

Discussion Paper: Bering Sea, Aleutian Islands, and Gulf of Alaska Unused Pacific Cod

October 2019¹

1	<i>Introduction</i>	1
2	<i>Annual and Seasonal Pacific Cod Allocations</i>	2
	2.1 BSAI total allowable catch	2
	2.1.1 BSAI ICA for hook-and-line and pot gear sectors.....	4
	2.2 GOA total allowable catch.....	6
3	<i>Catch of Pacific cod</i>	9
	3.1 BSAI.....	9
	3.2 GOA.....	12
4	<i>State water Pacific cod (GHL) fisheries</i>	13
	4.1 GOA State GHL Fisheries.....	13
	4.2 BS and AI State GHL Fisheries	13
5	<i>Reallocation Mechanisms</i>	15
6	<i>Challenges to attaining complete harvest</i>	16
	6.1 AI GHL challenges.....	16
7	<i>Summary of Potential Options</i>	18
	7.1 Separate Hook-and-line and Pot Gear ICA in the BSAI.....	18
	7.2 AI GHL.....	18
	7.3 ICA in the GOA.....	20
	7.4 Rockfish Program Pacific cod management	22
	7.5 Amendment 80 Pacific cod management	22
8	<i>Link to other Council Actions</i>	24
9	<i>References</i>	24

1 Introduction

In October 2017, the Council requested staff add a module to the Bering Sea and Aleutian Islands (BSAI) Pacific cod allocation review outlining steps necessary to remove obstacles that impede achieving, on a continuing basis, the complete harvest of Pacific cod allocations in the Bering Sea (BS), Aleutian Islands (AI), and add a similar discussion when reviewing the allocations in the Gulf of Alaska (GOA). The allocation review process was designed to assist the Council in determining if Fishery Management Plan (FMP) objectives are being met and or if other relevant factors (ecological, economic, social, catch, status, etc.) have changed enough to warrant an in-depth formal analysis of the sector allocation for BSAI Pacific cod. Based on review of the NMFS issued Fisheries Allocation Policy Directive, it was determined, that the additional information requested during the October 2017 meeting was considered beyond the scope of the BSAI Pacific cod allocation review and was instead scheduled as separate discussion paper following the allocation review.

The Council requested that this discussion paper should outline the process for reallocating Pacific cod, and options for NMFS and the State of Alaska’s Department of Fish and Game (State) to facilitate the harvest by state and federal fishery participants of stranded allocation of Pacific cod in state waters (guideline harvest level (GHL)) fisheries, with a focus on the Aleutian Island Subdistrict (AIS) GHL fishery.

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The discussion paper should also address impediments to the complete harvest of Pacific cod allocations in the federal fisheries, including the below allocations, and to examine steps to facilitate earlier season reallocations of BSAI Pacific cod (e.g. Amendment 85 to the BSAI fishery management plan) allocations by NMFS.

- Incidental catch allowance (ICA) for hook-and-line and pot gear in the BSAI
- ICA in the GOA
- GOA Rockfish Program allocation
- Amendment 80 fleet allocation

2 Annual and Seasonal Pacific Cod Allocations

Pacific cod is a valuable species caught by all gear types in the groundfish fisheries. In the BSAI, Pacific cod is allocated to nine sectors. In the GOA, Pacific cod is allocated to six sectors in the Western GOA and seven sectors (eight including the Rockfish Program) in the Central GOA.

2.1 BSAI total allowable catch

The current BSAI Pacific cod sector allocations were established by Amendment 85 to the Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands Management Area (BSAI FMP) and implemented in 2008. The Council separated the combined BSAI Pacific cod overfishing level (OFL) acceptable biological catch (ABC) and total allowable catch (TAC) into separate BS and AI subarea OFLs, ABCs, and TACs in 2014 (79 FR 12108, March 4, 2014). Section 679.20(b)(1)(ii)(C) allocates 10.7 percent of the BS TAC and the AI TAC to the Community Development Quota (CDQ) program. After CDQ allocations have been deducted from the respective BS and AI Pacific cod TACs, the remaining BS and AI Pacific cod TACs are combined for calculating further BSAI Pacific cod sector allocations. If the non-CDQ Pacific cod TAC is or will be reached in either the BS or the AI subareas, NMFS will prohibit non-CDQ directed fishing for Pacific cod in that subarea as provided in § 679.20(d)(1)(iii).

Section 679.20(a)(7)(i) and (ii) allocates to the non-CDQ sectors the Pacific cod TAC in the combined BSAI TAC, after subtracting 10.7 percent for the CDQ program, as follows: 1.4 percent to vessels using jig gear; 2.0 percent to hook-and-line or pot catcher vessels (CVs) less than 60 ft (18.3 meters (m)) length overall (LOA); 0.2 percent to hook-and-line CVs greater than or equal to 60 ft (18.3 m) LOA; 48.7 percent to hook-and-line catcher/processors (C/Ps); 8.4 percent to pot CVs greater than or equal to 60 ft (18.3 m) LOA; 1.5 percent to pot C/Ps; 2.3 percent to American Fisheries Act (AFA) trawl C/Ps; 13.4 percent to Amendment 80 sector; and 22.1 percent to trawl CVs. The ICA for the hook-and-line and pot sectors will be deducted from the aggregate portion of Pacific cod TAC allocated to the hook-and-line and pot sectors. For 2019, the Regional Administrator established an ICA of 400 metric tons (mt) based on anticipated incidental catch by these sectors in other fisheries.

The ITAC allocation of Pacific cod to the Amendment 80 sector is established in Table 33 to 50 CFR part 679 and § 679.91. One Amendment 80 cooperative has formed for the 2019 fishing year. Because all Amendment 80 vessels are part of the sole Amendment 80 cooperative, no allocation to the Amendment 80 limited access sector is required for 2019.

The annual process to establish the BSAI allocations is summarized in Figure 1. Table 3 summarizes the final 2019 gear shares and seasonal allowances of the BSAI Pacific cod TAC.

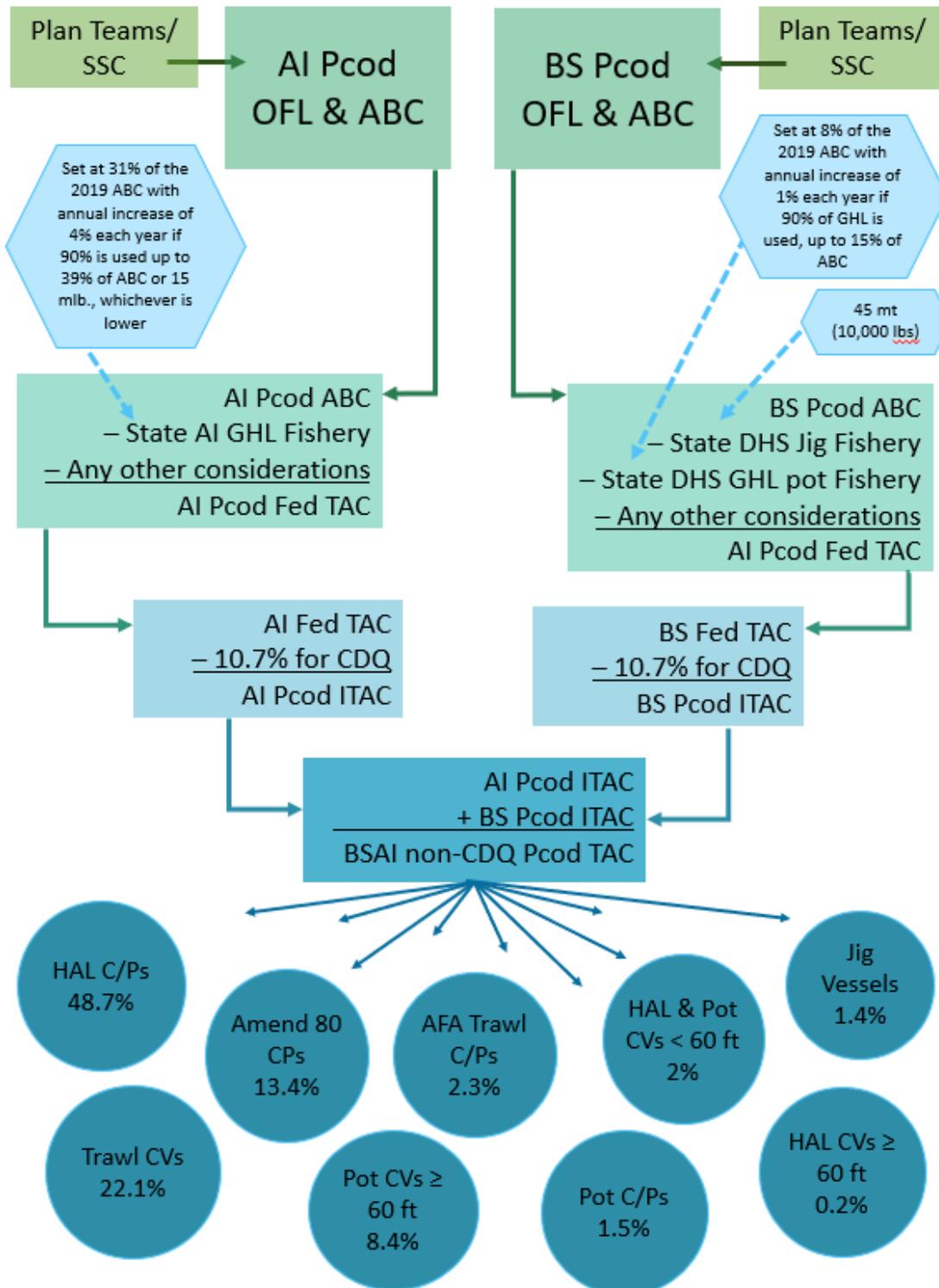


Figure 1 BSAI Pacific cod specifications and sector allocations

Notes: SSC= Scientific and Statistical Committee, AI= Aleutian Islands, BS= Bering Sea, Pcod= Pacific cod, OFL= overfishing limit, ABC= acceptable biological catch, GHL= guideline harvest limit, DHS = Dutch Harbor Subarea, TAC= total allowable catch, ITAC= initial total allowable catch, CDQ= community development quota, HAL= hook-and-line, CV= catcher vessel, C/P= catcher processor, AFA= American Fisheries Act, Amend 80= Amendment 80

Rollovers of Seasonal Apportionments

The sector allocations of Pacific cod are apportioned into seasonal allowances to disperse the Pacific cod fisheries over the fishing year.² In accordance with § 679.20(a)(7)(iv)(B) and (C), any unused portion of a seasonal Pacific cod allowance for any sector, except the jig sector, will become available at the beginning of that sector's next seasonal allowance.

Western Aleutian Islands limit

Section 679.20(a)(7)(vii) requires that the Regional Administrator establish a Western AI (Area 543) Pacific cod harvest limit based on the AI Pacific cod abundance in Area 543. Based on the 2018 stock assessment, the Regional Administrator determined the amount of the AI Pacific cod abundance in Area 543 to be 15.7 percent for 2019. NMFS will first subtract the State Pacific cod GHL amount from the AI Pacific cod ABC. Then NMFS will determine the harvest limit in Area 543 by multiplying the 15.7 percent of Pacific cod estimated in Area 543 by the remaining ABC for AI Pacific cod. Based on these calculations, the Area 543 harvest limit is 2,232 mt for 2019.

2.1.1 BSAI ICA for hook-and-line and pot gear sectors

In 2000, Amendment 64 to the BSAI FMP implemented regulations to establish the ICA for hook-and-line and pot gear. Section 679.20(a)(7)(ii)(B) states that during the annual harvest specifications process, the Regional Administrator will specify an amount of Pacific cod that NMFS estimates will be taken as incidental catch in directed fisheries for groundfish other than Pacific cod by the hook-and-line and pot gear sectors. This amount will be the ICA and will be deducted from the aggregate portion of Pacific cod TAC annually allocated to the hook-and-line and pot gear sectors before the allocations are made to these sectors.

Amendment 64 implemented the ICA because at that time sufficient data were not collected from the Pacific halibut and crab pot fisheries that would allow NMFS to estimate the ICA for hook-and-line and pot gear. Changes implemented in 2013 and 2018 to observer and electronic monitoring deployment on vessels directed fishing for halibut now allow NMFS to estimate the incidental catch of Pacific cod in the halibut fisheries. This Pacific cod accrues to the BSAI hook-and-line and pot ICA. Now the catch accounting system includes these sources of data to estimate incidental catch in the halibut fisheries, and the separate ICA may no longer be needed to account for the incidental catch (see section 7.1). Also, since implementation of the IFQ and CDQ halibut program, the season has closed in early to mid-November. Usually the hook-and-line and pot Pacific cod sectors are open for directed fishing through December 31 and therefore management can account for the incidental catch in the halibut fisheries before the Pacific cod directed fishing allowances have been reached.

NMFS Alaska Region has made progress in developing a database documenting many of the Pacific cod removals from activities outside the groundfish and halibut fisheries, including removals of Pacific cod as bait in the crab pot fisheries. These removals are included in the BS and AI Pacific cod stock assessment appendixes titled Supplemental Catch Data. These removals are provided for purposes of comparison and discussion, as NMFS and the Council continue to refine policy pertaining to treatment of removals from sources other than the groundfish and halibut fisheries. These removals are not included in the catch accounting system.

Since 2008, the ICA for the groundfish and halibut hook-and-line and pot gear sectors has been set at 500 mt, and in 2018 and 2019 it has been set at 400 mt. Table 1 shows the 2019 BSAI hook-and-line and pot sectors, their annual allocations before the ICA is deducted, the amount they contribute to the ICA, the

² See §§ 679.20(a)(7)(i)(B), 679.20(a)(7)(iv)(A), and 679.23(e)(5).

allocation minus the ICA contribution, and the percentage of each ICA contribution. The hook-and-line C/P and pot CV >= 60 ft sectors have the largest allocations of the TAC, and so they contribute the highest TAC amounts of Pacific cod to the ICA.

Table 1 2019 BSAI hook-and-line and pot sector ICA contributions (amounts are in metric tons)

Sectors	Allocation pre ICA	ICA	Allocation minus ICA	Percent of pre ICA allocation
HAL C/P	78,580	320	78,260	0.4%
HAL CV >=60	323	1	321	0.4%
Pot C/P	2,420	10	2,410	0.4%
Pot CV >=60	13,554	55	13,499	0.4%
HAL/Pot CV <60	3,227	13	3,214	0.4%
Total	98,104	400	97,704	0.4%

Source: NMFS, Alaska Region, Catch Accounting System

Table 2 shows the BSAI incidental catch of Pacific cod in the non-Pacific cod groundfish and halibut targets by year, hook-and-line and pot gear, and CV or C/P sector. The incidental catch that accrues to the ICA has ranged from a low of 70 mt in 2009 to a high of 524 mt in 2013. Most of the BSAI ICA is caught by the hook-and-line CV sector in the IFQ halibut target fisheries and the hook-and-line C/P sector in the Greenland turbot target and the “other species” target during the B season Pacific cod fishery.

Table 2 BSAI Incidental Catch of Pacific cod in the non-Pacific cod groundfish and halibut targets by year, gear, and sector (amounts are in metric tons)

Sector	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2008-2018 Average	2013-2018 Average
HAL C/P	90	43	71	102	80	32	88	63	66	68	308	92	104
POT C/P	1	-	-	2	-	11	-	-	-	5	-	5	8
HAL CV	238	27	50	99	41	479	223	188	161	178	152	167	230
POT CV	3	0	0	0	0	1	-	-	-	-	-	1	1
Total	331	70	121	203	121	524	312	251	226	250	459	261	337
Remaining	169	430	379	297	379	-24	188	249	274	250	-59	230	146

Source: NMFS, Alaska Region, Catch Accounting System

Table 3 Final 2019 gear shares and seasonal allowances of the BSAI Pacific cod TAC.

[Amounts are in metric tons]

Gear sector	Percent	2019 share of gear sector total	2019 share of sector total	2019 seasonal apportionment	
				Seasons	Amount
BS TAC	n/a	166,475	n/a	n/a	n/a
BS CDQ	n/a	17,813	n/a	see § 679.20(a)(7)(i)(B)	n/a
BS non-CDQ TAC	n/a	148,662	n/a	n/a	n/a
AI TAC	n/a	14,214	n/a	n/a	n/a
AI CDQ	n/a	1,521	n/a	see § 679.20(a)(7)(i)(B)	n/a
AI non-CDQ TAC	n/a	12,693	n/a	n/a	n/a
Western Aleutian Island Limit	n/a	2,232	n/a	n/a	n/a
Total BSAI non-CDQ TAC ¹	100	161,355	n/a	n/a	n/a
Total hook-and-line/pot gear	60.8	98,104	n/a	n/a	n/a
Hook-and-line/pot ICA ²	n/a	400	n/a	see § 679.20(a)(7)(ii)(B)	n/a
Hook-and-line/pot sub-total	n/a	97,704	n/a	n/a	n/a
Hook-and-line catcher/processor	48.7	n/a	78,260	Jan 1-Jun 10	39,912
				Jun 10-Dec 31	38,347
Hook-and-line catcher vessel ≥ 60 ft LOA	0.2	n/a	321	Jan 1-Jun 10	164
				Jun 10-Dec 31	157
Pot catcher/processor	1.5	n/a	2,410	Jan 1-Jun 10	1,229
				Sept 1-Dec 31	1,181
Pot catcher vessel ≥ 60 ft LOA	8.4	n/a	13,499	Jan 1-Jun 10	6,884
				Sept 1-Dec 31	6,614
Catcher vessel < 60 ft LOA using hook-and-line or pot gear	2.0	n/a	3,214	n/a	n/a
Trawl catcher vessel	22.1	35,660	n/a	Jan 20-Apr 1	26,388
				Apr 1-Jun 10	3,923
				Jun 10-Nov 1	5,349
AFA trawl catcher/processor	2.3	3,711	n/a	Jan 20-Apr 1	2,783
				Apr 1- Jun 10	928
				Jun 10-Nov 1	-
Amendment 80	13.4	21,622	n/a	Jan 20-Apr 1	16,216
				Apr 1- Jun 10	5,405
				Jun 10-Nov 1	-
Jig	1.4	2,259	n/a	Jan 1-Apr 30	1,355
				Apr 30-Aug 31	452
				Aug 31-Dec 31	452

¹The gear shares and seasonal allowances for BSAI Pacific cod TAC are based on the sum of the BS and AI Pacific cod TACs, after the subtraction of CDQ. If the TAC for Pacific cod in either the AI or BS is reached, then directed fishing for Pacific cod in that subarea will be prohibited, even if a BSAI allowance remains.

²The ICA for the hook-and-line and pot sectors will be deducted from the aggregate portion of Pacific cod TAC allocated to the hook-and-line and pot sectors. The Regional Administrator approves an ICA of 400 mt for 2019 based on anticipated incidental catch in these fisheries.

Note: Seasonal or sector apportionments may not total precisely due to rounding.

2.2 GOA total allowable catch

The current Western and Central GOA Pacific cod sector allocations were established by Amendment 83 to the Fishery Management Plan for Groundfish of the Gulf of Alaska (GOA FMP) and implemented in 2012. Pursuant to § 679.20(a)(12)(i), NMFS seasonally allocates the 2019 Pacific cod TACs in the Western and Central Regulatory Areas of the GOA among gear and operational sectors. NMFS also allocates the Pacific cod TACs annually between the inshore (90 percent) and offshore (10 percent) components in the Eastern Regulatory Area of the GOA (§ 679.20(a)(6)(ii)). In the Central GOA, the Pacific cod TAC is apportioned seasonally first to vessels using jig gear, and then among catcher vessels (CVs) less than 50 feet in length overall using hook-and-line gear, CVs equal to or greater than 50 feet in length overall using hook-and-line gear, catcher/processors (C/Ps) using hook-and-line gear, CVs using

trawl gear, C/Ps using trawl gear, and vessels using pot gear (§ 679.20(a)(12)(i)(B)). In the Western GOA, the Pacific cod TAC is apportioned seasonally first to vessels using jig gear, and then among CVs using hook-and-line gear, C/Ps using hook-and-line gear, CVs using trawl gear, C/Ps using trawl gear, and vessels using pot gear (§ 679.20(a)(12)(i)(A)). The overall seasonal apportionments in the Western and Central GOA are 60 percent of the annual TAC to the A season and 40 percent of the annual TAC to the B season.

Under § 679.20(a)(12)(ii), any overage or underage of the Pacific cod allowance from the A season may be subtracted from, or added to, the subsequent B season allowance. In addition, any portions of the hook-and-line, trawl, pot, or jig sector allocations that are determined by NMFS as likely to go unharvested by a sector may be reallocated to other sectors for harvest during the remainder of the fishery year.

Pursuant to § 679.20(a)(12)(i)(A) and (B), a portion of the annual Pacific cod TACs in the Western and Central GOA will be allocated to vessels with a Federal fisheries permit that use jig gear before the TACs are apportioned among other non-jig sectors. In accordance with the FMP, the annual jig sector allocations may increase to up to 6 percent of the annual Western and Central GOA Pacific cod TACs, depending on the annual performance of the jig sector (see Table 1 of Amendment 83 to the FMP for a detailed discussion of the jig sector allocation process (76 FR 74670, December 1, 2011)). Jig sector allocation increases are established for a minimum of two years.

In conjunction with the final GOA 2019 and 2020 harvest specifications, NMFS evaluated the 2018 harvest performance of the jig sector in the Western and Central GOA, and established the 2019 Pacific cod apportionments to this sector as follows. For 2019, NMFS allocated the jig sector 2.5 percent of the annual Pacific cod TAC in the Western GOA. This is an increase from the 2018 jig sector allocation of 1.5 percent. The 2019 allocation consists of a base allocation of 1.5 percent of the Western GOA Pacific cod TAC, and a 1.0 percent performance increase because in 2018 the jig sector harvested greater than 90 percent of its 2018 Pacific cod allocation.

For 2019, NMFS allocated the jig sector 1.0 percent of the annual Pacific cod TAC in the Central GOA. This is the same percent as the 2018 jig sector allocation because in 2018 this sector harvested less than 90 percent of its 2018 Pacific cod allocation. The 2019 allocation consists of a base allocation of 1.0 percent of the Central GOA Pacific cod TAC, and no additional performance increase in the Central GOA.

Table 4 lists the seasonal apportionments and allocations of the 2019 Pacific cod TACs in the GOA.

Table 4 Final 2019 Seasonal Apportionments and Allocation of Pacific Cod Total Allowable Catch (TAC) Amounts in the GOA; Allocations in the Western GOA and Central GOA Sectors, and the Eastern GOA Inshore and Offshore Processing Components (Values are rounded to the nearest metric ton).

Regulatory area and sector	Annual allocation (mt)	A Season		B Season	
		Sector percentage of annual non-jig TAC	Seasonal allowances (mt)	Sector percentage of annual non-jig TAC	Seasonal allowances (mt)
Western GOA					
Jig (2.5 % of TAC)	134	N/A	80	N/A	53
Hook-and-line CV	73	0.70	36	0.70	36
Hook-and-line C/P	1,031	10.90	568	8.90	464
Trawl CV	2,000	27.70	1,443	10.70	557
Trawl C/P	125	0.90	47	1.50	78
All Pot CV and Pot C/P	1,980	19.80	1,031	18.20	948
Total	5,343	60.00	3,206	40.00	2,137
Central GOA					
Jig (1.0% of TAC)	58	N/A	35	N/A	23
Hook-and-line < 50 CV	831	9.32	530	5.29	301
Hook-and-line ≥ 50 CV	382	5.61	319	1.10	62
Hook-and-line C/P	291	4.11	234	1.00	57
Trawl CV ¹	2,367	21.14	1,203	20.45	1,164
Trawl C/P	239	2.00	114	2.19	125
All Pot CV and Pot C/P	1,583	17.83	1,015	9.97	568
Total	5,750	60.00	3,450	40.00	2,300
Eastern GOA		Inshore (90% of Annual TAC)		Offshore (10% of Annual TAC)	
1,275		1,148		127	

¹ Trawl catcher vessels participating in Rockfish Program cooperatives receive 3.81 percent, or 219 mt, of the annual Central GOA TAC (see Table 28c to 50 CFR part 679), which is deducted from the Trawl CV B season allowance (see Table 12. Final 2019 Apportionments of Rockfish Secondary Species in the Central GOA and Table 28c to 50 CFR part 679).

3 Catch of Pacific cod

3.1 BSAI

Table 5 shows that in the BSAI, from 2010 through 2018 the amount of the BSAI Pacific cod remaining uncaught from all sectors, including CDQ, ranges from a low of 894 mt in 2010 to a high of 17,026 mt in 2014, with an average of 9,515 mt. The percentage of the BSAI Pacific cod TAC remaining ranges from a low of 1 percent in 2010 and 2018 to a high of 7 percent in 2014, with an average of 4 percent. The table indicates that in years with lower TACs (2010 and 2018) the amounts and percentages remaining are lower.

Table 5 BSAI Pacific Cod Total Catch by Year and Amounts Remaining Uncaught (amounts are in metric tons)

Year	TAC	Catch	Remaining	Percent Remaining
2010	168,779	167,885	894	1%
2011	227,951	219,851	8,100	4%
2012	261,000	245,769	15,231	6%
2013	260,000	245,518	14,482	6%
2014	253,894	236,868	17,026	7%
2015	249,422	233,886	15,536	6%
2016	251,519	243,890	7,629	3%
2017	239,399	235,072	4,327	2%
2018	203,831	201,421	2,410	1%
Average	235,088	225,573	9,515	4%

Source: NMFS, Alaska Region, Catch Accounting System

Table 6 shows the remaining amounts of Pacific cod by sectors that have regulations to allow Pacific cod reallocations and those sectors that do not. In the BSAI, the sectors or allocations without reallocation regulations are CDQ, hook-and-line C/P, hook-and-line/pot ICA, Amendment 80, and State GHs. From 2010 to 2018, more Pacific cod remained uncaught by sectors that do not have regulations to allow for reallocations. The hook-and-line C/P sector had the largest amount of remaining TAC in 2013 and the Amendment 80 sector is more consistent in leaving large amounts of Pacific cod TAC unharvested than other sectors. Since 2010, the Amendment 80 sector had five of the top ten remaining amounts of TAC by year, followed by the hook-and-line C/P sector with three of the top ten, and CDQ with one of the top ten. Of the top ten remaining amounts of TAC by sector, only one was from a sector that has reallocations regulations, the pot CVs greater than or equal to 60 feet in 2014. This was due to NMFS' expectation that this sector would pursue their B season fishery, which did not occur. This situation occurred again in 2015.

Table 6 BSAI Pacific Cod Total Catch by Year and Amounts Remaining Uncaught by Sectors Without and With Reallocation Regulations (Amounts are in metric tons.)

Year	Without Reallocation Sectors			With Reallocation Sectors		
	TAC	Catch	Percent Remaining	TAC	Catch	Percent Remaining
2010	115,777	114,846	0.4%	53,002	53,039	0.0%
2011	152,021	145,564	2.2%	75,930	74,287	1.1%
2012	179,765	167,030	3.7%	81,236	78,740	1.6%
2013	180,703	166,824	4.0%	79,298	78,694	0.4%
2014	172,814	161,147	3.5%	81,081	75,721	3.4%
2015	174,775	166,039	2.6%	74,647	67,846	4.8%
2016	173,193	168,124	1.5%	78,427	75,765	1.7%
2017	162,351	156,561	1.8%	77,047	77,512	-0.3%
2018	134,925	132,799	0.8%	68,907	68,621	0.2%
Average	160,703	153,215	2.3%	74,397	72,247	1.4%

Source: NMFS, Alaska Region, Catch Accounting System

Amendment 80 sector allocation

By November 1 before the next fishing year, the Amendment 80 participants may decide to participate in an Amendment 80 limited access sector or in an Amendment 80 cooperative(s). From 2008 to 2010, there was one cooperative and an Amendment 80 limited access sector. Roughly, one quarter of the fleet holding more than a third of the available quota participated in the limited access sector. From 2011 to 2017, there were two Amendment 80 cooperatives, and since 2018 there has been one Amendment 80 cooperative. Amendment 80 cooperatives do have the ability to transfer Pacific cod between cooperatives, but currently there is only one cooperative.

Table 7 shows for 2008 to 2018, the average remaining amount of Pacific cod in the Amendment 80 sector is 3,483 mt. The amount remaining ranges from a low in 2010 of one mt to a high in 2014 of 5,917 mt. The 2008 to 2018 average remaining percent of Pacific cod in the Amendment 80 sector allocations is 6 percent and ranges from a low of 0 percent in 2010 to a high of 23 percent in 2008. Amendment 80 cooperatives are “hard capped.” If they reach the limit of any allocated quota or PSC limit, they must cease fishing. The Amendment 80 limited access sector, is “soft capped.” This means that NMFS manages their sector allocations, and if the directed fishing allowance it expected to be reached, NMFS will close directed fishing for that species, but incidental catches in other fisheries may continue to accrue to this sectors allocation.

Table 7 Amendment 80 BSAI Pacific Cod Total Catch by Year, Initial Allocation, Reallocation, Final Allocation, Remaining Allocation, and Percent Remaining (amounts are in metric tons)

Year	Catch	Initial Quota	Reallocation	Final Quota	Remaining	Percent Remaining
2008	15,752	20,429		20,429	4,677	23%
2009	21,662	21,125		21,125	(537)	-3%
2010	24,027	20,197	3,831	24,028	1	0%
2011	24,743	27,277		27,277	2,534	9%
2012	27,991	31,232	2,000	33,232	5,241	16%
2013	32,261	31,112	6,100	37,212	4,951	13%
2014	27,714	30,381	3,250	33,631	5,917	18%
2015	27,171	29,846	2,370	32,216	5,045	16%
2016	28,812	30,097	1,300	31,397	2,585	8%
2017	23,203	28,647		28,647	5,444	19%
2018	22,589	24,391		24,391	1,802	7%
Average	25,025	26,794	1,714	28,508	3,483	6%

Source: NMFS Alaska Region Catch Accounting System

In the Amendment 80 sector, Pacific cod has been historically fished in January through April. In recent years, there has been little targeting of Pacific cod, but high catch rates still occur in January through April as incidental catch in the rock sole fishery. Additional catch occurs throughout the year, particularly in the yellowfin sole fishery. The rate of Pacific cod incidental catch is smaller in the yellowfin sole fishery, but the total amount of yellowfin sole harvest is larger than the rock sole and flathead sole harvests. For Amendment 80 cooperative hard cap allocations, Pacific cod is the primary limiting species in the BS flatfish fisheries followed by Pacific halibut PSC.

After April, it is difficult to target Pacific cod without accruing high Pacific halibut PSC. Also, in the second half of the year, there is incidental catch of Pacific cod in the flatfish fisheries, but the rate is highly variable from year to year. It is impossible to predict earlier in the year how much Pacific cod will be needed in the fall flatfish fisheries. Therefore, the Amendment 80 sector needs to preserve Pacific cod allocations for the fall flatfish fisheries, but has little ability to target fall Pacific cod should there be a surplus of Amendment 80 Pacific cod late in the year. Table 8 shows the catches of Amendment 80 flatfish species and Pacific cod caught in the Amendment 80 fisheries for the previous five years by the earlier and later periods each year.

Table 8 Amendment 80 BSAI Pacific Cod and Amendment 80 Flatfish Species by Timing for the Previous Five Years (amounts are in metric tons)

Year	January through April Flatfish	January through April Pacific cod	May through December Flatfish	May through December Pacific cod	Annual Ratio of Flatfish to Pacific cod
2014	70,928	14,924	110,403	12,791	6.5
2015	62,614	15,265	88,325	11,905	5.6
2016	58,026	17,142	106,995	11,669	5.7
2017	45,295	12,761	97,289	10,443	6.1
2018	45,075	11,544	96,365	11,045	6.3

Source: NMFS Alaska Region Catch Accounting System

3.2 GOA

Table 9 shows that in the Central GOA, from 2012 through 2018, the amount of Pacific cod remaining uncaught ranges from a low of -400 mt in 2014 to a high of 16,167 mt in 2017, with an average of 6,963 mt. The percentage of the Central GOA Pacific cod TAC remaining ranges from a low of -1 percent in 2014 to a high of 49 percent in 2017, with an average of 20 percent. Table 9 shows that in the Western GOA, from 2012 to 2018 the amount of the Pacific cod remaining uncaught ranges from a low of 558 mt in 2018 to a high of 9,876 mt in 2016, with an average of 4,536 mt. The percentage of the Western GOA Pacific cod TAC remaining ranges from a low of 5 percent in 2014 to a high of 35 percent in 2016, with an average of 21 percent.

Table 9 GOA Pacific Cod Total Catch by Year and Amounts Remaining Uncaught (amounts are in metric tons)

Year	Area	TAC	Catch	Remaining	Percent Remaining
2012 ¹	CGOA	2,705	37,781	4,924	12%
2012 ¹	WGOA	21,024	18,242	2,782	13%
2013	CGOA	36,966	32,006	4,960	13%
2013	WGOA	21,210	19,247	1,963	9%
2014	CGOA	39,825	40,225	(400)	-1%
2014	WGOA	22,922	21,686	1,236	5%
2015	CGOA	45,990	36,193	9,797	21%
2015	WGOA	27,091	18,991	8,100	30%
2016	CGOA	36,984	23,984	13,000	35%
2016	WGOA	28,352	18,476	9,876	35%
2017	CGOA	33,135	16,968	16,167	49%
2017	WGOA	25,404	18,168	7,236	28%
2018	CGOA	6,089	5,794	295	5%
2018	WGOA	5,657	5,099	558	10%
Average	CGOA	34,528	27,564	6,963	20%
Average	WGOA	21,666	17,130	4,536	21%

¹ Implementation of Amendment 83, the GOA Pacific cod sector splits in 2012.

Source: NMFS, Alaska Region, Catch Accounting System

Central GOA Rockfish Program Pacific cod allocation

In the Rockfish Program, Pacific cod is allocated as a secondary species to the trawl CVs participating in a cooperative. Trawl CVs participating in Rockfish Program cooperatives receive 3.81 percent of the annual Central GOA TAC (see Table 28c to 50 CFR part 679), which is deducted from the trawl CV B season allowance (see Table 12 of the Final 2019 and 2020 final harvest specifications for groundfish of the GOA).

The trawl CV cooperatives do have the ability to transfer Pacific cod between other trawl CV cooperatives. However, only a few Pacific cod transfers have been done since 2011 between the six trawl CV cooperatives. The cooperative's 2011 to 2018 average annual amount transferred between cooperatives is 21 mt.

Table 10 shows for 2011 to 2018, the average remaining amount of Pacific cod in the trawl CV Rockfish Program cooperatives is 692 mt. If 2018 is not included (because of the large decrease in Pacific cod biomass that was identified in 2017), that 7-year average is 770 mt. The amount remaining ranges from a

low in 2011 of 141 mt to a high in 2015 and 2017 of 1,213 mt and 1,210 mt, respectively. The 2011 to 2018 average remaining percent of Pacific cod in the trawl Rockfish Program CV cooperative allocations is 55 percent (also 55 percent if 2018 is excluded) and ranges from a low of 10 percent in 2014 to a high of 96 percent in 2017.

Table 10 2011 to 2018 Rockfish Program Trawl CV cooperative Pacific cod allocations, total catch, remaining allocation, and percent of allocation remaining (amounts are in metric tons).

Year	Allocation	Total Catch	Remaining Allocation	Percent Remaining
2011	843	702	141	17%
2012	1,592	796	796	50%
2013	1,408	490	918	65%
2014	1,517	1,368	149	10%
2015	1,752	792	960	55%
2016	1,409	196	1,213	86%
2017	1,262	52	1,210	96%
2018	232	83	149	64%
Average	1,252	560	692	55%

Source: NMFS, Alaska Region, Catch Accounting System

4 State water Pacific cod (GHL) fisheries

The State manages multiple Pacific cod fisheries in the BSAI and GOA inside state waters (0-3 nautical miles from shore). All state waters Pacific cod fisheries have established Guideline Harvest Levels (GHLs) based on a percentage of a corresponding federal Pacific cod ABC. For increasing or decreasing a GHL allocation, the State determines a fishery is “achieved” if the total harvest is within ten percent of the GHL.

4.1 GOA State GHL Fisheries

GOA state waters Pacific cod fisheries began in 1997 and are established in five state management areas. Gear types in the state waters GHL GOA fisheries include jig, pot, and hook-and-line (Prince William Sound only). Some GOA GHL Pacific cod fisheries are not achieved on a yearly basis. This is likely due to a number of reasons, including fluctuating Pacific cod stocks, allocation of GHLs by gear and vessel size, recent jig gear participation being at low levels, GHL rollovers to other gear types occurring late in the year, and triggers in state regulations that open GHL fisheries following federal fishery closures. It is unclear at this time if unused GOA GHL would be used by federal participants if a mechanism was in place to allow for a transfer from the State GHL to a corresponding federal TAC.

4.2 BS and AI State GHL Fisheries

The BS GHL Pacific cod fishery for under 60 feet overall length pot vessels began in 2014 and has been fully achieved every year. Table 11 shows that the AI GHL fishery has not been fully achieved ten out of the 14 years it has been in existence.

The state waters AI Pacific cod fishery began in 2006 and was based on 3 percent of the overall federal BSAI Pacific cod ABC until 2016. In 2016, the AI GHL fishery began taking 27 percent of the federal AI ABC (Table 11) instead of the entire BSAI ABC as a result of federal action recognizing BS and AI Pacific cod as separate stocks. Because the AI GHL was achieved in 2018, the GHL percentage increased in 2019 to 31 percent of the AI ABC. The 2019 AI GHL was also achieved, and the percentage will increase to 35 percent of the AI ABC or 15 million pounds (6,804 mt), whichever is less, in 2020. Trawl,

pot, hook-and-line, and jig gear have all been permissible gear types, however the size restrictions for each gear type has varied throughout the fishery's history.

On March 1, 2006, the State announced by emergency regulation, a newly established Pacific cod fishery with a GHL in the AI subarea equal to 3 percent of the Pacific cod ABC. In 2006 this was done after the BSAI Pacific cod TAC was set equal to the BSAI ABC in the final harvest specifications for groundfish. Therefore, NMFS issued an inseason adjustment decreasing the BSAI Pacific cod TAC by the GHL amount and as a result the total TACs of all BSAI groundfish species did not equal 2 million mt. In 2006, the State had a provision in regulation that allowed for any projected unused GHL to transfer to NMFS and be made available to the federal fisheries. It was up to the State's discretion on how much to make available and when this transfer took place. Due to poor fishery performance in the 2006 AI GHL fishery the State notified NMFS on September 1 that they were transferring 3.5 million pounds (1,588 mt) to NMFS. The State closed the AI GHL fishery on September 1, but reserved 500,000 lbs. (227 mt) in case stakeholders wanted the state waters fishery to reopen. However, the State never reopened in 2006. On September 22, NMFS announced that Pacific cod quota was received from the State and there was an inseason adjustment to the overall federal BSAI Pacific cod TAC and each sector's allocation was adjusted in accordance with § 679.20 and § 679.25. The State can establish a Pacific cod fishery and can choose to transfer any remaining Pacific cod after they close it, but it is up to the State's discretion on if and when the transfer occurs.

Prior to 2014, Pacific cod was considered the same stock in the BS and AI. Therefore, the Pacific cod TAC could be fished freely during the federal fishery in either area as long as a vessel had the proper permits and its sector was open to directed fishing. However, in 2014, BS and AI Pacific cod became recognized as two separate stocks, with separate stock assessments and OFLs, ABCs, and TACs. In 2006, Pacific cod quota transferred to NMFS from the AI GHL fishery was added to the overall BSAI TAC and could be harvested in both the BS and the AI. However, future transfers could only be added to the overall AI TAC. Although a transfer of quota to NMFS could increase each sectors' (including CDQ) overall BSAI TAC, because only the AI TAC would increase it is likely that most of the transferred quota would have to be harvested in the AI. Since the separation of BS and AI TACs, directed fishing in the AI was closed to all non-CDQ federal Pacific cod sectors before the end of the calendar year in 2014 (March 16), 2015 (February 27), and 2016 (March 22) (Table 11). Although exact state waters harvest data is confidential in those same years, it can be said that at least 25 percent of the GHL was not harvested but might have been used if there had been a mechanism to transfer the remaining quota to the AI federal fishery. In Table 11, the last row shows the 2006 through 2019 total GHL amounts and shows that 43 percent of the GHLs was remaining over these years.

Table 11 Aleutian Islands District state waters Pacific cod fishery GHL, GHL harvested, GHL remaining, and closure dates of federal AI non-CDQ Pacific cod fisheries in metric tons, 2006–2019

Year	% of ABC	Initial GHL	GHL Harvested	GHL Remaining	Closure of Federal AI non-CDQ Pacific cod fisheries
2006 ^a	3% of BSAI	5,820	4,017	1,803	31-Dec
2007	3% of BSAI	5,280	5,279	1	31-Dec
2008	3% of BSAI	5,280	5,316	-36	31-Dec
2009	3% of BSAI	5,460	CF	CF ^b	31-Dec
2010	3% of BSAI	5,220	3,985	1,235	31-Dec
2011	3% of BSAI	7,050	270	6,780	31-Dec
2012	3% of BSAI	9,420	5,598	3,822	31-Dec
2013	3% of BSAI	9,210	4,792	4,418	31-Dec
2014	3% of BSAI	8,103	CF	CF ^b	16-Mar ^c
2015	3% of BSAI	8,178	CF	CF ^b	27-Feb
2016	27% of AI	4,752	CF	CF ^b	22-Mar
2017	27% of AI	5,805	CF	CF ^b	31-Dec
2018	27% of AI	5,805	CF	CF	31-Dec
2019	31% of AI	6,386	6,198	188	Ongoing
2020	35% of AI ^d	TBD	TBD	TBD	TBD
2006-2019 Total		91,768	52,202	39,567	

^a The State made 1,588 mt of the GHL available to National Marine Fisheries Service effective on September 1.

^b At least 25% of the GHL was unharvested.

^c First year BS and AI were evaluated as separate stocks.

^d The 2020 AI GHL fishery will be the lesser of 35% of the AI ABC or 15 million pounds (6,804 mt).

Note: CF = Confidential

Source: Alaska Department of Fish and Game, Dutch Harbor

5 Reallocation Mechanisms

Reallocations of Pacific cod in the A season are rare because most A season allocations are fully harvested by each sector. For most sectors if not reached, any remaining A season allocation rolls over to the next season. One exception is the required reallocation of the BSAI jig gear sector's unharvested A season allocation to the < 60 hook-and-line and pot CVs in late March. Another exception is for the BSAI < 60 hook-and-line and pot CVs because it does not have season allocations.

Also, a sector's A season may close and those vessels are not groundfish fishing before another sector's unused Pacific cod may be available. This often occurs when the pot gear sector's A seasons are closed before or soon after the trawl sector's A seasons open. Pot vessels may not be available when it is determined that the trawl sector will not catch their A season allocation. Most reallocations occur later in the year when some sectors often are projected not to reach their fall allocations (B season for the GOA sectors and BSAI hook-and-line/pot sectors or the C season for BSAI trawl sectors). In September through December, more information is available on amounts of remaining Pacific cod by sectors and what sectors may be able use more Pacific cod.

Additionally, if directed fishing remains open, NMFS expects that effort and catch during the last week of the year can be high. If one of the hook-and-line, pot, and jig sectors remains open for directed fishing, then vessels can start fishing at the end of the year and continue into the next year, thus bridging two different fishing years. For the AFA C/P and trawl CV sectors, directed fishing for Pacific cod closes by

regulation on November 1. These sector's subsequent year's Pacific cod A season opens on January 20, so these two sectors do not have high Pacific cod catch at the end of the year.

Although there are regulations that allow for reallocations of projected unharvested Pacific cod between most sectors or allocations in the BSAI and the GOA, there are some years when the total catch is less than the total TAC. In the fall, for some sectors or allocations, fishing effort may decrease or stop for a number of reasons. These reasons include, but are not limited to; poor weather, low catch rates, directed fishing closures due to attainment of prohibited species catch limits, low Pacific cod prices, high fuel prices, vessel breakdowns or maintenance, reaching the allocation of other allocated species, or end of the season closure of processing plants. These factors are hard to predict when NMFS considers whether to make Pacific cod reallocations.

NMFS tries to reallocate projected amounts of unharvested Pacific cod to sectors that may be able to harvest these amounts; however, the decision to reallocate these amounts are complex and factor in many considerations. The primary consideration is not to reallocate Pacific cod from a sector that may have the capacity to catch their allocation. This consideration means NMFS must first determine a sector's remaining Pacific cod and the capacity for the sector to catch the remaining amount. This requires communication and cooperation with vessel operators. If any vessel operator indicates that they will remain active or become active in the fishery before the end of the year, NMFS will tend to be more conservative in leaving amounts of Pacific cod available to these vessels. As a result, Pacific cod sometimes remains uncaught at the end of the year because either fishing plans change at the end of the year and vessels do not participate or their actual Pacific cod catch rates are lower than expected. From 2008 through 2018, NMFS averages five Pacific cod reallocations a year. The most Pacific cod reallocations were seven in 2016. Additionally, NMFS considers that catch data may change over time. To prevent exceeding TAC or ABC, NMFS typically leaves small amounts of TAC as a buffer to account for changes that may occur when catch data changes, which may occur for a variety of reasons.

Some sectors or allocations do not have associated regulations that allow or require the reallocation of projected unused Pacific cod to other sectors. In the BSAI, the sectors or allocations without reallocation regulations are CDQ, hook-and-line C/P, hook-and-line/pot ICA, Amendment 80, and State GHGs (see Table 6). In the GOA, the sectors or allocations without reallocation regulations are the trawl CV cooperatives in the Rockfish Program and State GHGs. Some potential for reallocations from these sectors are discussed below. There may be ways to use the Pacific cod allocations more efficiently and this is considered in section 7.3 on an ICA in the GOA.

6 Challenges to attaining complete harvest

In general, it is challenging to design a BSAI Pacific cod allocation program that would guarantee a fully harvested TAC each year due to the dynamic nature of the BSAI Pacific cod fishery and the Council's intended goals of Amendment 85. Despite these challenges, the Council in 2008 created an allocation program that provides the framework, when conditions are right, to harvest nearly all the BSAI Pacific cod allocations. There are factors that will continue to prevent fully harvesting all of the BSAI Pacific cod TAC. However, the sector allocations combined with the framework for reallocating Pacific cod between sectors provides the Council's intended stability for many of the sectors. This assists in reducing disruptions in sector's BSAI Pacific cod fisheries, thereby improving social and economic structures for those sectors while balancing the Council's intent to provide entry level and local opportunities for small vessels and improve optimum yield of the BSAI Pacific cod resource.

6.1 AI GHG challenges

In some years, high amounts of unharvested AI GHG Pacific cod are primarily due to limited or no shoreside processors operating in the AI. However, if there was a mechanism to transfer amounts of

unharvested GHL to the federal fisheries it is possible that the unharvested AI GHL could have been harvested by federal participants who are ineligible to fish in the state waters AI GHL fishery. Because unharvested GHL has been prevalent in the state waters AI fishery and it seems likely that federal participants would use some or all of the transferred GHL, the rest of this section will focus on the AI. However, the same principles could be applied to other GHL fisheries.

The provision for the State to transfer unused quota to NMFS was removed before the 2007 fishery. This was mainly due to the federal two million mt overall TAC constraint. Regulations currently require that the overall TACs of all BSAI groundfish species or species groups cannot exceed two million mt (optimum yield). In the GOA, the optimum yield is set at 800,000 mt. In 2006, the overall federal BSAI TAC was under two million mt (Table 12), so NMFS was able to receive and utilize additional Pacific cod as TAC. However, in 2007 the overall TAC was already set at two million mt, therefore the total BSAI TAC could not have been increased by a transfer of Pacific cod from the State. From 2006 to 2019, the BSAI overall TAC has been under two million mt in a total of four years (2006, 2008, 2009, and 2010). However, in all four years, the ABC of all BSAI groundfish combined was above the two million mt optimum yield. The overall TACs could not be set at two million mt due to some ABCs being allocated to state-managed fisheries. In contrast, the GOA has been under its 800,000 mt overall maximum TAC every year in the same timeframe (Table 12).

Table 122 Overall TAC for BSAI and GOA from 2006-2019 in metric tons.

Year	Overall TAC		Year	Overall TAC	
	BSAI	GOA		BSAI	GOA
2006	1,995,768	291,950	2013	2,000,000	436,255
2007	2,000,000	269,912	2014	2,000,000	499,274
2008	1,838,345	262,826	2015	2,000,000	536,158
2009	1,681,586	242,727	2016	2,000,000	590,809
2010	1,677,154	292,087	2017	2,000,000	535,863
2011	2,000,000	318,288	2018	2,000,000	427,512
2012	2,000,000	438,159	2019	2,000,000	430,569

Note: BSAI maximum TAC is 2,000,000 mt and GOA maximum TAC is 800,000 mt
Source: NMFS BSAI and GOA Groundfish Harvest Specifications

It is currently not possible to transfer unharvested state waters Pacific cod GHL to NMFS for use in federal fisheries. However, if the Alaska Board of Fisheries (BOF) added a provision in regulation for the transfer of GHL similar to the provision that existed in 2006 for the AI GHL fishery then it may be possible in the future. In years where the overall BSAI TAC is under two million mt then all or some of the transferred quota could be added to the overall AI TAC and each BSAI sector could be adjusted in accordance with the allocation regulations at § 679.20 using the inseason adjustment regulations at § 679.25, similar to the way it was done in 2006. However, in years where the overall TAC is already at two million mt other federal regulations would have to be put in place to use the additional Pacific cod. This could only be achieved if regulations were developed to allow for the exchange of TAC from another groundfish species to Pacific cod. For example, NMFS could subtract 1,000 mt from the BSAI Kamchatka flounder TAC and add 1,000 mt to the AI Pacific cod TAC. This would keep the BSAI TAC within the overall two million mt optimum yield. To create this type of exchange program, three main things would need to be determined: 1.) which species would be eligible to exchange for Pacific cod, 2.) how would NMFS determine how much of which different groundfish species to exchange for some amount of Pacific cod GHL, and 3.) how should the exchange occur?

7 Summary of Potential Options

7.1 Separate Hook-and-line and Pot Gear ICA in the BSAI

Currently there are no regulations that allow the Regional Administrator to reallocate any projected unused Pacific cod ICA to any sector. In years when the remaining ICA is large enough it could provide a small amount of Pacific cod for some sectors towards the end of the year. Table 2 shows the lowest amount of -59 mt and the highest amount of 430 mt since 2008 that may have been available to reallocate from the ICA. The average amounts remaining to be reallocated from the ICA are 230 mt from the 2008 to 2018 average and 146 mt from the 2013 to 2018 average. Reallocations from the ICA could be to the hook-and-line and pot gear sectors that contributed to the ICA or other sectors could be considered. This would require proposed and final rulemaking to revise regulations at § 679.20(a)(7)(iii).

Also, the Council could consider removing the separate hook-and-line and pot gear ICA, and allow all Pacific cod catch to accrue to those sector's Pacific cod allocations. As done for most groundfish species TACs or allocations of the TAC, NMFS would establish a Pacific cod ICA specifically for each of these sectors. This process follow these steps. If the Regional Administrator determines that any allocation of Pacific cod has been or will be reached, the Regional Administrator may establish a directed fishing allowance for Pacific cod for a particular sector. In establishing a directed fishing allowance, the Regional Administrator shall consider the amount of Pacific cod that will be taken as incidental catch in directed fishing for other species in the same area. If the Regional Administrator establishes a directed fishing allowance for a Pacific cod allocation, and that allowance has been or will be reached before the end of the fishing season or year, NMFS would publish notification in the *Federal Register* prohibiting directed fishing in the area. Managing the BSAI hook-and-line and pot sector's ICA individually probably is the most accurate way to ensure that each sector has the maximum amount of Pacific cod available for its directed fishing allowance. This would require proposed and final rulemaking to revise regulations at § 679.20(a)(7)(ii)(B).

7.2 AI GHL

The Council would need to consider which species would be available for exchange if the State transferred Pacific cod to the federal Pacific cod TAC. Pollock, hook-and-line and pot sablefish, and Amendment 80 species (Atka mackerel, yellowfin sole, rock sole, flathead sole, Pacific cod, AI Pacific ocean perch), arrowtooth flounder, and BS Greenland turbot are all catch share species with fully allocated TACs to individuals or cooperatives, and the CDQ Program. Under the Magnuson-Stevens Act, the CDQ Program receives prescribed percentages of BSAI TACs. It would be difficult to designate any of these species as acceptable exchange species since individual fishing quota (IFQ) for sablefish, Amendment 80, AFA pollock, and CDQ allocations are determined early in the year. This is well prior to when NMFS might know if there was a transfer of Pacific cod from the State. The Council could designate in regulation specific species eligible for a Pacific cod GHL exchange. Alternatively, there could be a more open approach where the Regional Administrator can determine the exchange from any species that is not allocated to a catch share program. Although the first approach would provide NMFS with some consistent framework by narrowing down the possible exchange species, it would not be as flexible to changing fishing needs as the open approach. There are three options that could be considered to decide which species, and how much of those species, to exchange for Pacific cod from the State GHL apportionment. First, the Council could determine during the harvest specification process which species' TAC should be exchanged for additional Pacific cod TAC, should NMFS receive a GHL transfer later in the year. The Council will know during its December meeting how much of the Pacific cod ABC will be apportioned to the Pacific cod GHL fisheries. At that time, the Council could determine which species' TAC(s) could be exchanged for Pacific cod should a GHL transfer occur. For example, consider an AI GHL of 6,800 mt. During the harvest specification process, the Council could decide that if NMFS does receive a GHL transfer, then a maximum of 3,000 mt of Kamchatka flounder, 3,000 mt of Alaska plaice,

and 800 mt of skates could be exchanged for additional Pacific cod TAC. This would allow for the Council's Advisory Panel and the public to comment annually on the priority that the Council should place on Pacific cod compared to other species. This input would also supply NMFS with some guidance on which species' TAC to exchange should more Pacific cod GHL become available to convert to TAC. However, this method may not account for unseen events during the fishing year which may not leave sufficient TAC of one (or more) of the designated exchange species to convert to Pacific cod. This could result in an inability to make an exchange for Pacific cod TAC, if a GHL transfer is available.

A second option would be to allow only Pacific cod to be exchanged for non-CDQ species TAC being held in the non-specified reserves. Section 679.20(b) requires that NMFS puts 15 percent of the TAC for each target species, except for pollock, the portion of the sablefish TAC allocated to hook-and-line and pot gear, and Amendment 80 species (Atka mackerel, yellowfin sole, rock sole, flathead sole, Pacific cod, and AI Pacific ocean perch), into a non-specified reserve. Any amount of the reserve may be apportioned to a target species that contributed to the non-specified reserve during the year, provided that such apportionments are consistent with § 679.20(a)(3) and do not result in overfishing (see § 679.20(b)(1)(i)). These regulations could be modified so that Pacific cod GHL could be exchanged for TAC remaining in the non-specified reserves. For example, if there is 6,800 mt of non-specified reserves remaining, it could be exchanged for 6,800 mt of Pacific cod instead of to a species that contributed to the non-specified reserve. This method would provide NMFS with guidance on where the quota for the exchange would come from and would not require reducing any particular species ITAC (initial TAC). However, the non-specified reserves are reallocated throughout the year, and in recent years have been fully reallocated. It is possible that there would not be enough TAC remaining in the reserves to exchange for transferred Pacific cod GHL, or that the reserves are needed to augment the TAC of those species that contributed to the reserves.

The third option would be to give NMFS the ability to exchange amounts of TAC of any acceptable (non-catch share or CDQ) exchange species for Pacific cod GHL at the Regional Administrator's discretion. In this scenario, once NMFS receives a Pacific cod GHL transfer from the State, the directed fishing allowance and incidental catch amounts for each potential exchange species and Pacific cod would be determined for the remainder of the year. NMFS would use this information to determine the appropriate species and amounts to exchange for Pacific cod GHL.

In any of these three options, there might be conflict between sectors on how much Pacific cod GHL should be exchanged and for which species' TAC. For example, if only one sector is in need of additional Pacific cod and a second sector is resistant to an exchange being made because it believes that it may need the exchange species' TAC, NMFS would need a way to determine which sector would take priority. If the Council were involved yearly in making decisions on any potential exchanges, as outlined in the first option, this would give industry sectors a chance to voice their perspectives and priorities. This could help prioritize which species should be exchanged for Pacific cod GHL during the year. However, it is difficult to know in December what species may have TAC available at the time of an exchange.

NMFS could receive the transfer of Pacific cod GHL and exchange it for one or more groundfish species' TAC without exceeding the two million mt overall TAC and ABCs. NMFS would then make the exchanged Pacific cod TAC available to each BSAI sector in accordance with the sector allocations in § 679.20. After the 10.7 percent allocation to the CDQ AI TAC, Pacific cod would only need to be exchanged for one or more species once. The transferred Pacific cod would then be allocated between all BSAI Pacific cod sectors. However, this would not provide flexibility in cases where only one sector needed or wanted additional Pacific cod, while other sectors did not. For example, if there was 1,000 mt of Pacific cod GHL available to exchange, but only the C/P pot sector was in need of more Pacific cod TAC, all 1,000 mt of Pacific cod would be distributed among all sectors. NMFS could reallocate additional Pacific cod among the non-CDQ sectors, but currently such reallocations cannot occur from

CDQ, Amendment 80, or the C/P hook-and-line sectors. This could result in some amount of Pacific cod being unharvested, as well as an unnecessary TAC reduction for those species for which Pacific cod GHL was exchanged.

7.3 ICA in the GOA

Currently in the GOA Pacific cod sector allocations, there is not a separate ICA for incidental catch in other fisheries. All the incidental catch accrues to each specific sector allocation. At the beginning of the fishing year or season, NMFS considers the amount of Pacific cod needed as incidental catch to support other anticipated groundfish and halibut fisheries to determine if the remaining directed fishing allowance supports opening directed fishing for a given sector. Some sectors, such as the Western GOA and Central GOA trawl C/P sectors, are closed to directed fishing for Pacific cod each year through the annual harvest specifications. This is because these sectors are not apportioned sufficient Pacific cod TAC over their incidental catch needs to conduct directed fishing for Pacific cod. Regulations are in place that allows Regional Administrator to reallocate Pacific cod between sectors.³ Regulations at § 679.20(a)(12)(ii)(B) require the Regional Administrator to consider a reallocation of the projected unused allocation to the CV sectors first, then to the combined CV and C/P pot sector, and then to all other C/P sectors, taking into account the capability of a sector to harvest the remaining Pacific cod TAC. Most reallocations are during the B season since most sectors usually catch their A season allowance.

This section examines whether there could be some degree of administrative efficiency or fishing efficiency in establishing a Pacific cod ICA in the GOA. All incidental catch of Pacific cod in non-Pacific cod target fisheries for a group of specific sectors (i.e. hook-and-line and pot) or all sectors could accrue to an ICA separate from the specific sector allocation. An example of a group ICA is the BSAI hook-and-line/pot gear sector ICA described in sections 2.1.1 and 7.1. During the harvest specifications process, NMFS could estimate the total ICA necessary to support incidental catch in non-Pacific cod fisheries. The Council could consider if each sectors contributes to the ICA equally or specific percentages. These amounts would be deducted after the sector allocations have been calculated from the sectors contributing to the ICA. Currently, the jig sector allocations are determined first because the percentage allocated to jig gear may change each year depending on if the previous years' catch reached 90 percent of the jig gear allocations. Later in the year, based on the actual and projected effort in the Pacific cod fisheries, the Council could consider to allow NMFS to reallocate projected unused Pacific cod ICA to the separate sectors that contributed to the Pacific cod ICA or any sector.

Table 13 shows for 2013 to 2018, the total and average incidental catch by sector in the Western GOA. The total amounts by sector range from a low of zero mt for jig and pot gear in many years to a high for trawl CVs in 2014 of 1,180 mt. Table 14 shows for 2013 to 2018, the total and average incidental catch by sector in the Central GOA. The total amounts by sector range from a low zero mt for jig and pot gear in many years to a high for trawl CVs in 2014 of 5,498 mt. Most incidental catch is in the hook-and-line CV sector during the IFQ halibut and sablefish fisheries, and the trawl gear groundfish fisheries since the trawl sectors target multiple species that take Pacific cod incidentally.

³ History and timing of GOA Pacific cod reallocations can be found at [GOA \(Western and Central\) Pacific cod reallocations \(2012–present\)](#).

Table 13 Incidental Catch of Pacific Cod by Sector in the Western GOA from 2013 to 2018 (amounts are in metric tons)

Sector	2013	2014	2015	2016	2017	2018	Average
WGOA HAL C/P	36	2	20	17	8	2	14
WGOA HAL CV	304	219	197	62	145	125	175
WGOA Jig	0	0	0	0	0	0	0
WGOA Pot	0	0	0	0	0	0	0
WGOA Trawl C/P	274	212	190	67	66	56	144
WGOA Trawl CV	446	1,180	331	128	30	82	366
Total	1,060	1,613	738	274	249	265	700

Source: NMFS, Alaska Region, Catch Accounting System

Table 14 Incidental Catch of Pacific Cod by Sector in the Central GOA from 2013 to 2018 (amounts are in metric tons)

Sector	2013	2014	2015	2016	2017	2018	Average
CGOA HAL C/P	30	3	1	3	1	1	7
CGOA HAL CV <50	259	349	88	77	101	60	156
CGOA HAL CV >= 50	995	483	193	147	109	161	348
CGOA Jig	0	0	0	0	0	0	0
CGOA Pot	0	0	0	0	0	0	0
CGOA Trawl C/P	1,684	2,469	1,596	482	700	637	1,261
CGOA Trawl CV	3,149	5,498	2,487	2,089	1,427	1,489	2,690
Total	6,117	8,802	4,365	2,798	2,338	2,348	4,461

Source: NMFS, Alaska Region, Catch Accounting System

NMFS could consider establishing aggregate Pacific cod ICAs for the Western and Central GOA management areas, rather than sector-specific ICAs. An aggregate ICA could be used to account for the Pacific cod caught in all non-Pacific cod target fisheries, across all sectors. To establish an aggregate Pacific cod ICA, NMFS would have to consider some average of the historical ICA needs for each separate Pacific cod sector, by management area. An aggregate Pacific cod ICA also would be dependent on the annual Western and Central GOA Pacific cod TACs. The jig and pot sector Pacific cod allocations would not contribute to an aggregate ICA. The incidental catch by these sectors is low, so these sectors do not need a Pacific cod ICA. An aggregate Pacific cod ICA would have to be established prior to the beginning of the fishing year or in the harvest specifications.

An issue with establishing an annual Pacific cod ICA is that it could be more challenging to manage each sector based on their actual in-season fishery effort and catch. Since actual effort and catch rates vary

from year to year, basing a sector's Pacific cod directed fishing allowance on their average annual performance across a particular number of years might not reflect a current year's fishery performance.

NMFS does not believe that changing the management of the GOA Pacific cod ICA amounts would necessarily increase management efficiencies. Managing the various GOA Pacific cod sectors' directed fishing allowances and ICAs individually probably is the most accurate way to ensure that each sector has the maximum amount of Pacific cod available for its DFA. Moreover, NMFS's current practices associated with reallocating Western and Central GOA Pacific cod between sectors considers actual and projected catch and effort for a given sector before any Pacific cod reallocation to other sectors. Any reallocation of a TAC during the fishing year requires publication of a notice in the *Federal Register*. This would require proposed and final rulemaking to revise the regulations at § 679.20(a)(12).

7.4 Rockfish Program Pacific cod management

Similar to the current regulations that allow reallocation of Rockfish Program halibut PSC limits, the trawl CV Rockfish Program cooperative Pacific cod could be reallocated after November 15 or earlier if all trawl CV cooperatives have checked out of the Rockfish Program for the year. The Council action on the Rockfish Program Reauthorization also includes consideration of this issue.⁴

The Council could limit any trawl CV cooperative Pacific cod reallocation to only the non-Rockfish Program trawl CV allocation. However, for non-Rockfish Program trawl CVs directed fishing for Pacific cod closes by regulation at noon, November 1. A reallocation to support trawl CV directed fishing might not occur in time for this sector to use additional Pacific cod. Additional Pacific cod could still be used as incidental catch in other fisheries and retained up to the MRA. The November 1 directed fishing closure also applies to the trawl catcher/processor sector.

The Council could allow regular annual reallocations to any sector following the current reallocation regulations. Under the current reallocation regulations, the Regional Administrator would consider a reallocation of the projected unused allocation from the Rockfish Program to the CV sectors first, then to the combined CV and C/P pot sector, and then to all other C/P sectors, taking into account the capability of a sector, as determined by the Regional Administrator, to harvest the remaining Pacific cod TAC. Any reallocation of a TAC during the fishing year requires publication of a notice in the *Federal Register*. This would require proposed and final rulemaking to change the regulations.

7.5 Amendment 80 Pacific cod management

If the Amendment 80 sector has finished fishing for the year any unharvested Pacific cod could be reallocated to other sectors. An example of this is the Rockfish Program trawl CV cooperative halibut PSC limit. This also is discussed in section 7.4 regarding the unharvested Pacific cod by the Rockfish Program trawl CV cooperatives. One major difference for the Amendment 80 sector is that Pacific cod is opened for directed fishing until December 31. However, usually for the Amendment 80 sector catch decreases in December. Table 15 shows the Amendment 80 total catch during three different time periods in December. The highest catch reported was 467 mt from December 1 to 31. Table 15 shows that since 2011 the remaining amounts of Pacific cod higher than amounts of Pacific cod total catch in December. If done fishing prior to December 1, the Amendment 80 cooperative(s) could notify NMFS if they are done fishing for the year. If there is an Amendment 80 limited access sector then NMFS could have the regulatory authority to reallocate any projected unused Pacific cod to other sectors. The Council could recommend that NMFS has the authority to reallocate projected unused Pacific cod to other sectors on

⁴ [Discussion Paper: Central Gulf of Alaska Rockfish Program Reauthorization, December 2018](#)

December 1. The Council could consider if the reallocation follows the current reallocation regulations or other reallocations. Any reallocation of a TAC requires publication of a notice in the *Federal Register*.

Table 15 2008 through 2018 Amendment 80 Sector Pacific cod total catch in December. (Amounts are in metric tons)

Date	Number of Years	Average	Low	High
December 1 - 31	10	143	Conf.	467
December 7 - 31	10	76	Conf.	347
December 15 - 31	3	66	Conf.	138

Source: NMFS, Alaska Region, Catch Accounting System

An Amendment 80 quota shareholder could use another gear type that is more effective at fishing Pacific cod later in the year. As far as has been determined, an Amendment 80 cooperative may use any gear type with the required Amendment 80 permits and License Limitation Program licenses for directed fishing for Amendment 80 species. A vessel, other than the current Amendment 80 vessels, may be required to make this work. Any PSC would accrue to the Amendment 80 PSC limits. Also, a vessel might need cooperation with another sector, like the CDQ sector, so that the vessel could fish more than just this remaining Amendment 80 Pacific cod allocation. At this time, this could be pursued without further Council action or rulemaking.

If there was another sector in a BSAI catch share program with an allocation of Pacific cod, then the Council could allow transfers between these catch share programs. This could be discussed in the Council's BSAI Pacific cod trawl and pot CV management scoping paper. A transfer with the CDQ program is not possible since CDQ is limited to 10.7 percent of the BS subarea and 10.7 percent of the AI subarea TACs under the Magnuson-Stevens Act. Any changes to this percentage would require action by Congress.

All Amendment 80 species allocated to an Amendment 80 cooperative are hard caps. A hard cap means that any vessel assigned to an Amendment 80 cooperative is prohibited from beginning a fishing trip for any Amendment 80 species with any vessel assigned to an Amendment 80 cooperative if the total amount of unharvested cooperative quota (CQ) that is currently held by that Amendment 80 cooperative is zero or less for any species for which CQ is assigned. Also, it is prohibited to have a negative balance in a CQ account for any species for which CQ is assigned after the end of the calendar year for which a CQ permit was issued.

The Council could consider replacing the existing Amendment 80 Pacific cod hard cap with a combined hard cap / soft cap. A soft cap is a limit managed by NMFS and a cooperative would not be prohibited from exceeding a soft cap limit. The hard cap would remain in place up until a certain date in the fall (in the range of October 1 to November 15). Prior to this trigger date, the hard cap remains in place. If a vessel / company reaches the hard cap before the trigger date all fishing stops unless more TAC is secured from another Amendment 80 member company or until the effective date of the soft cap. After the trigger date, vessels could fish under a soft cap with Pacific cod being managed by NOAA fisheries in bycatch status or prohibited species status. The amount set aside as the soft cap could be funded with an ICA. Under this approach there is an overall BSAI Amendment 80 allocation (13.4 percent), the hard cap (13.4 percent minus the Amendment 80 ICA), and the Amendment 80 ICA. NMFS would estimate the amount of the ICA necessary for the soft cap based on previous years catch and the current years allocations. This ICA would be subtracted from the Amendment 80 sector's allocation of 13.4 percent.

Another potential source of the ICA would be to consider some kind of carry over of an amount of Pacific cod from the previous year. Revisions to the National Standard 1 guidelines published in 2016 includes a

provision that may add flexibility in the process of specifying annual catch limits (ACLs). This provision allows some portion of unused ACL to be carried over to the following year. Several Regional Fishery Management Councils have expressed interest in or taken steps toward implementing carry-over provisions, but recommendations on how best to do this have been lacking. NOAA Fisheries is drafting guidance on important factors to consider and advise on best practices when implementing these provisions. Implementing any carry over provision would be complicated and would have to consider adjustments in stock assessments. The BS Pacific cod stock assessment model is run annually based on consideration of stock prioritization including assessment methods and data availability. For example, on annual basis the BSAI Pacific cod stock is assessed using an updated model that incorporates recent trawl survey abundance trends and associated parameters, age and sex compositions, total removals (including compositions) and associated parameters, uncertainty, and other sources of information that constitute the best available scientific information. For annually assessed stocks such as BS Pacific cod, any fish that might have been caught, but were not, remain in the stock and are subject to growth and natural mortality like all of the other Pacific cod that were not caught. They are accounted for in the ABC and OFL recommendations for the coming year. Applying carry over provisions in a fishery with annual stock assessments could amount to double-counting. An assessment also could assume that catch for the current year will equal the TAC regardless of whether the TAC is reached, in which case it might make sense to add this year's "unused" TAC to next year's TAC. Rather than adding this year's used TAC to next year's TAC, another approach would be to rerun the model at the end of the year with an updated estimate of current year catch. However, this rerun would be after the December Council meeting when Science and Statistical Committee sets final ABCs and the Council recommends final TACs. Any carry over also would need to maintaining the sum of all the TACs less than or equal to 2.0 million mt optimum yield.

8 Link to other Council Actions

NMFS is concerned about available agency resources to address rulemaking and implementation required for most of these issues considering the other high priority Pacific cod actions before the Council. Also, the information provided here may change depending on the other actions before the Council including the Bering Sea/ Aleutian Islands Pacific Cod Limited Access Privilege Program Scoping Paper for the Trawl Catcher Vessel Sector and Pot Catcher Vessels ≥ 60 feet and the Rockfish Program Reauthorization.

Currently, only Amendment 80 has Pacific cod cooperative quota, and there are no regulations for NMFS to reallocate Amendment 80 Pacific cod cooperative quota. If another BSAI Pacific cod sector is allowed to form cooperatives (not voluntary cooperatives), the Council could consider how it might handle Pacific cod allocations that are unused in these new cooperatives. The Council could consider allowing NMFS to reallocate from a cooperative if the cooperative stops fishing for the year (checks out) or by a directed fishing closure date, i.e. November 1 for trawl Pacific cod. Also, with more than one Pacific cod sector in cooperatives the Council could allow cooperatives to transfer Pacific cod between these different sector cooperatives.

9 References

North Pacific Fishery Management Council, Stock Assessment and Fishery Evaluation Report for the Groundfish Resources of the Bering Sea/Aleutian Islands Regions.

North Pacific Fishery Management Council, Stock Assessment and Fishery Evaluation Report for the Groundfish Resources of the Gulf of Alaska.

These documents are included by reference. The 2018 versions for each species or species group may be found here: [2018 North Pacific Groundfish Stock Assessment and Fishery Evaluation Reports for 2019 Fisheries](#)