vessel length.

	HAL CP <125			HAL CP >=125			TRW CP <125			TRW CP >=125			TRW CV <60			TRW CV >=60		
Year	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total
1995	12	4,970	23.8%	4	163	0.8%	3	40	0.2%	5	519	2.5%	41	5,842	27.9%	45	6,853	32.8%
1996	12	3,839	18.4%	3	526	2.5%	3	39	0.2%	12	724	3.5%	40	10,876	52.1%	14	2,947	14.1%
1997	9	3,634	15.2%	4	187	0.8%	4	137	0.6%	13	137	0.6%	41	13,030	54.6%	37	5,472	22.9%
1998	4	3,131	15.3%	0	0	0.0%	4	107	0.5%	0	0	0.0%	41	11,083	54.0%	25	3,636	17.7%
1999	9	3,992	17.2%	10	1,092	4.7%	4	*	*	1	*	*	42	10,532	45.3%	23	4,103	17.6%
2000	10	*	*	2	*	*	3	*	*	1	*	*	39	8,280	39.5%	12	2,665	12.7%
2001	10	3,877	27.6%	3	43	0.3%	2	*	*	10	*	*	37	4,729	33.6%	18	1,342	9.5%
2002	7	5,442	32.1%	4	891	5.2%	2	*	*	4	*	*	30	3,239	19.1%	14	1,799	10.6%
2003	6	2,667	17.5%	8	1,472	9.7%	3	130	0.9%	0	0	0.0%	24	780	5.1%	11	455	3.0%
2004	3	2,143	14.4%	5	716	4.8%	3	192	1.3%	0	0	0.0%	20	1,496	10.0%	11	187	1.3%
2005	2	*	*	3	*	*	2	*	*	0	0	0.0%	24	3,616	30.4%	11	747	6.3%
2006	7	1,929	14.2%	5	722	5.3%	2	*	*	1	*	*	25	4,241	31.2%	11	611	4.5%
2007	8	2,669	21.0%	3	359	2.8%	3	*	*	2	*	*	25	3,917	30.8%	12	345	2.7%

Source: ADFG Fish Tickets (CVs) and NMFS Blend/ Catch Accounting. Vessel lengths based on LOA in NMFS AKR vessel database; previous version of this table based on CFEC vessel lengths.

Table A-11. Retained catch of Pacific cod (mt) from the Western GOA from 1995-2007 reported by vessel length.

	HAL CV <50			HAL CV >=50			HAL CV <60			HAL CV >=60			POT CV <50			POT CV >=50			POT CV <60			POT CV >=60		
Year	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total
1995	5	17	0.1%	15	18	0.1%	9	22	0.1%	11	12	0.1%	14	247	1.1%	44	2,106	9.8%	35	1,231	5.7%	23	1,122	5.2%
1996	4	81	0.4%	11	112	0.5%	9	100	0.5%	6	93	0.4%	14	426	2.0%	24	1,263	6.0%	34	1,396	6.6%	4	292	1.4%
1997	10	21	0.1%	11	219	0.9%	16	26	0.1%	5	214	0.9%	10	419	1.7%	10	621	2.6%	18	*	*	2	*	*
1998	11	16	0.1%	5	6	0.0%	13	19	0.1%	3	3	0.0%	14	562	2.7%	39	1,988	9.4%	32	1,722	8.2%	21	828	3.9%
1999	8	3	0.0%	19	67	0.3%	16	49	0.2%	11	22	0.1%	10	310	1.3%	24	1,282	5.5%	30	1,393	5.9%	4	198	0.8%
2000	6	26	0.1%	23	28	0.1%	15	37	0.2%	14	17	0.1%	9	219	1.0%	72	4,888	22.3%	37	1,104	5.0%	44	4,003	18.3%
2001	9	8	0.1%	21	95	0.7%	20	26	0.2%	10	76	0.5%	9	342	2.3%	37	2,196	15.0%	32	1,346	9.2%	14	1,192	8.2%
2002	5	2	0.0%	25	36	0.2%	18	24	0.1%	12	14	0.1%	3	178	1.0%	45	4,627	26.6%	33	3,009	17.3%	15	1,796	10.3%
2003	4	23	0.1%	21	24	0.2%	14	40	0.3%	11	7	0.0%	3	325	2.1%	57	9,223	58.8%	42	6,026	38.4%	18	3,523	22.4%
2004	8	3	0.0%	24	25	0.2%	21	19	0.1%	11	9	0.1%	7	240	1.6%	74	9,477	61.9%	53	4,728	30.9%	28	4,990	32.6%
2005	14	190	1.6%	32	91	0.7%	38	276	2.2%	8	5	0.0%	5	262	2.1%	54	6,140	50.1%	40	1,896	15.5%	19	4,506	36.7%
2006	13	37	0.3%	24	69	0.5%	30	102	0.7%	7	4	0.0%	7	213	1.5%	44	5,705	41.2%	33	1,827	13.2%	18	4,091	29.5%
2007	24	175	1.3%	34	215	1.6%	49	383	2.9%	9	7	0.1%	5	305	2.3%	43	4,341	32.8%	30	2,340	17.7%	18	2,306	17.4%

Source: ADFG Fish Tickets (CVs) and NMFS Blend/ Catch Accounting. Vessel lengths based on LOA in NMFS AKR vessel database; previous version of this table based on CFEC vessel lengths.

Table A-12. Retained catch of Pacific cod (mt) from the directed Pacific cod fishery in the Western GOA from 1995-2007 reported by vessel length.

	HAL CV <50			HAL CV >=50			HAL CV <60			HAL CV >=60			POT CV <50			POT CV >=50			POT CV <60			POT CV >=60		
Year	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total
1995	3	*	*	1	*	*	4	21	0.1%	0	0	0.0%	14	247	1.2%	44	2,106	10.1%	35	1,231	5.9%	23	1,122	5.4%
1996	4	81	0.4%	6	106	0.5%	7	99	0.5%	3	88	0.4%	14	426	2.0%	24	1,263	6.1%	34	1,396	6.7%	4	292	1.4%
1997	2	*	*	1	*	*	2	*	*	1	*	*	10	419	1.8%	10	621	2.6%	18	*	*	2	*	*
1998	1	*	*	0	0	0.0%	1	*	*	0	0	0.0%	14	562	2.7%	39	1,988	9.7%	32	1,722	8.4%	21	828	4.0%
1999	1	*	*	1	*	*	2	*	*	0	0	0.0%	10	310	1.3%	24	1,282	5.5%	30	1,393	6.0%	4	198	0.9%
2000	2	*	*	1	*	*	2	*	*	1	*	*	9	219	1.0%	72	4,888	23.3%	37	1,104	5.3%	44	4,003	19.1%
2001	3	6	0.0%	4	85	0.6%	6	*	*	1	*	*	9	342	2.4%	33	1,854	13.2%	31	1,336	9.5%	11	860	6.1%
2002	3	1	0.0%	10	8	0.0%	10	8	0.0%	3	1	0.0%	3	178	1.0%	45	4,577	27.0%	33	3,009	17.7%	15	1,746	10.3%
2003	2	*	*	6	*	*	6	*	*	2	*	*	3	325	2.1%	57	9,218	60.6%	42	6,026	39.6%	18	3,517	23.1%
2004	4	1	0.0%	10	8	0.1%	11	8	0.1%	3	1	0.0%	7	240	1.6%	74	9,475	63.7%	53	4,726	31.7%	28	4,990	33.5%
2005	12	190	1.6%	15	64	0.5%	25	*	*	2	*	*	5	262	2.2%	53	6,118	51.4%	39	1,875	15.8%	19	4,506	37.9%
2006	7	35	0.3%	13	52	0.4%	17	87	0.6%	3	0	0.0%	7	213	1.6%	44	5,705	41.9%	33	1,827	13.4%	18	4,091	30.1%
2007	12	165	1.3%	15	192	1.5%	24	354	2.8%	3	3	0.0%	5	305	2.4%	43	4,341	34.1%	30	2,340	18.4%	18	2,306	18.1%

Source: ADFG Fish Tickets (CVs) and NMFS Blend/ Catch Accounting. Vessel lengths based on LOA in NMFS AKR vessel database; previous version of this table based on CFEC vessel lengths.

Table A-13. Retained catch of Pacific cod (mt) from the Central GOA from 1995-2007 reported by vessel length.

	HAL CP <125			HAL CP >=125			TRW CP <125			TRW CP >=125			TRW CV <60			TRW CV >=60		
Year	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total
1995	8	134	0.3%	0	0	0.0%	7	326	0.7%	17	1,747	4.0%	45	5,247	11.9%	69	18,301	41.5%
1996	4	710	1.7%	0	0	0.0%	7	183	0.4%	16	2,531	6.0%	53	9,021	21.2%	59	14,954	35.2%
1997	1	*	*	1	*	*	6	623	1.5%	15	147	0.4%	55	5,765	13.9%	73	20,130	48.4%
1998	4	6	0.0%	3	169	0.4%	4	390	1.0%	13	4,057	9.9%	48	4,591	11.2%	89	16,623	40.6%
1999	7	*	*	2	*	*	4	423	1.0%	11	1,172	2.7%	33	1,799	4.2%	67	18,082	41.9%
2000	6	*	*	2	*	*	4	375	1.2%	6	1,012	3.2%	11	999	3.1%	48	9,972	31.2%
2001	1	*	*	1	*	*	4	750	2.8%	7	1,491	5.5%	17	1,053	3.9%	56	14,116	51.9%
2002	2	*	*	5	*	*	3	328	1.4%	6	507	2.2%	17	577	2.5%	50	9,991	42.9%
2003	4	280	1.2%	4	1,181	4.9%	4	399	1.7%	8	820	3.4%	9	572	2.4%	46	13,833	57.9%
2004	2	*	*	3	*	*	4	330	1.3%	6	439	1.7%	6	197	0.7%	49	13,472	51.1%
2005	3	244	1.1%	4	22	0.1%	4	497	2.2%	7	222	1.0%	4	3	0.0%	46	8,588	38.8%
2006	3	29	0.1%	6	867	3.9%	5	545	2.4%	6	332	1.5%	4	34	0.2%	43	5,888	26.3%
2007	4	499	2.0%	3	877	3.5%	3	388	1.5%	4	202	0.8%	2	*	*	37	*	*

Source: ADFG Fish Tickets (CVs) and NMFS Blend/ Catch Accounting. Vessel lengths based on LOA in NMFS AKR vessel database; previous version of this table based on CFEC vessel lengths.

Table A-14. Retained catch of Pacific cod (mt) from the directed Pacific cod fishery in the Central GOA from 1995-2007 reported by vessel length.

	HAL CP <125			HAL CP >=125			TRW CP <125			TRW CP >=125			TRW CV <60			TRW CV >=60		
Year	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total
1995	2	*	*	0	0	0.0%	4	29	0.1%	6	1,478	3.7%	45	5,113	12.7%	56	16,062	39.9%
1996	4	710	1.7%	0	0	0.0%	4	72	0.2%	8	2,282	5.5%	53	8,929	21.4%	55	14,666	35.2%
1997	1	*	*	0	0	0.0%	4	*	*	2	*	*	55	5,664	14.2%	65	18,988	47.6%
1998	0	0	0.0%	2	*	*	4	256	0.7%	13	2,786	7.4%	47	4,483	11.9%	76	15,048	40.0%
1999	3	*	*	2	*	*	3	288	0.7%	11	1,091	2.6%	33	1,773	4.3%	59	17,110	41.5%
2000	3	*	*	2	*	*	3	110	0.4%	6	986	3.4%	11	947	3.3%	42	7,506	25.8%
2001	1	*	*	0	0	0.0%	3	543	2.2%	6	1,456	6.0%	16	1,016	4.2%	54	11,726	48.1%
2002	0	0	0.0%	4	1,622	8.2%	2	*	*	1	*	*	11	551	2.8%	41	7,369	37.1%
2003	2	*	*	2	*	*	2	*	*	6	*	*	9	569	2.8%	43	11,234	55.0%
2004	1	*	*	2	*	*	3	*	*	2	*	*	5	187	0.8%	44	11,158	47.3%
2005	1	*	*	1	*	*	3	*	*	1	*	*	3	1	0.0%	41	6,745	34.1%
2006	2	*	*	4	*	*	4	193	1.0%	3	109	0.5%	4	33	0.2%	35	4,438	21.9%
2007	3	*	*	2	*	*	1	*	*	2	*	*	2	*	*	34	*	*

Source: ADFG Fish Tickets (CVs) and NMFS Blend/ Catch Accounting. Vessel lengths based on LOA in NMFS AKR vessel database; previous version of this table based on CFEC vessel lengths.

Table A-15. Retained catch of Pacific cod (mt) from the Central GOA from 1995-2007 reported by vessel length.

	HAL CV <50			HAL CV >=50			HAL CV <60			HAL CV >=60			POT CV <50			POT CV >=50			POT CV <60			POT CV >=60		
Year	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total
1995	246	2,635	6.0%	134	1,911	4.3%	320	3,716	8.4%	60	830	1.9%	28	1,297	2.9%	94	12,462	28.3%	63	7,110	16.1%	59	6,650	15.1%
1996	131	2,973	7.0%	42	1,519	3.6%	156	4,150	9.8%	17	342	0.8%	21	813	1.9%	66	9,726	22.9%	46	5,391	12.7%	41	5,148	12.1%
1997	210	4,527	10.9%	98	1,874	4.5%	270	6,148	14.8%	38	253	0.6%	18	820	2.0%	43	7,600	18.3%	39	4,778	11.5%	22	3,643	8.8%
1998	177	3,885	9.5%	93	1,930	4.7%	231	5,337	13.0%	39	478	1.2%	14	688	1.7%	47	8,520	20.8%	39	4,325	10.6%	22	4,883	11.9%
1999	187	3,846	8.9%	126	2,329	5.4%	262	5,693	13.2%	51	481	1.1%	14	804	1.9%	70	11,378	26.4%	44	6,121	14.2%	40	6,061	14.1%
2000	226	4,237	13.2%	114	2,292	7.2%	294	5,903	18.4%	46	626	2.0%	15	454	1.4%	99	11,513	36.0%	55	4,161	13.0%	59	7,806	24.4%
2001	178	4,367	16.1%	96	1,316	4.8%	239	5,393	19.8%	35	291	1.1%	7	246	0.9%	55	3,259	12.0%	34	2,071	7.6%	28	1,434	5.3%
2002	130	5,443	23.4%	80	1,425	6.1%	176	6,604	28.4%	34	264	1.1%	8	101	0.4%	37	3,126	13.4%	28	1,560	6.7%	17	1,668	7.2%
2003	111	2,544	10.6%	76	1,042	4.4%	155	3,232	13.5%	32	353	1.5%	5	79	0.3%	30	3,122	13.1%	22	1,640	6.9%	13	1,560	6.5%
2004	108	3,793	14.4%	84	1,630	6.2%	153	4,735	18.0%	39	688	2.6%	6	110	0.4%	29	4,806	18.2%	22	2,498	9.5%	13	2,418	9.2%
2005	101	2,906	13.1%	91	1,365	6.2%	155	3,892	17.6%	37	379	1.7%	7	122	0.5%	40	8,048	36.3%	25	3,323	15.0%	22	4,846	21.9%
2006	125	3,663	16.4%	83	2,520	11.3%	176	5,388	24.1%	32	795	3.5%	9	185	0.8%	50	8,235	36.8%	36	4,007	17.9%	23	4,413	19.7%
2007	131	4,108	16.3%	107	2,233	8.9%	201	5,847	23.2%	37	494	2.0%	7	110	0.4%	56	8,177	32.5%	40	4,178	16.6%	23	4,108	16.3%

Source: ADFG Fish Tickets (CVs) and NMFS Blend/ Catch Accounting. Vessel lengths based on LOA in NMFS AKR vessel database; previous version of this table based on CFEC vessel lengths.

Table A-16. Retained catch of Pacific cod (mt) from the directed Pacific cod fishery in the Central GOA from 1995-2007 reported by vessel length.

	HAL CV <50			HAL CV >=50			HAL CV <60			HAL CV >=60			POT CV <50			POT CV >=50			POT CV <60			POT CV >=60		
Year	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total
1995	102	2,557	6.4%	18	1,787	4.4%	116	3,571	8.9%	4	773	1.9%	27	1,251	3.1%	93	11,816	29.3%	62	6,927	17.2%	58	6,140	15.3%
1996	114	2,957	7.1%	26	1,508	3.6%	135	4,129	9.9%	5	335	0.8%	21	813	1.9%	66	9,726	23.3%	46	5,391	12.9%	41	5,148	12.3%
1997	131	4,469	11.2%	42	1,789	4.5%	161	6,041	15.1%	12	218	0.5%	18	820	2.1%	43	7,577	19.0%	39	4,778	12.0%	22	3,620	9.1%
1998	112	3,823	10.2%	28	1,806	4.8%	133	5,193	13.8%	7	437	1.2%	14	688	1.8%	46	8,519	22.6%	38	4,324	11.5%	22	4,883	13.0%
1999	114	3,776	9.2%	72	2,197	5.3%	164	5,547	13.5%	22	426	1.0%	14	804	2.0%	70	11,378	27.6%	44	6,121	14.9%	40	6,061	14.7%
2000	117	4,158	14.3%	31	2,213	7.6%	143	5,779	19.9%	5	593	2.0%	15	454	1.6%	99	11,513	39.6%	55	4,161	14.3%	59	7,806	26.9%
2001	98	4,302	17.6%	24	1,248	5.1%	118	5,283	21.7%	4	267	1.1%	7	246	1.0%	55	3,251	13.3%	34	2,063	8.5%	28	1,434	5.9%
2002	66	5,395	27.2%	34	1,355	6.8%	90	6,523	32.8%	10	228	1.1%	8	101	0.5%	37	3,126	15.7%	28	1,560	7.9%	17	1,668	8.4%
2003	56	2,396	11.7%	18	970	4.7%	70	3,061	15.0%	4	304	1.5%	5	79	0.4%	30	3,122	15.3%	22	1,640	8.0%	13	1,560	7.6%
2004	61	3,717	15.7%	31	1,555	6.6%	76	4,616	19.6%	16	656	2.8%	6	110	0.5%	29	4,806	20.4%	22	2,498	10.6%	13	2,418	10.2%
2005	65	2,889	14.6%	42	1,320	6.7%	93	3,857	19.5%	14	352	1.8%	7	122	0.6%	40	8,048	40.6%	25	3,323	16.8%	22	4,846	24.5%
2006	79	3,630	17.9%	52	2,462	12.1%	116	5,334	26.3%	15	759	3.7%	9	185	0.9%	50	8,235	40.6%	36	4,007	19.8%	23	4,413	21.8%
2007	88	4,058	17.5%	63	2,140	9.2%	128	5,735	24.8%	23	463	2.0%	7	110	0.5%	56	8,177	35.3%	40	4,178	18.0%	23	4,108	17.7%

Source: ADFG Fish Tickets (CVs) and NMFS Blend/ Catch Accounting. Vessel lengths based on LOA in NMFS AKR vessel database; previous version of this table based on CFEC vessel lengths.

Table A-17. Retained catch of Pacific cod (mt) by the inshore and offshore catcher processor sectors in the Western GOA from 1995-2007.

	Hook-and-line CP						Pot CP						Trawl CP					
	Inshore			Offshore			Inshore			Offshore			Inshore			Offshore		
Year	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total
1995	11	4,871	22.7%	7	761	3.5%	1	*	*	2	*	*	3	40	0.2%	8	547	2.5%
1996	12	3,649	17.4%	5	720	3.4%	0	0	0.0%	1	*	*	4	55	0.3%	15	732	3.5%
1997	7	3,310	13.8%	6	528	2.2%	0	0	0.0%	0	0	0.0%	4	156	0.7%	13	138	0.6%
1998	5	*	*	2	*	*	0	0	0.0%	1	*	*	5	194	0.9%	10	82	0.4%
1999	9	3,908	16.6%	11	1,208	5.1%	0	0	0.0%	6	1,424	6.1%	5	567	2.4%	8	57	0.2%
2000	9	3,622	16.5%	5	1,085	4.9%	0	0	0.0%	2	*	*	3	451	2.1%	10	300	1.4%
2001	7	3,598	24.6%	9	372	2.5%	0	0	0.0%	3	1,038	7.1%	4	392	2.7%	9	279	1.9%
2002	8	5,459	31.4%	8	952	5.5%	1	*	*	1	*	*	2	*	*	11	*	*
2003	6	2,490	15.9%	13	1,752	11.2%	1	*	*	1	*	*	3	261	1.7%	8	79	0.5%
2004	4	2,160	14.1%	8	733	4.8%	1	*	*	0	0	0.0%	2	*	*	11	*	*
2005	4	484	3.9%	6	241	2.0%	1	*	*	0	0	0.0%	2	*	*	11	*	*
2006	7	1,966	14.2%	7	725	5.2%	0	0	0.0%	0	0	0.0%	1	*	*	10	*	*
2007	7	2,701	20.4%	5	368	2.8%	1	*	*	0	0	0.0%	2	*	*	11	*	*

Table A-18. Retained catch of Pacific cod (mt) by the inshore and offshore catcher processor sectors in the Central GOA from 1995-2007.

	Hook-and-line CP						Pot CP						Trawl CP					
	Inshore			Offshore			Inshore			Offshore			Inshore			Offshore		
Year	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total	Vessels	Catch	Percent of total
1995	7	*	*	1	*	*	0	0	0.0%	0	0	0.0%	5	253	0.6%	19	1,819	4.1%
1996	4	710	1.7%		0	0.0%	0	0	0.0%	0	0	0.0%	6	229	0.5%	17	2,484	5.9%
1997	1	*	*	1	*	*	0	0	0.0%	0	0	0.0%	5	675	1.6%	15	95	0.2%
1998	4	6	0.0%	3	169	0.4%	0	0	0.0%	0	0	0.0%	4	1,651	4.0%	13	2,796	6.8%
1999	6	306	0.7%	3	7	0.0%	1	*	*	10	*	*	5	673	1.6%	10	922	2.1%
2000	6	*	*	2	*	*	0	0	0.0%	4	910	2.8%	4	375	1.2%	6	1,012	3.2%
2001	1	*	*	1	*	*	0	0	0.0%	3	588	2.2%	5	785	2.9%	6	1,456	5.4%
2002	2	*	*	5	*	*	0	0	0.0%	3	131	0.6%	3	328	1.4%	6	507	2.2%
2003	4	268	1.1%	5	1,194	5.0%	1	*	*	0	0	0.0%	3	392	1.6%	9	827	3.5%
2004	2	*	*	3	*	*	0	0	0.0%	0	0	0.0%	3	175	0.7%	7	595	2.3%
2005	3	244	1.1%	4	22	0.1%	0	0	0.0%	0	0	0.0%	3	494	2.2%	8	226	1.0%
2006	2	*	*	7	*	*	0	0	0.0%	0	0	0.0%	2	*	*	9	*	*
2007	2	*	*	5	*	*	1	*	*	0	0	0.0%	2	*	*	5	*	*

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

Table A-19. Percent sector allocations (of seasonal and annual TAC) in the Western GOA by season.

Western Gulf		HAL CP A	HAL CP B	HAL CV A	HAL CV B	JIG CV A	JIG CV B	POT CP A	POT CP B	POT CV A	POT CV B	TRW CP A	TRW CP B	TRW CV A	TRW CV B
Percent of annual TAC	1995-2005: Best 7 years	20.4%	18.6%	0.6%	0.7%	0.2%	0.9%	1.6%	3.2%	23.3%	34.9%	1.9%	3.3%	52.1%	38.4%
	1995-2005: Best 5 years	18.9%	18.1%	0.7%	0.7%	0.2%	1.1%	1.7%	3.8%	25.7%	37.3%	1.9%	3.1%	50.9%	35.9%
	2000-2006: Best 5 years	21.7%	21.6%	0.6%	0.9%	0.2%	1.3%	1.4%	3.6%	37.1%	45.5%	1.6%	4.0%	37.4%	23.2%
	2000-2006: Best 3 years	22.3%	19.9%	0.8%	1.0%	0.2%	1.6%	1.4%	4.8%	37.2%	47.6%	1.8%	4.0%	36.3%	21.0%
	2002-2007: Best 5 years	20.6%	25.5%	1.1%	1.3%	0.3%	1.0%	1.1%	2.3%	43.6%	49.0%	1.7%	3.5%	31.6%	17.5%
	2002-2007: Best 3 years	21.8%	22.7%	1.5%	1.6%	0.4%	1.2%	1.0%	2.9%	40.9%	50.9%	1.7%	3.6%	32.7%	17.1%
Percent of seasonal TAC	1995-2005: Best 7 years	12.2%	7.4%	0.4%	0.3%	0.1%	0.4%	0.9%	1.3%	14.0%	13.9%	1.2%	1.3%	31.2%	15.3%
	1995-2005: Best 5 years	11.3%	7.2%	0.4%	0.3%	0.1%	0.4%	1.0%	1.5%	15.4%	14.9%	1.2%	1.2%	30.6%	14.3%
	2000-2006: Best 5 years	13.0%	8.6%	0.4%	0.3%	0.1%	0.5%	0.8%	1.4%	22.2%	18.2%	1.0%	1.6%	22.5%	9.3%
	2000-2006: Best 3 years	13.4%	8.0%	0.5%	0.4%	0.1%	0.7%	0.8%	1.9%	22.3%	19.0%	1.1%	1.6%	21.8%	8.4%
	2002-2007: Best 5 years	12.4%	10.2%	0.7%	0.5%	0.2%	0.4%	0.7%	0.9%	26.1%	19.6%	1.0%	1.4%	19.0%	7.0%
	2002-2007: Best 3 years	13.1%	9.1%	0.9%	0.7%	0.2%	0.5%	0.6%	1.2%	24.5%	20.4%	1.0%	1.4%	19.6%	6.8%

Table A-20. Percent sector allocations (of seasonal and annual TAC) in the Central GOA by season.

Central Gulf		HAL CP A	HAL CP B	HAL CV A	HAL CV B	JIG CV A	JIG CV B	POT CP A	POT CP B	POT CV A	POT CV B	TRW CP A	TRW CP B	TRW CV A	TRW CV B
Percent of annual TAC	1995-2005: Best 7 years	3.5%	1.8%	19.2%	14.5%	0.2%	0.2%	0.8%	2.7%	28.1%	19.6%	3.9%	7.4%	44.3%	53.8%
	1995-2005: Best 5 years	4.2%	2.3%	19.1%	15.4%	0.2%	0.3%	1.0%	3.5%	27.8%	21.3%	4.3%	7.6%	43.4%	49.7%
	2000-2006: Best 5 years	4.9%	3.1%	25.7%	13.5%	0.3%	0.3%	1.2%	0.7%	28.5%	20.4%	3.5%	5.8%	36.0%	56.2%
	2000-2006: Best 3 years	6.7%	1.6%	24.0%	12.6%	0.4%	0.3%	1.7%	0.9%	32.1%	21.6%	4.1%	4.8%	31.0%	58.1%
	2002-2007: Best 5 years	5.5%	4.8%	25.5%	18.2%	0.3%	0.3%	0.0%	0.9%	27.9%	22.7%	1.5%	6.4%	39.3%	46.8%
	2002-2007: Best 3 years	7.2%	1.5%	23.8%	18.1%	0.4%	0.3%	0.0%	1.2%	28.6%	27.4%	1.7%	5.6%	38.3%	45.8%
Percent of seasonal TAC	1995-2005: Best 7 years	2.1%	0.7%	11.5%	5.8%	0.1%	0.1%	0.5%	1.1%	16.9%	7.8%	2.4%	3.0%	26.6%	21.5%
	1995-2005: Best 5 years	2.5%	0.9%	11.5%	6.2%	0.1%	0.1%	0.6%	1.4%	16.7%	8.5%	2.6%	3.0%	26.0%	19.9%
	2000-2006: Best 5 years	2.9%	1.2%	15.4%	5.4%	0.2%	0.1%	0.7%	0.3%	17.1%	8.2%	2.1%	2.3%	21.6%	22.5%
	2000-2006: Best 3 years	4.0%	0.6%	14.4%	5.0%	0.2%	0.1%	1.0%	0.4%	19.3%	8.6%	2.5%	1.9%	18.6%	23.3%
	2002-2007: Best 5 years	3.3%	1.9%	15.3%	7.3%	0.2%	0.1%	0.0%	0.3%	16.7%	9.1%	0.9%	2.5%	23.6%	18.7%
	2002-2007: Best 3 years	4.3%	0.6%	14.3%	7.3%	0.3%	0.1%	0.0%	0.5%	17.1%	11.0%	1.0%	2.3%	23.0%	18.3%

Table A-21. Percent sector allocations in the Western GOA by season and vessel length.

		HAL<125		HAL>125		TRW<125		TRW>125		TRW CV <60		TRW CV >=60	
Western Gulf		A	B	A	B	A	B	A	B	A	B	A	B
All Cod	1995-2005: Best 7 years	10.3%	6.5%	1.9%	1.0%	0.5%	0.6%	0.7%	0.7%	22.0%	10.8%	9.2%	4.6%
	1995-2005: Best 5 years	9.2%	6.2%	2.1%	1.0%	0.4%	0.4%	0.8%	0.8%	21.0%	9.9%	9.6%	4.5%
	2000-2006: Best 5 years	10.8%	7.3%	2.3%	1.3%	0.5%	0.8%	0.4%	0.8%	17.5%	7.1%	4.9%	2.2%
	2000-2006: Best 3 years	10.7%	7.0%	2.7%	1.0%	0.6%	0.7%	0.5%	0.9%	17.2%	6.4%	4.6%	2.0%
	2002-2007: Best 5 years	9.7%	7.8%	2.7%	2.4%	0.8%	0.8%	0.2%	0.6%	15.7%	5.8%	3.3%	1.2%
	2002-2007: Best 3 years	10.1%	7.4%	3.0%	1.6%	0.8%	0.8%	0.2%	0.7%	17.1%	5.9%	2.5%	0.9%
Directed Cod	1995-2005: Best 7 years	10.3%	6.6%	1.7%	0.9%	0.5%	0.4%	0.5%	0.5%	22.3%	10.9%	9.2%	4.6%
	1995-2005: Best 5 years	9.3%	6.3%	1.8%	0.9%	0.4%	0.3%	0.6%	0.5%	21.0%	10.0%	9.5%	4.5%
	2000-2006: Best 5 years	10.7%	7.4%	2.2%	1.3%	0.4%	0.6%	0.1%	0.3%	17.8%	7.2%	5.0%	2.1%
	2000-2006: Best 3 years	10.7%	7.1%	2.6%	0.9%	0.5%	0.5%	0.2%	0.5%	17.4%	6.5%	4.7%	1.9%
	2002-2007: Best 5 years	9.8%	8.0%	2.6%	2.4%	0.4%	0.4%	0.0%	0.0%	15.9%	5.9%	3.3%	1.2%
	2002-2007: Best 3 years	10.2%	7.7%	2.9%	1.6%	0.3%	0.5%	0.0%	0.0%	17.4%	6.1%	2.5%	0.9%

Table A-22. Percent sector allocations in the Western GOA by season and vessel length.

		HAL<50		HAL≥50		HAL<60		HAL≥60		POT<50		POT≥50		POT<60		POT≥60	
Western Gulf		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
All Cod	1995-2005: Best 7 years	0.2%	0.1%	0.2%	0.2%	0.2%	0.2%	0.1%	0.1%	0.9%	0.5%	13.1%	13.4%	8.0%	5.6%	6.0%	8.4%
	1995-2005: Best 5 years	0.2%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%	0.1%	0.7%	0.4%	14.8%	14.5%	8.5%	5.8%	7.0%	9.1%
	2000-2006: Best 5 years	0.2%	0.1%	0.1%	0.2%	0.3%	0.3%	0.1%	0.0%	0.9%	0.4%	21.3%	17.8%	11.8%	7.1%	10.4%	11.1%
	2000-2006: Best 3 years	0.3%	0.1%	0.2%	0.3%	0.4%	0.4%	0.1%	0.0%	0.9%	0.4%	21.4%	18.6%	12.9%	6.9%	9.4%	12.1%
	2002-2007: Best 5 years	0.4%	0.2%	0.3%	0.3%	0.6%	0.5%	0.0%	0.0%	1.2%	0.5%	24.9%	19.1%	12.9%	7.9%	13.2%	11.7%
	2002-2007: Best 3 years	0.5%	0.3%	0.3%	0.4%	0.9%	0.6%	0.0%	0.0%	1.0%	0.4%	23.5%	19.9%	14.2%	7.4%	10.3%	13.0%
Directed Cod	1995-2005: Best 7 years	0.2%	0.1%	0.2%	0.1%	0.2%	0.2%	0.1%	0.1%	0.9%	0.5%	13.2%	13.7%	8.1%	5.7%	6.0%	8.5%
	1995-2005: Best 5 years	0.2%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%	0.1%	0.7%	0.4%	15.0%	14.9%	8.6%	6.0%	7.1%	9.3%
	2000-2006: Best 5 years	0.2%	0.1%	0.1%	0.2%	0.3%	0.2%	0.1%	0.0%	0.9%	0.5%	21.5%	18.3%	12.0%	7.3%	10.5%	11.4%
	2000-2006: Best 3 years	0.3%	0.1%	0.1%	0.2%	0.3%	0.3%	0.1%	0.0%	0.9%	0.4%	21.5%	19.1%	13.0%	7.2%	9.5%	12.4%
	2002-2007: Best 5 years	0.4%	0.2%	0.2%	0.2%	0.6%	0.4%	0.0%	0.0%	1.2%	0.6%	25.4%	19.7%	13.1%	8.2%	13.5%	12.1%
	2002-2007: Best 3 years	0.6%	0.2%	0.3%	0.3%	0.8%	0.6%	0.0%	0.0%	1.0%	0.5%	23.9%	20.6%	14.4%	7.7%	10.6%	13.4%

Table A-23. Percent sector allocations in the Central GOA by season and vessel length.

		HAL<125		HAL>125		TRW<125		TRW>125		TRW CV <60		TRW CV >=60	
Central Gulf		A	B	A	B	A	B	A	B	A	B	A	B
All Cod	1995-2005: Best 7 years	0.6%	0.2%	1.5%	0.5%	0.4%	0.6%	1.9%	2.3%	5.9%	2.1%	20.7%	19.4%
	1995-2005: Best 5 years	0.6%	0.2%	2.0%	0.7%	0.4%	0.7%	2.2%	2.4%	6.3%	2.2%	19.7%	17.7%
	2000-2006: Best 5 years	0.5%	0.1%	2.5%	1.1%	0.7%	0.9%	1.4%	1.4%	1.2%	0.4%	20.4%	22.0%
	2000-2006: Best 3 years	0.4%	0.1%	3.6%	0.6%	0.6%	0.8%	1.9%	1.1%	1.2%	0.5%	17.4%	22.7%
	2002-2007: Best 5 years	0.5%	0.3%	2.8%	1.6%	0.7%	1.0%	0.3%	1.5%	0.9%	0.3%	22.7%	18.5%
	2002-2007: Best 3 years	0.5%	0.1%	3.9%	0.5%	0.7%	0.7%	0.3%	1.5%	1.1%	0.3%	21.8%	18.0%
Directed Cod	1995-2005: Best 7 years	0.6%	0.2%	1.6%	0.7%	0.2%	0.4%	1.7%	2.0%	5.9%	2.4%	20.3%	17.6%
	1995-2005: Best 5 years	0.6%	0.2%	2.1%	0.9%	0.1%	0.4%	2.2%	1.9%	6.2%	2.5%	19.2%	16.0%
	2000-2006: Best 5 years	0.5%	0.1%	2.6%	1.4%	0.1%	0.8%	1.2%	1.2%	1.3%	0.5%	19.8%	18.6%
	2000-2006: Best 3 years	0.4%	0.1%	3.8%	0.8%	0.2%	0.6%	1.7%	1.2%	1.3%	0.6%	16.7%	19.7%
	2002-2007: Best 5 years	0.5%	0.3%	3.0%	2.0%	0.2%	0.7%	0.0%	1.0%	0.9%	0.3%	21.8%	15.2%
	2002-2007: Best 3 years	0.5%	0.1%	4.1%	0.8%	0.1%	0.6%	0.0%	1.1%	1.2%	0.4%	21.4%	14.6%

Table A-24. Percent sector allocations in the Central GOA by season and vessel length.

		HAL<50		HAL≥50		HAL<60		HAL≥60		POT<50		POT≥50		POT<60		POT≥60	
Central Gulf		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
All Cod	1995-2005: Best 7 years	8.1%	4.4%	3.5%	1.4%	10.6%	5.4%	0.9%	0.3%	1.1%	0.4%	15.7%	7.5%	8.2%	3.2%	8.6%	4.6%
	1995-2005: Best 5 years	8.0%	4.8%	3.5%	1.4%	10.5%	5.8%	1.0%	0.4%	1.0%	0.3%	15.7%	8.2%	8.0%	3.3%	8.7%	5.2%
	2000-2006: Best 5 years	10.4%	4.2%	5.1%	1.2%	13.9%	5.1%	1.5%	0.3%	0.5%	0.1%	16.6%	8.1%	7.8%	3.0%	9.2%	5.2%
	2000-2006: Best 3 years	9.8%	4.1%	4.6%	0.9%	13.2%	4.8%	1.2%	0.2%	0.6%	0.1%	18.7%	8.5%	8.3%	3.1%	10.9%	5.5%
	2002-2007: Best 5 years	9.5%	5.9%	5.8%	1.3%	13.5%	7.0%	1.8%	0.3%	0.4%	0.1%	16.3%	9.0%	8.7%	3.5%	8.1%	5.6%
	2002-2007: Best 3 years	8.8%	5.9%	5.5%	1.4%	12.8%	7.0%	1.5%	0.3%	0.4%	0.1%	16.8%	10.9%	8.7%	4.3%	8.5%	6.7%
Directed Cod	1995-2005: Best 7 years	8.5%	5.1%	3.5%	1.5%	11.1%	6.3%	0.9%	0.4%	1.2%	0.4%	16.0%	8.5%	8.4%	3.7%	8.8%	5.2%
	1995-2005: Best 5 years	8.4%	5.6%	3.5%	1.6%	11.0%	6.8%	1.0%	0.4%	1.0%	0.4%	15.9%	9.2%	8.1%	3.8%	8.8%	5.8%
	2000-2006: Best 5 years	10.8%	5.3%	5.1%	1.5%	14.4%	6.4%	1.5%	0.4%	0.5%	0.2%	17.2%	10.0%	8.2%	3.8%	9.6%	6.3%
	2000-2006: Best 3 years	10.2%	5.0%	4.7%	1.2%	13.7%	5.9%	1.2%	0.2%	0.6%	0.2%	19.1%	10.2%	8.5%	3.8%	11.2%	6.5%
	2002-2007: Best 5 years	10.0%	7.1%	5.9%	1.7%	14.1%	8.5%	1.8%	0.4%	0.4%	0.1%	17.1%	11.0%	9.1%	4.4%	8.4%	6.8%
	2002-2007: Best 3 years	9.2%	6.9%	5.6%	1.7%	13.4%	8.3%	1.4%	0.3%	0.4%	0.1%	17.2%	12.9%	8.9%	5.2%	8.7%	7.8%

APPENDIX B. COMPARISON BETWEEN CATCH DATA SETS

In developing catch histories for recent sector allocations, the Council has typically used ADFG Fish Tickets for catcher vessels and NMFS Weekly Production Reports (WPRs) for catcher processors. An alternative data source is the NMFS Blend (1995-2002) and Catch Accounting (2003-present) databases. The Blend data is comprised of WPRs and Observer data, and the Catch Accounting data is comprised of WPRs, Fish Tickets, and Observer data, according to the rules shown in Figures B-1 and B-2. NMFS uses the Blend and Catch Accounting databases to manage the fishery inseason, and these databases comprise the official catch record.

For catcher vessels, ADFG Fish Tickets are a more complete record of catch than the Blend (1995-2002) database, particularly in the years prior to implementation of the AFA. As a result of incomplete catcher vessel reporting in the Blend data, catch estimates based on Fish Tickets are generally higher than those from the Blend database. Blend catch estimates are based on WPRs and Observer data. Catch Accounting estimates for CVs are based on Fish Tickets for vessels that deliver shoreside and use e-landings, and retained catch estimates are very similar in these two databases. The Catch Accounting system uses Observer data for catcher vessels that deliver to motherships, but there is very little mothership activity in the GOA.

For catcher processors, the Blend data consists of WPRs and Observer data, based on the selection rules detailed below. Catch Accounting data for catcher processors uses WPRs for 30% observed vessels and Observer data for 100% observed vessels. 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 GOA, WPRs indicated that 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. Table B-1 and Table B-2 compare estimates of retained catch from the Blend and Catch Accounting databases to retained catch estimates from Fish Tickets and WPRs.

DATA USED FOR CATCH ACCOUNTING

All vessels are observed if ≥60 ft LOA
30% coverage if <125 ft LOA or pot
100% coverage if ≥125 ft LOA and non-pot
200% coverage if AFA CP, Am 80, CDQ, or Atka Mackerel in CH

Catcher Processor or Mothership

If 100% observed, data used is observer data

If 30% observed, data used is WPR data

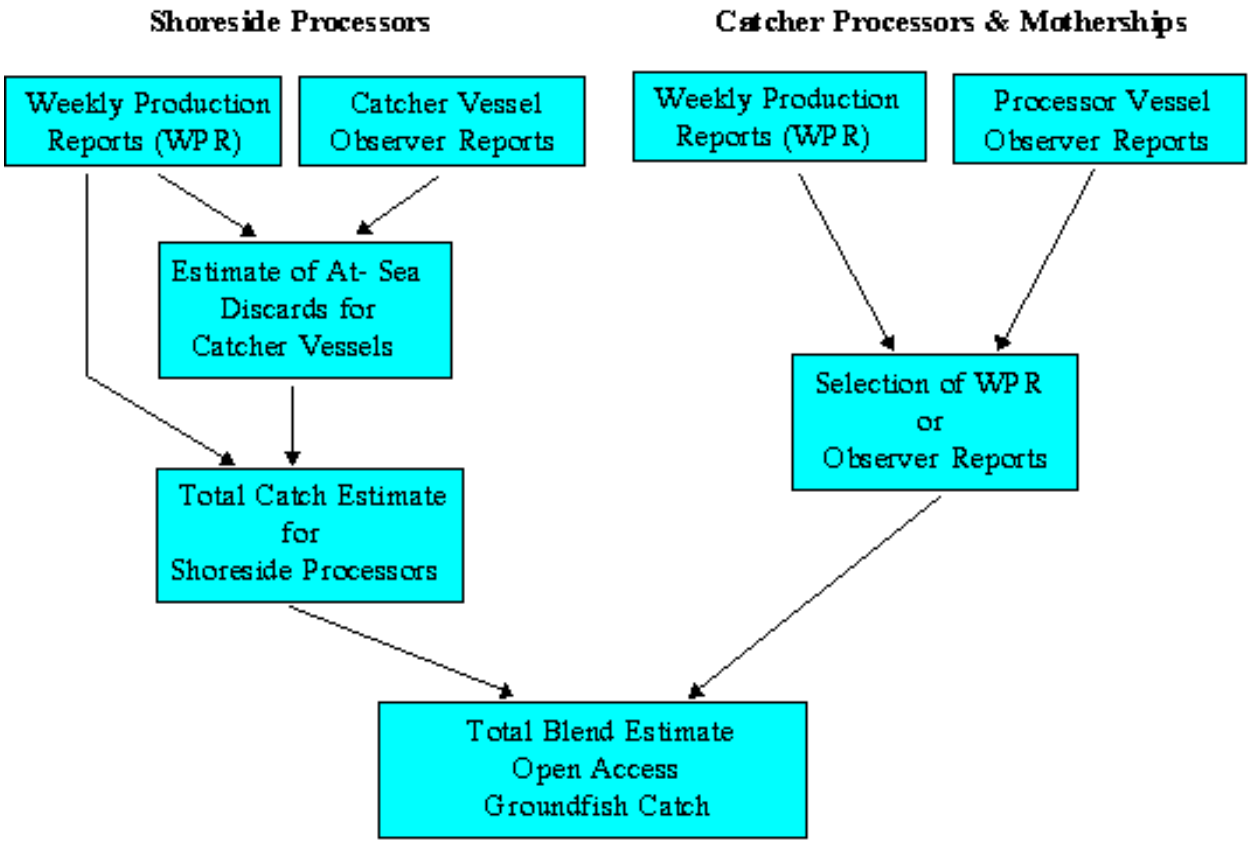
Catcher Vessels

For mothership deliveries:
- **Observer data is used**

For shoreside deliveries:
- **If processor uses SPELR/IERS, Fish Ticket data is used.**
- **Otherwise, shoreside WPR data**

All observer data is used in discard and PSC bycatch estimation

DATA USED FOR BLEND



Blend selection rules for picking WPR or Observer data:

- Total groundfish catch for all species combined is computed each week for each processor vessel from the Weekly Production Report and from the Observer report.

- If either report is missing, the report present is selected. If both reports are present the Blend compares the two numbers:

    - If the WPR and Observer total catch numbers are within 5%, the WPR is selected as the source.
    - If the WPR is more than 30% higher than the Observer total catch (for pollock target fisheries)* or more than 20% higher (all other targets), the WPR is selected as the source.
    - In all other cases, the Observer report is selected as the source.

* Pollock is processed into several products with highly variable recovery rates, including surimi and deep-skin fillets. The wider selection range is needed to ensure that WPR records are not inappropriately selected in cases where a processor achieves high recovery rates.

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

	Hook-and-line CV			Jig CV			Pot CV			Trawl CV		
Year	FT	CA	Percent difference	FT	CA	Percent difference	FT	CA	Percent difference	FT	CA	Percent difference
1995	4,546	4,479	1.5%	51	41	19.7%	13,760	12,962	5.8%	23,548	23,575	-0.1%
1996	4,491	4,433	1.3%	34	8	77.8%	10,539	10,176	3.4%	23,975	23,481	2.1%
1997	6,401	6,137	4.1%	21	13	38.5%	8,420	7,563	10.2%	25,895	25,135	2.9%
1998	5,815	5,852	-0.6%	50	16	68.1%	9,208	8,690	5.6%	21,214	20,862	1.7%
1999	6,174	6,153	0.3%	24	30	-25.6%	12,182	12,779	-4.9%	19,881	19,506	1.9%
2000	6,529	6,342	2.9%	38	35	7.6%	11,967	11,423	4.5%	10,971	10,740	2.1%
2001	5,684	5,605	1.4%	11	20	-71.3%	3,505	3,443	1.8%	15,169	13,749	9.4%
2002	6,867	6,423	6.5%	3	4	-23.8%	3,228	2,579	20.1%	10,568	10,112	4.3%
2003	3,586	3,294	8.1%	16	42	-167.8%	3,201	3,050	4.7%	14,405	13,877	3.7%
2004	5,423	5,510	-1.6%	118	166	-40.9%	4,916	4,868	1.0%	13,669	13,669	0.0%
2005	4,271	4,274	-0.1%	137	152	-10.8%	8,169	8,099	0.9%	8,591	8,468	1.4%
2006	6,183	6,286	-1.7%	96	117	-21.7%	8,420	8,286	1.6%	5,922	5,818	1.7%
2007	6,341	6,354	-0.2%	36	39	-6.1%	8,286	8,126	1.9%	8,220	8,241	-0.3%

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 GOA Pacific cod based on ADFG Fish Tickets and NMFS Blend/Catch Accounting data, 1995-2007.

	Hook-and-line CV			Jig CV			Pot CV			Trawl CV		
Year	FT	CA	Percent difference	FT	CA	Percent difference	FT	CA	Percent difference	FT	CA	Percent difference
1995	35	19	45.8%	48	32	32.1%	2,352	2,360	-0.3%	12,704	12,526	1.4%
1996	193	132	31.4%	45	45	-0.2%	1,689	1,663	1.5%	13,921	11,942	14.2%
1997	240	52	78.5%	5	4	29.9%	1,041	992	4.7%	18,554	18,053	2.7%
1998	22	112	-418.0%	*	*	na	2,533	1,618	36.1%	15,007	14,382	4.2%
1999	70	37	48.0%	0	0	na	1,591	1,313	17.5%	14,673	14,335	2.3%
2000	54	65	-20.8%	5	4	16.5%	5,107	4,670	8.6%	11,113	11,284	-1.5%
2001	103	25	75.4%	157	130	17.1%	2,538	1,971	22.4%	6,135	6,143	-0.1%
2002	38	9	77.2%	193	172	10.8%	4,805	4,340	9.7%	5,073	5,026	0.9%
2003	47	76	-63.2%	46	46	-0.4%	9,549	9,492	0.6%	1,367	1,422	-4.0%
2004	28	40	-42.9%	183	178	3.0%	9,718	9,680	0.4%	1,717	1,698	1.1%
2005	281	295	-5.0%	46	52	-12.8%	6,402	6,355	0.7%	4,441	4,386	1.2%
2006	106	130	-22.5%	*	*	*	5,918	5,908	0.2%	4,917	4,813	2.1%
2007	390	403	-3.4%	2	2	0.1%	4,646	4,653	-0.2%	4,281	4,281	0.0%

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 GOA based on NMFS Weekly Production Reports and NMFS Blend/Catch Accounting data, 1995-2007.

Year	Hook-and-line CP			Pot CP			Trawl CP		
	CA	WPR	Percent difference	CA	WPR	Percent difference	CA	WPR	Percent difference
1995	5,632	4,875	13.4%	104	84	19.1%	587	612	-4.2%
1996	4,369	4,220	3.4%	*	*	100.0%	787	612	22.2%
1997	3,837	3,360	12.4%	0	0	0.0%	295	263	11.0%
1998	3,168	2,959	6.6%	*	*	100.0%	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%	*	*	0.0%	751	555	26.1%
2001	3,969	3,657	7.9%	1,038	1,074	-3.4%	670	618	7.8%
2002	6,411	5,790	9.7%	*	*	0.3%	327	419	-28.0%
2003	4,242	3,923	7.5%	*	*	0.0%	340	317	6.7%
2004	2,893	2,813	2.8%	*	*	0.0%	539	425	21.2%
2005	724	698	3.6%	*	*	0.0%	217	228	-5.2%
2006	2,691	2,575	4.3%	*	*	0.0%	218	206	5.7%
2007	3,069	3,066	0.1%	*	*	12.4%	529	493	6.8%

Source: NMFS Weekly Production Reports (1995-2007), NMFS Blend (1995-2002), and NMFS Catch Accounting (2003-2007).

Table B-4 Comparison between retained catch estimates (mt) for Pacific cod in the Central GOA based on NMFS Weekly Production Reports and NMFS Blend/Catch Accounting data, 1995-2007.

Year	Hook-and-line CP			Pot CP			Trawl CP		
	CA	WPR	Percent difference	CA	WPR	Percent difference	CA	WPR	Percent difference
1995	134	216	-61.7%	0	0	--	2,072	1,860	10.3%
1996	710	494	30.4%	0	0	--	2,714	2,100	22.6%
1997	*	*	0.5%	0	0	--	770	790	-2.6%
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%	910	781	14.1%	1,387	1,724	-24.3%
2001	*	*	-4.4%	588	572	2.7%	2,241	2,447	-9.2%
2002	1,638	1,297	20.8%	131	128	1.8%	835	687	17.8%
2003	1,462	1,260	13.8%	*	*	0.0%	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	837	6.7%	0	0	--	877	886	-1.1%
2007	1,376	1,059	23.0%	*	*	1.3%	590	593	-0.6%

Source: NMFS Weekly Production Reports (1995-2007), NMFS Blend (1995-2002), and NMFS Catch Accounting (2003-2007).

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.

APPENDIX D. PERCENT SECTOR ALLOCATIONS

Table D-1 Percent sector allocations based on all Pacific cod landings and directed Pacific cod landings.

Western Gulf	Period	HAL CP	HAL CV	Jig CV	Pot CP	Pot CV	Trawl CP	Trawl CV
All Cod	1995-2005: Best 7 years	19.7%	0.6%	0.5%	2.2%	27.9%	2.5%	46.6%
	1995-2005: Best 5 years	18.6%	0.7%	0.5%	2.5%	30.4%	2.4%	44.9%
	2000-2006: Best 5 years	21.6%	0.7%	0.7%	2.3%	40.5%	2.6%	31.7%
	2000-2006: Best 3 years	21.4%	0.9%	0.8%	2.7%	41.3%	2.7%	30.2%
	2002-2007: Best 5 years	22.6%	1.2%	0.6%	1.6%	45.7%	2.4%	26.0%
	2002-2007: Best 3 years	22.2%	1.5%	0.7%	1.8%	44.9%	2.5%	26.5%
Directed Cod	1995-2005: Best 7 years	19.5%	0.5%	0.5%	2.3%	28.3%	1.8%	47.0%
	1995-2005: Best 5 years	18.4%	0.6%	0.5%	2.6%	31.0%	1.9%	44.9%
	2000-2006: Best 5 years	21.6%	0.6%	0.7%	2.3%	41.2%	1.5%	32.1%
	2000-2006: Best 3 years	21.4%	0.8%	0.8%	2.8%	42.0%	1.7%	30.5%
	2002-2007: Best 5 years	22.8%	1.0%	0.5%	1.6%	46.9%	0.8%	26.3%
	2002-2007: Best 3 years	22.4%	1.4%	0.7%	1.8%	46.1%	0.8%	26.8%
Central Gulf	Period	HAL CP	HAL CV	Jig CV	Pot CP	Pot CV	Trawl CP	Trawl CV
All Cod	1995-2005: Best 7 years	2.8%	17.3%	0.2%	1.5%	24.7%	5.3%	48.1%
	1995-2005: Best 5 years	3.4%	17.6%	0.2%	2.0%	25.2%	5.6%	45.9%
	2000-2006: Best 5 years	4.2%	20.8%	0.3%	1.0%	25.3%	4.4%	44.1%
	2000-2006: Best 3 years	4.7%	19.4%	0.4%	1.4%	27.9%	4.4%	41.9%
	2002-2007: Best 5 years	5.2%	22.6%	0.3%	0.4%	25.8%	3.5%	42.3%
	2002-2007: Best 3 years	4.9%	21.5%	0.4%	0.5%	28.1%	3.3%	41.3%
Directed Cod	1995-2005: Best 7 years	3.1%	18.7%	0.2%	1.5%	26.1%	4.4%	46.1%
	1995-2005: Best 5 years	3.8%	19.1%	0.2%	1.9%	26.5%	4.6%	43.9%
	2000-2006: Best 5 years	4.6%	22.7%	0.3%	1.1%	27.9%	3.3%	40.2%
	2000-2006: Best 3 years	5.1%	21.0%	0.4%	1.5%	30.0%	3.7%	38.3%
	2002-2007: Best 5 years	5.8%	24.7%	0.3%	0.4%	28.6%	1.8%	38.3%
	2002-2007: Best 3 years	5.5%	23.5%	0.4%	0.6%	30.6%	1.8%	37.7%

Table D-2 Percent sector allocations based on all Pacific cod landings and directed Pacific cod landings, with sectors divided by vessel length.

Western Gulf	Period	HAL CP <125	HAL CP ≥125	TRW CP <125	TRW CP ≥125	TRW CV <60	TRW CV ≥60
All Cod	1995-2005: Best 7 years	16.8%	2.9%	1.1%	1.4%	32.8%	13.8%
	1995-2005: Best 5 years	15.4%	3.1%	0.8%	1.6%	30.9%	14.1%
	2000-2006: Best 5 years	18.1%	3.6%	1.4%	1.2%	24.6%	7.1%
	2000-2006: Best 3 years	17.6%	3.7%	1.3%	1.4%	23.6%	6.6%
	2002-2007: Best 5 years	17.5%	5.1%	1.5%	0.9%	21.4%	4.5%
	2002-2007: Best 3 years	17.6%	4.6%	1.6%	0.9%	23.0%	3.5%
Directed Cod	1995-2005: Best 7 years	16.9%	2.6%	0.8%	1.0%	33.2%	13.8%
	1995-2005: Best 5 years	15.6%	2.7%	0.8%	1.2%	31.0%	13.9%
	2000-2006: Best 5 years	18.1%	3.5%	1.0%	0.5%	25.0%	7.1%
	2000-2006: Best 3 years	17.8%	3.5%	1.0%	0.7%	23.9%	6.6%
	2002-2007: Best 5 years	17.8%	5.0%	0.8%	0.0%	21.8%	4.5%
	2002-2007: Best 3 years	17.9%	4.5%	0.8%	0.0%	23.4%	3.4%
Central Gulf	Period	HAL CP <125	HAL CP ≥125	TRW CP <125	TRW CP ≥125	TRW CV <60	TRW CV ≥60
All Cod	1995-2005: Best 7 years	0.8%	2.1%	1.1%	4.3%	8.0%	40.1%
	1995-2005: Best 5 years	0.8%	2.7%	1.0%	4.6%	8.5%	37.4%
	2000-2006: Best 5 years	0.6%	3.6%	1.7%	2.8%	1.7%	42.4%
	2000-2006: Best 3 years	0.5%	4.1%	1.4%	3.0%	1.7%	40.1%
	2002-2007: Best 5 years	0.8%	4.4%	1.7%	1.8%	1.1%	41.1%
	2002-2007: Best 3 years	0.5%	4.4%	1.4%	1.9%	1.5%	39.8%
Directed Cod	1995-2005: Best 7 years	0.8%	2.3%	0.6%	3.8%	8.2%	37.9%
	1995-2005: Best 5 years	0.8%	3.0%	0.6%	4.0%	8.6%	35.2%
	2000-2006: Best 5 years	0.6%	4.0%	0.9%	2.4%	1.8%	38.3%
	2000-2006: Best 3 years	0.5%	4.6%	0.8%	2.9%	1.9%	36.4%
	2002-2007: Best 5 years	0.8%	5.0%	0.8%	1.0%	1.2%	37.1%
	2002-2007: Best 3 years	0.5%	4.9%	0.7%	1.1%	1.6%	36.0%

Table D-3 Percent sector allocations based on all Pacific cod landings and directed Pacific cod landings, with sectors divided by vessel length.

Western Gulf	Period	HAL CV <50	HAL CV ≥50	HAL CV <60	HAL CV ≥60	Pot CV <50	Pot CV ≥50	Pot CV <60	Pot CV ≥60
All Cod	1995-2005: Best 7 years	0.3%	0.4%	0.4%	0.2%	1.4%	26.5%	13.5%	14.4%
	1995-2005: Best 5 years	0.3%	0.4%	0.4%	0.3%	1.0%	29.3%	14.3%	16.1%
	2000-2006: Best 5 years	0.3%	0.4%	0.6%	0.1%	1.4%	39.1%	18.9%	21.6%
	2000-2006: Best 3 years	0.4%	0.4%	0.7%	0.1%	1.4%	40.0%	19.8%	21.5%
	2002-2007: Best 5 years	0.6%	0.6%	1.1%	0.0%	1.7%	44.0%	20.8%	24.9%
	2002-2007: Best 3 years	0.8%	0.7%	1.5%	0.0%	1.5%	43.4%	21.6%	23.3%
Directed Cod	1995-2005: Best 7 years	0.3%	0.3%	0.4%	0.2%	1.4%	26.9%	13.8%	14.5%
	1995-2005: Best 5 years	0.3%	0.3%	0.4%	0.2%	1.1%	29.9%	14.6%	16.4%
	2000-2006: Best 5 years	0.4%	0.3%	0.5%	0.1%	1.4%	39.8%	19.3%	22.0%
	2000-2006: Best 3 years	0.4%	0.4%	0.7%	0.1%	1.4%	40.6%	20.1%	21.9%
	2002-2007: Best 5 years	0.6%	0.4%	1.0%	0.0%	1.8%	45.1%	21.3%	25.6%
	2002-2007: Best 3 years	0.8%	0.6%	1.4%	0.0%	1.5%	44.6%	22.1%	24.0%
Central Gulf	Period	HAL CV <50	HAL CV ≥50	HAL CV <60	HAL CV ≥60	Pot CV <50	Pot CV ≥50	Pot CV <60	Pot CV ≥60
All Cod	1995-2005: Best 7 years	12.5%	4.8%	16.0%	1.3%	1.5%	23.2%	11.4%	13.3%
	1995-2005: Best 5 years	12.8%	4.9%	16.3%	1.4%	1.4%	23.9%	11.3%	13.9%
	2000-2006: Best 5 years	14.6%	6.2%	19.0%	1.8%	0.6%	24.6%	10.9%	14.4%
	2000-2006: Best 3 years	13.9%	5.5%	18.0%	1.4%	0.7%	27.2%	11.4%	16.4%
	2002-2007: Best 5 years	15.4%	7.1%	20.5%	2.0%	0.5%	25.3%	12.1%	13.7%
	2002-2007: Best 3 years	14.7%	6.9%	19.8%	1.7%	0.5%	27.6%	13.0%	15.2%
Directed Cod	1995-2005: Best 7 years	13.6%	5.1%	17.4%	1.3%	1.6%	24.5%	12.1%	14.0%
	1995-2005: Best 5 years	14.0%	5.1%	17.7%	1.4%	1.4%	25.1%	11.9%	14.6%
	2000-2006: Best 5 years	16.1%	6.6%	20.8%	1.9%	0.7%	27.2%	12.0%	15.9%
	2000-2006: Best 3 years	15.2%	5.8%	19.6%	1.4%	0.7%	29.3%	12.3%	17.7%
	2002-2007: Best 5 years	17.1%	7.6%	22.6%	2.1%	0.5%	28.1%	13.4%	15.2%
	2002-2007: Best 3 years	16.2%	7.3%	21.7%	1.8%	0.5%	30.1%	14.1%	16.5%