

Discussion Paper

Gulf Pacific Cod Sector Split

December 2007

INTRODUCTION

In October 2007, the Council reviewed a draft EA/RIR/IRFA for the proposed Gulf of Alaska Pacific cod sector allocations. The Council requested that staff provide additional information on incidental catch of Pacific cod (including discards) and the State waters Pacific cod fisheries. The purpose of this discussion paper is to provide the Council with information needed to refine the components and options for analysis. Management of incidental catch under sector allocations is addressed in Component 5 of the motion, and options include setting aside a separate incidental catch allowance (ICA) or managing each sector's incidental catch needs within its own allocation. The Council's current sector split motion does not specifically address the State waters fishery, but several issues were raised at the October meeting regarding coordination of the state and federal seasons under sector allocations. This paper provides additional information on the State waters fishery that may help the Council address these concerns.

Purpose and Need Statement

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

Gulf of Alaska Pacific Cod Sector Split Purpose and Need Statement

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

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

The problem identified is that participants who have made significant long-term investments, have extensive catch histories, and are highly dependent on the Gulf Pacific cod fisheries need stability in the form of sector allocations. Without sector allocations, future harvests by some sectors may increase and impinge on the historic catch shares of other sectors. The proposed action would divide the Western and Central Gulf of Alaska Pacific cod TACs among gear and operation types based on historic dependency

and use by each sector. This action may enhance stability in the fishery, reduce competition among sectors, and preserve the historic distribution of catch among sectors.

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

Alternatives Considered

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

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

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

Component 1

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

Component 2: Sector definitions

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

- Trawl catcher processors
- 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
- Pot catcher processors
- Pot catcher vessels
- Jig vessels

Additional divisions could include:

- Pot catcher vessels <60 ft
- Pot catcher vessels ≥60 ft
- All catcher processors <125 ft
- All catcher processors ≥125 ft

Component 3: Definition of qualifying catch

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

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

Catch will be calculated using Fish Tickets for catcher vessels and Catch Accounting/Blend data for catcher processors.

Under all options, allocations to the trawl sectors will deduct incidental catch allocated to the trawl sector for the Central Gulf Rockfish program.

Component 4: Years included for purposes of determining catch history

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

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

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

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

Component 5: Allocation of Pacific cod to jig sector

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

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

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

Component 6: Apportionment of Pacific cod to meet incidental catch needs¹

Option 1 Reserve the amount of Pacific cod needed to support incidental catch of cod in all other directed Gulf of Alaska fisheries off the top before allocating to the sectors; or

Option 2 Give each sector separate incidental catch allocations, and sectors will be responsible for their own incidental catch needs.

¹ Under regulation, 20 percent of the TAC of each Gulf species (including Pacific cod) can be held in reserve for later allocation to accommodate bycatch. In recent years, NOAA fisheries has not set aside a separate incidental catch allowance for cod, and has instead included the reserves as part of the GOA Pacific cod TACs.

Component 7: Management of unharvested sector allocations

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

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

Option 2 All sectors

Component 8: 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 WGOA and CGOA Pacific cod allocations to each sector. No later than November 1, any remaining halibut PSC not projected by NMFS to be used by one of the hook-and-line sectors during the remainder of the year would be made available to the other sector.

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

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

Other Issues for Analysis

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

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

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

Current Management of the Gulf of Alaska Pacific Cod Fisheries

Three separate area TACs are identified for Pacific cod in the Western Gulf, Central Gulf, and Eastern Gulf management subareas. Final 2006 harvest specifications apportioned 55% of the Gulf catch to the Central Gulf (28,405 mt) and 39% to the Western Gulf (20,141 mt). The GOA Pacific cod TACs are not divided among gear types, but are apportioned to the inshore and offshore sectors, with 90 percent allocated to the inshore component and 10 percent to the offshore component. In addition, the TACs are apportioned seasonally, with 60 percent of the TACs allocated to the A season and 40 percent to the B season. The A and B seasons were implemented in 2001 as a Steller sea lion protection measure. Note that under the current set of options being considered by the Council, the inshore/offshore designation for catcher processors could be eliminated. Some catcher processor sectors may instead be divided by vessel length (less than or greater than 125 ft).

The A season begins on January 1st for fixed gear vessels and on January 20th for trawl vessels. The A season ends on June 10th, but NMFS usually closes the season much earlier. The closure is timed to leave a portion of the A season TAC available to accommodate incidental catch by other directed fisheries during the remainder of the A season. The B season begins on September 1st for all gear types, and ends on November 1st for trawl vessels and on December 31st for non-trawl vessels. However, the B season typically closes earlier for the trawl sector, and often closes earlier for the hook-and-line sector, when the respective halibut PSC apportionments have been used.

The total allowable catch (TAC), total catch, and percentage of TAC harvested in the federal Pacific cod fisheries in the Western and Central GOA are summarized in Table 1. In 2005 and 2006, the Central and Western Gulf TACs were not fully harvested. In 2006, more than 5,000 mt of the Western Gulf TAC and more than 5,000 mt of the Central Gulf TAC were not harvested. These underages were the result of low harvests during the B season. In both 2005 and 2006, the B season closed in early October for the trawl sector when final halibut PSC apportionments were used, but the directed season remained open until December 31st for the fixed gear sectors. Vessels continued to fish for cod until the end of the year, but the TACs were not fully harvested. Preliminary catch data from 2007 show the same pattern, with substantial underages during the B season.

Table 1. Total catch (mt), TACs, and percent of TAC harvested in the federal Pacific cod fisheries in the Western and Central Gulf of Alaska, 1995-2006.

Year	Western Gulf			Central Gulf		
	Total catch	Federal TAC	Percent of TAC harvested	Total catch	Federal TAC	Percent of TAC harvested
1995	22,516	20,100	112.0	45,465	45,650	99.6
1996	19,823	18,850	105.2	47,589	42,900	110.9
1997	23,949	24,225	98.9	43,678	43,690	100.0
1998	19,817	23,170	85.5	41,436	41,720	99.3
1999	23,158	23,630	98.0	44,544	42,935	103.7
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	25,058	24,790	101.1
2003	16,235	15,450	105.1	24,828	22,690	109.4
2004	15,554	16,957	91.7	27,464	27,116	101.3
2005	12,402	15,687	79.1	22,595	25,086	90.1
2006	14,742	20,141	73.2	23,011	28,405	81.0

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

Incidental Catch and Discards of Pacific Cod

The Council requested that staff provide additional information on incidental catch and discards of Pacific cod in the Gulf of Alaska. The paper first describes how NMFS currently manages incidental catch in the Pacific cod fisheries. Second, the paper provides data on total and discarded incidental catch of Pacific cod in the Gulf and discusses management tools for reducing discards. Third, the paper discusses the proposed options for managing incidental catch under sector allocations.

For purposes of this discussion, incidental catch of Pacific cod is defined as cod caught outside the directed season, or cod caught during the directed season while another species (e.g., pollock) 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 is 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.

Currently, incidental catch of Pacific cod is managed in two ways. In the BSAI, NMFS reserves an incidental catch allowance (ICA) for the fixed gear sectors off the top of the fixed gear allocation, then divides the remaining directed quota among the fixed gear sectors. NMFS does not set aside a separate ICA for the trawl sector off the top of the trawl allocation. In the Gulf of Alaska, NMFS does not reserve an ICA off the top of the TAC. Instead, inseason managers time the closure of the directed Pacific cod fishery 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 cod continues to accrue to the A season TAC until the A season ends on June 10th. Any A season overage or incidental catch between the end of the A season (June 10th) and the beginning of the B season (September 1st) counts toward the B season TAC.

Current Levels of Incidental Catch in the Gulf

Total incidental catch of Pacific cod in the Western and Central Gulf of Alaska, including both retained and discarded incidental catch, is reported by sector in Table 2. Incidental catch includes any cod caught outside the directed Pacific cod season, as well as cod caught during the directed season while a vessel was targeting another species. Incidental catch levels vary from year to year, and this variation makes determining the appropriate amount of cod to set aside in an ICA prior to the start of the season more difficult. Under current regulations, 20 percent of the TAC of each Gulf species (including Pacific cod) may be held in reserve to accommodate incidental catch during other directed fisheries.

In both the Western and Central Gulf, the average amount of incidental catch (mt) during 1995-2000 was almost identical to average incidental catch levels during 2001-2006. However, TACs have decreased, and incidental catch as a percentage of total catch has increased in recent years. Incidental catch in the Western Gulf increased from 3% of total catch during 1995-2000 to 4% of total catch during 2001-2006. In the Central Gulf, 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 Gulf. The trawl sectors primarily fish during the directed pollock and Pacific cod seasons in the Western Gulf, and bycatch of cod during the directed pollock season is relatively low. In the Western Gulf, approximately half of incidental catch occurs during the A season (prior to June 10th), and half occurs during the B season (after June 10th). In the Central Gulf, incidental catch levels are substantially higher than in the Western Gulf, and are driven primarily by the trawl sectors. The hook-and-line sectors also have some incidental catch. Note that halibut targeted catch (including bycatch of other groundfish species during the halibut IFQ fishery) was

not included in the Blend data (1995-2002), and the apparent increase in incidental catch of cod by the hook-and-line sectors in Table 2 is a result of the inclusion of halibut targeted bycatch in the Catch Accounting data (2003-present). In the Central Gulf, about 40% of incidental catch occurred during the A season during 2001-2006, and 60% occurred during the B season.

Table 2. Total incidental catch (both retained and discarded, mt) of Pacific cod in the Western and Central Gulf of Alaska during the A (Jan 1-Jun 10) and B (Jun 10-Dec 31) seasons.

Western Gulf

Year	HAL CP		HAL CV		Jig		Pot CV		Trawl CP		Trawl CV		Total		Incidental catch as percent of total catch
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	
1995	15	44	2	16	0	0	0	0	177	40	165	27	358	127	2%
1996	83	8	5	11	*	*	0	0	166	282	171	37	426	338	4%
1997	23	28	7	16	0	0	0	0	547	50	98	36	675	129	3%
1998	0	11	4	38	0	0	0	0	164	88	53	35	221	172	2%
1999	15	9	12	26	0	0	0	0	96	130	78	27	201	191	2%
2000	22	4	4	12	0	0	0	0	234	188	105	155	365	359	3%
2001	28	4	4	11	0	0	0	0	253	174	45	219	331	408	5%
2002	61	3	2	11	0	0	0	0	115	155	18	91	197	260	3%
2003	85	10	22	61	*	*	0	0	268	252	76	51	451	374	5%
2004	148	22	12	25	*	*	0	0	183	207	14	47	357	302	4%
2005	*	*	32	52	*	*	0	0	195	61	38	99	351	213	5%
2006	48	5	24	34	0	0	0	1	97	69	19	82	188	190	3%
Avg 95-00	26	17	6	20	*	*	0	0	231	130	112	53	375	219	3%
Avg 01-06	*	*	16	32	*	*	0	0	185	153	35	98	312	292	4%

Central Gulf

Year	HAL CP		HAL CV		Jig		Pot CV		Trawl CP		Trawl CV		Total		Incidental catch as percent of total catch
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	
1995	0	8	39	66	5	1	0	0	572	751	863	676	1,479	1,502	7%
1996	*	*	37	27	1	0	*	*	1,136	1,252	1,913	2,385	3,095	3,665	14%
1997	1	1	55	88	*	*	*	*	353	569	2,384	1,573	2,793	2,231	12%
1998	0	7	48	100	*	*	*	*	571	492	1,257	1,329	1,876	1,927	9%
1999	3	13	69	113	*	*	0	0	440	519	774	1,603	1,287	2,248	8%
2000	*	*	29	45	0	0	0	0	553	423	1,324	2,265	1,908	2,734	14%
2001	*	*	51	41	9	0	0	0	320	121	1,496	2,336	1,876	2,498	16%
2002	*	*	44	39	2	0	0	0	391	529	2,376	3,140	2,815	3,707	26%
2003	17	0	146	112	*	*	0	0	544	632	1,441	2,346	2,151	3,091	21%
2004	8	0	62	54	11	2	0	0	93	270	1,399	1,818	1,572	2,145	14%
2005	*	*	46	61	*	*	0	0	147	539	804	1,440	1,053	2,040	14%
2006	19	0	98	121	*	*	0	0	168	793	893	1,607	1,177	2,521	16%
Avg 95-00	2	7	46	73	2	0	0	0	604	668	1,419	1,638	2,074	2,384	11%
Avg 01-06	20	0	74	71	4	1	0	0	277	481	1,402	2,114	1,777	2,668	18%

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

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

incidental catch in the rockfish fishery was higher during 2001-2006 than in 1995-2000, but decreased in the midwater pollock fishery and several of the flatfish fisheries. Note that under sector allocations, incidental catch by vessels participating in the Rockfish Pilot Program fishery would be deducted from the trawl sector's allocation in the Central Gulf during the tenure of the 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. Incidental catch of Pacific cod (mt) in the Western and Central Gulf of Alaska reported by target fishery, and percent of total incidental catch by each target fishery.

Target	Western Gulf				Central Gulf			
	1995-2000 (average)		2001-2006 (average)		1995-2000 (average)		2001-2006 (average)	
	Incidental Catch	Percent of incidental catch	Incidental Catch	Percent of incidental catch	Incidental Catch	Percent of incidental catch	Incidental Catch	Percent of incidental catch
Arrowtooth Flounder	64	11%	134	22%	506	11%	547	12%
Atka Mackerel	14	2%	0	0%	10	0%	0	0%
Deep-water Flatfish	--	--	--	--	176	4%	43	1%
Flathead Sole	73	12%	83	14%	179	4%	127	3%
Halibut*	--	--	75	12%	--	--	73	2%
Other Species	1	0%	1	0%	29	1%	77	2%
Pollock, bottom	41	7%	51	8%	346	8%	339	8%
Pollock, midwater	128	22%	79	13%	231	5%	58	1%
Rex Sole	111	19%	49	8%	555	12%	275	6%
Rockfish	50	8%	67	11%	724	16%	1,201	27%
Sablefish	68	11%	56	9%	120	3%	49	1%
Shallow-water Flatfish	43	7%	10	2%	1,582	35%	1,654	37%
Totals	593	99.9%	604	100.0%	4,458	100.0%	4,442	100.0%

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

Discarded Incidental Catch

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

Regulatory discards occur for two reasons. First, Pacific cod must be discarded when catch of Pacific cod during other directed fisheries exceeds the MRA. The MRA limits the amount of non-directed species catch that may be retained to a percentage of directed species catch. For Pacific cod, the MRA with respect to all directed species, with the exception of arrowtooth flounder, is 20 percent. The MRA for Pacific cod in the directed arrowtooth flounder fishery in the Gulf is 5 percent. When Pacific cod is not open for directed fishing, a vessel may retain Pacific cod up to the amount of the MRA.² Any cod caught in excess of the MRA must be discarded. Second, discards are required if Pacific cod has been put on PSC status, which typically occurs when total catch approaches the overfishing limit (OFL). In the Gulf of Alaska, Pacific cod has occasionally been placed on PSC status (see Table 4). During years when cod was placed on PSC status, the percentage of incidental catch that was discarded was often higher than normal. Inseason managers avoid placing cod on PSC status by closing the directed A season when there

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

is still sufficient TAC remaining to accommodate the incidental catch needs in other directed fisheries during the remainder of the A season.

Discarded incidental catch of Pacific cod is reported by sector in Table 4. Virtually none of the incidental catch by the pot and jig sectors is discarded, and these sectors were not included in Table 4. In the Western Gulf, the discard rate of incidentally caught cod decreased from 40% during 1995-2000 to 23% during 2001-2006. In the Central Gulf, 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 Gulf. The percent of total catch that was discarded has stayed about the same (1% in the Western Gulf, 5% in the Central Gulf), because total catch has decreased in recent years.

Table 4. Discarded incidental catch of Pacific cod (mt) and the percentage of incidental catch discarded by each sector in the Western and Central Gulf of Alaska.

Western Gulf

Year	HAL CP		HAL CV		Trawl CP		Trawl CV		Total		Percent of total catch discarded
	Mt	Percent of <u>incid catch</u> discarded	Mt	Percent of <u>incid catch</u> discarded	Mt	Percent of <u>incid catch</u> discarded	Mt	Percent of <u>incid catch</u> discarded	Mt	Percent of <u>incid catch</u> 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%

¹Pacific cod placed on PSC status in 1995 (inshore-Mar 30, offshore-May 5), 1996 (May 5), 1997 (Sep 4), and 2000 (Jul 31).

Central Gulf

Year	HAL CP		HAL CV		Trawl CP		Trawl CV		Total		Percent of total catch discarded
	Mt	Percent of <u>incid catch</u> discarded	Mt	Percent of <u>incid catch</u> discarded	Mt	Percent of <u>incid catch</u> discarded	Mt	Percent of <u>incid catch</u> discarded	Mt	Percent of <u>incid catch</u> 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%

¹Pacific cod placed on PSC status in 1995 (inshore-Nov 29), 1996 (May 5), and 2003 (inshore-Sep 9).

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

Options for Management of Incidental Catch Under Sector Allocations

The Council is currently considering two options to revise management of incidental catch of cod under the proposed sector allocations. Under Component 5 of the Council motion, options include:

Option 1 Reserve the amount of Pacific cod needed to support incidental catch of cod in all other directed Gulf of Alaska fisheries off the top before allocating to the sectors.

Option 2 Give each sector separate incidental catch allocations, and sectors will be responsible for their own incidental catch needs.

Under Option 1, NMFS would set aside a single ICA each year during the harvest specifications process. The ICA would be reserved off the top of the Western and Central GOA TACs before allocations of cod were made to the sectors, and would support incidental catch of cod in all other directed Gulf of Alaska fisheries. NMFS would estimate incidental catch needs based on incidental catch levels during previous years, including discarded incidental catch.

Under Option 2, each sector's allocation would support its own incidental catch. No ICA would be taken off the top of the TAC. Each sector would receive a fixed percentage of the TAC based on historic catch levels, and both directed and incidental catch by a sector would count against that sector's allocation. Each sector would be managed to its allocation so that a sector's incidental catch would not impose a cost on other sectors. Management of incidental catch under Option 2 would be very similar to the status quo, but would be on a sector basis. For example, managers would time the closure of each sector's directed A season to leave a sufficient portion of that sector's allocation to accommodate incidental catch by that sector in other directed fisheries during the remainder of the A season. In determining how much quota to leave for incidental catch needs, inseason managers would take into account each sector's interest in prosecuting other directed fisheries, the TACs in those fisheries, and the CPUE of Pacific cod during the directed season. Incidental catch would continue to count toward the A season allocations until the A season ends on June 10th. Any A season overage or incidental catch between the end of the A season (June 10th) and the beginning of the B season (September 1st) would count toward the B season allocations.

The Council requested that staff discuss management tools and incentives to reduce incidental catch of cod (and discards) in the Gulf of Alaska in the context of sector allocations. Option 1 may create incentives for sectors to increase incidental catch levels. Inseason management tends to set ICAs conservatively to avoid complicating the management of other directed fisheries and to minimize regulatory discards. If the ICA is fully utilized, NMFS may increase the ICA during the following year. This may create an incentive for sectors to use the entire ICA to increase the following year's ICA. Increases in the ICA would erode catch shares of sectors with little incidental catch and effectively increase the quota for sectors that take the most incidental catch.

Reserving a single ICA off the top of the TAC also gives managers less flexibility to respond inseason to conditions in the fisheries. If the ICA is too large, unused quota has to be reallocated at some point during the season. If the ICA is too small, it may constrain participation in other directed fisheries or cause Pacific cod to be placed on PSC status, where all incidental catch of cod would be discarded. Setting aside an ICA also complicates the harvest specifications process and may make the fishery more difficult to manage. For example, it can be difficult for inseason managers to determine on an instantaneous basis if catch should account to the ICA or if it is directed catch when more than one directed fishery is open simultaneously (M. Furuness, pers. comm., 8/27/2007).

Allowing NMFS to manage each sector’s allocation individually (Option 2), by estimating incidental catch needs inseason and timing the directed season closure, has several advantages over setting a single ICA to cover all sectors. The primary advantage of Option 2 is that it does not penalize sectors with little incidental catch or create incentives for a sector to increase its incidental catch. If individual sectors are managed independently and a sector increases its incidental catch during one fishing year, inseason management would reserve more of that sector’s allocation for incidental catch during the following year. This increase would not affect allocations to other sectors.

Option 2 also provides the most flexibility to inseason managers to manage the incidental catch needs of each sector conservatively and minimize discards. Under this option, NMFS will be able to time the closure of each sector’s directed fishery to leave enough cod available to meet incidental catch needs. Total catch is likely to stay within or close to the ABC, and cod is unlikely to be placed on PSC (discard) status. In the BSAI cod fishery, cod is not necessarily placed on PSC status if the ICA is exceeded, and retention of incidentally caught cod may exceed the ICA (M. Furuness, pers. comm., 11/5/2007). This places the burden of determining the appropriate ICA on inseason managers, rather than penalizing the sector for higher than expected incidental catch. This management strategy minimizes discards, because cod is not automatically placed on PSC status if the ICA has been fully harvested.

State waters Pacific cod fishery in the Gulf of Alaska

The Council requested that staff provide additional information on the State waters cod fisheries in the Gulf of Alaska. Two concerns were raised at the October Council meeting. One concern was that the State GHLS have not been fully utilized in recent years, particularly by the jig sector, resulting in stranded quota. A second concern was that sector splits might change the timing of the federal A season and potentially delay the opening of the State waters season. To address these issues, the paper first discusses current management, GHLS, and catch levels in the Gulf of Alaska State waters fisheries. Second, the paper discusses current timing of the federal and state seasons and overlap in participation in the fisheries.

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

Table 5. Current allocations of Pacific cod to state waters fisheries in the Gulf of Alaska.

Federal Management Area	State Management Area	Percent of Area ABC
<u>Central Gulf</u> (25%)	Cook Inlet	3.75%
	Chignik	8.75%
	Kodiak	12.50%
<u>Western Gulf</u> (25%)	Alaska Peninsula	25%
<u>Eastern Gulf</u> (15%)	Prince William Sound	15%

The State waters fishery is open only to pot and jig vessels. Jig catch decreased substantially in 2006 (see Table 6). Pot catch in Kodiak has also decreased during recent years, but pot catch in Chignik, the South Alaska Peninsula, and Cook Inlet has remained stable or increased during recent years. Catch was below the GHLs in all four Gulf management areas during 2005 and 2006. In 2006, only 64% of the combined Gulf-area GHLs were harvested, and nearly 6,000 mt of cod were not harvested (Table 7). For

comparison, in 2006 more than 10,000 mt of the federal TACs in the Western and Central Gulf were not harvested. In sum, more than 16,000 mt of cod, or approximately 25% of the combined Western and Central Gulf federal TACs and state GHGs, were not harvested in 2006.

Table 6. Catch of Pacific cod in State waters fisheries in the Gulf of Alaska (mt).

Year	Kodiak		Chignik		Cook Inlet		Alaska Peninsula		Total Gulf	
	Jig	Pot	Jig	Pot	Jig	Pot	Jig	Pot	Jig	Pot
1997	898	2,533	16	498	255	128	158	4,162	1,072	7,322
1998	959	2,896	76	2,327	87	249	199	3,716	1,234	9,189
1999	1,041	3,828	99	2,820	57	631	321	5,042	1,461	12,321
2000	1,277	2,608	17	797	6	515	344	6,480	1,638	10,399
2001	569	1,659	130	1,058	9	397	1,376	4,727	2,076	7,841
2002	630	3,373	147	1,771	8	508	928	4,853	1,706	10,505
2003	1,447	2,248	196	1,830	195	464	1,647	3,590	3,291	8,132
2004	1,909	2,631	64	2,537	147	838	758	4,869	2,731	10,874
2005	2,073	1,804	63	2,597	47	1,011	558	4,608	2,694	10,020
2006	656	2,214	*	*	*	*	34	5,267	691	9,648

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

Table 7. Catch, GHG, and percent of GHG harvested in Gulf of Alaska State waters Pacific cod fisheries (mt).

Year	Kodiak			Chignik			Cook Inlet			Alaska Peninsula			Total Gulf		
	Catch	GHG	Percent harvested	Catch	GHG	Percent harvested	Catch	GHG	Percent harvested	Catch	GHG	Percent harvested	Catch	GHG	Percent harvested
1997	3,431	3,856	89%	514	2,676	19%	383	1,134	34%	4,320	4,264	101%	8,648	11,930	72%
1998	3,856	3,674	105%	2,403	2,586	93%	336	1,089	31%	3,915	4,082	96%	10,509	11,431	92%
1999	4,869	5,307	92%	2,919	3,719	78%	688	1,179	58%	5,362	5,897	91%	13,838	16,103	86%
2000	3,884	5,443	71%	814	3,039	27%	521	998	52%	6,824	6,849	100%	12,043	16,329	74%
2001	2,228	4,808	46%	1,188	2,722	44%	406	862	47%	6,103	6,078	100%	9,926	14,470	69%
2002	4,003	3,946	101%	1,918	2,223	86%	516	726	71%	5,777	5,625	103%	12,214	12,519	98%
2003	3,696	3,629	102%	2,026	2,041	99%	659	635	104%	5,237	5,171	101%	11,618	11,476	101%
2004	4,540	4,491	101%	2,601	2,631	99%	985	1,089	90%	5,626	5,670	99%	13,752	13,880	99%
2005	3,877	4,128	94%	2,661	2,903	92%	1,058	1,225	86%	5,165	5,216	99%	12,761	13,472	95%
2006	2,870	4,717	61%	1,560	3,311	47%	608	1,406	43%	5,301	6,713	79%	10,339	16,148	64%

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

Currently, State waters Pacific cod fisheries open approximately 7 days after the federal A season closes (see Table 8). There is no overlap between the federal parallel waters and the State waters seasons. In recent years, the State fishery has opened as early as January 27th, but typically State waters seasons open in early March. Within each state management area, pot and jig seasons currently open on the same day. Under sector allocations, there is concern that the pot and jig sectors may not finish fishing their A season allocations at the same time. If one sector has to wait for the other to finish fishing its federal allocation, this could potentially delay the opening of the State waters fisheries. The Council may wish to consider measures to ensure continuity in the federal and state pot and jig seasons that allow both sectors access to their allocations and do not leave stranded quota.

Table 8. Season opening dates for State Waters Pacific cod fisheries in the Gulf of Alaska.

Year	Kodiak		Chignik		Cook Inlet		Alaska Peninsula	
	Jig	Pot	Jig	Pot	Jig	Pot	Jig	Pot
1997	April 4	April 4	April 15	April 15	April 4	April 4	April 4	April 4
1998	March 17	March 17	April 1	April 1	March 17	March 17	March 10	March 10
1999	March 21	March 21	April 21	April 15	March 21	March 21	March 15	March 15
2000	March 5	March 5	April 15	April 15	March 5	March 5	March 11	March 11
2001	March 5	March 5	March 11	March 11	March 5	March 5	March 6	March 6
2002	March 10	March 10	March 1	March 1	March 10	March 10	March 5	March 5
2003	Feb 10	Feb 10	March 1	March 1	Feb 10	Feb 10	Feb 24	Feb 24
2004	Feb 1	Feb 1	March 1	March 1	Feb 1	Feb 1	March 2	March 2
2005	Jan 27	Jan 27	March 1	March 1	Jan 27	Jan 27	March 3	March 3
2006	March 1	March 1	March 1	March 1	March 1	March 1	March 9	March 9

Coordinating the timing of the pot and jig A season closures is important because the majority of vessels that fish during the federal Pacific cod seasons using pot or jig gear also participate in the State waters cod fisheries in the Gulf (see Table 9). More than half of vessels that fish the federal pot season also fish the state pot season. Most vessels that fish the federal jig season also participate in the State waters jig fishery, but a smaller percentage (typically less than 25%) of vessels that fish the State waters jig season also fish during the federal jig season. Inclement weather conditions during the A season (January/February) and again during the B season probably limits participation by jig vessels in the federal fishery, particularly during recent years, when cod have been difficult to find.

Table 9. Number of vessels participating in the State, Federal, and both State and Federal Pacific cod fisheries in the Western and Central Gulf of Alaska.

Western Gulf

Year	Jig vessels				Pot vessels			
	Number of vessels		Percent of vessels fishing both seasons		Number of vessels		Percent of vessels fishing both seasons	
	Federal	State	Federal	State	Federal	State	Federal	State
1997	5	34	80%	12%	36	55	50%	33%
1998	3	25	0%	0%	64	58	50%	55%
1999	0	26	--	0%	53	59	45%	41%
2000	4	29	50%	7%	81	66	43%	53%
2001	17	73	65%	15%	46	60	59%	45%
2002	30	74	63%	26%	48	60	67%	53%
2003	11	69	73%	12%	60	48	55%	69%
2004	23	57	78%	32%	81	52	56%	87%
2005	6	45	100%	13%	59	47	64%	81%
2006	1	12	0%	0%	51	45	63%	71%

Note: State fishery includes S. Alaska Peninsula management area. Source: ADFG/CFEC fish tickets.

Table 9, cont.

Central Gulf

Year	Jig vessels				Pot vessels			
	Number of vessels		Percent of vessels fishing both seasons		Number of vessels		Percent of vessels fishing both seasons	
	Federal	State	Federal	State	Federal	State	Federal	State
1997	14	111	79%	10%	61	56	44%	48%
1998	16	121	75%	10%	61	85	70%	51%
1999	9	124	78%	6%	85	124	64%	44%
2000	17	142	76%	9%	114	103	68%	75%
2001	15	82	73%	13%	62	56	56%	63%
2002	7	62	86%	10%	45	50	71%	64%
2003	12	125	92%	9%	35	65	80%	43%
2004	35	146	86%	21%	35	74	89%	42%
2005	28	130	96%	21%	47	76	74%	46%
2006	24	78	88%	27%	59	62	61%	58%

Note: State fisheries include Kodiak, Chignik, and Cook Inlet management areas. Source: ADFG/CFEC fish tickets.