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## Fishery statistics (2017): Preliminary

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### PURPOSE

To provide an overview of the key fishery statistics from fisheries catching Pacific halibut during 2017, including the status of landings compared to catch limits adopted by the Commission.

### BACKGROUND

The International Pacific Halibut Commission (IPHC) estimates all Pacific halibut removals taken in the IPHC Convention Area and uses this information in its yearly stock assessment and other analyses. The data are compiled by the IPHC Secretariat and include data from Federal and State agencies of each Contracting Party. All 2017 data are in net weight (head-off, dressed, ice and slime deducted) and considered preliminary at this time. The data shall be updated for presentation at the Annual Meeting in January 2018. The IPHC Regulatory Areas are provided in [Figure 1](#).

This report provides a preliminary summary of removals in [Tables 1 and 2](#). [Table 1](#) provides estimates of total removals and catch against catch limits by IPHC Regulatory Area. [Table 2](#) provides a summary of commercial fishing seasons, catch limits, and landings by IPHC Regulatory Area.

At the 93<sup>rd</sup> Session of the IPHC Annual Meeting (AM093), the Commission made an additional call for fishery statistics as follows:

AM093–Rec.09 (para. 110) **NOTING** that the Commission had previously requested the IPHC Secretariat to examine bycatch reduction by the Amendment 80 sector versus other sectors in the Bering Sea, by regulatory area (see AM92.10), which was yet to be undertaken, the Commission **RECOMMENDED** that the IPHC Secretariat undertake a detailed examination of changes in bycatch levels among all gears/sectors, and for results to be presented to the Commission at its 93<sup>rd</sup> Interim Meeting (in November 2017).

[Appendix I](#) details trends in bycatch by sector and IPHC Regulatory Area in the Bering Sea and Aleutian Islands.

### RECOMMENDATION/S

That the Commission:

- 1) **NOTE** paper IPHC-2017-IM093-05 Rev\_1 which provides preliminary fishery statistics from fisheries catching Pacific halibut during 2017, including the status of removals compared to catch limits adopted by the Commission.

- 2) **NOTE** [Appendix I](#) which provides an initial response to the Commissioners' recommendation (AM093-Rec.09) for a detailed examination of changes in commercial bycatch levels among all gears and sectors by IPHC Regulatory Area in the Bering Sea and Aleutian Islands.

#### **APPENDICES**

[Appendix I](#): Commercial Bycatch in the Bering Sea

**Table 1.** 2017 estimates of total removals (thousands of pounds, net weight), including catch limits and landings of Pacific halibut by IPHC Regulatory Area. Preliminary as of 9 November 2017. Shaded cells included in catch totals which are tracked against the catch limit. Totals have been rounded. Total have also been provided in metric tons.

Removals	IPHC Regulatory Area						Total (,000 lb)	Total (t)
	2A	2B	2C	3A	3B	4		
Commercial landings <sup>1</sup>	737	6,193	4,108 <sup>13</sup>	7,587	3,022	3,938	25,585	11,605.16
Commercial discard mortality <sup>2</sup>	19	175	87	347	234	126	988	448.15
Recreational landings <sup>3</sup>	515	1,172	2,294	3,904	8	15	7,908	3,587.01
Recreational landings from commercial leasing <sup>4</sup>	-	4	41	7	-	-	52	23.59
Recreational discard mortality <sup>5</sup>	4	42	59	52	-	-	157	71.21
Bycatch mortality <sup>6</sup>	111	251	17	1,390	885	3,342	5,996	2,719.74
Subsistence <sup>7</sup>	30	405	436	222	14	61	1,168	529.80
IPHC Research landings <sup>8</sup>	16	65	124	198	72	96	571	259.00
<b>Total Removals</b>	<b>1,432</b>	<b>8,307</b>	<b>7,166</b>	<b>13,707</b>	<b>4,235</b>	<b>7,578</b>	<b>42,425</b>	<b>19,243.66</b>
<b>2017 Catch Limits<sup>9</sup></b>	1,330 <sup>10</sup>	7,450 <sup>11</sup>	5,250 <sup>12</sup>	10,000 <sup>12</sup>	3,140	4,230	31,400	14,242.80
<b>2017 Catch Sharing Plan Total</b>	1,286 <sup>10</sup>	7,411 <sup>11</sup>	6,589 <sup>12</sup>	11,897 <sup>12</sup>	3,030	3,953	34,166	15,497.44

<sup>1</sup> Commercial landings are of Pacific halibut that are 32" or greater (O32) in length from directed halibut fisheries using longline gear or in some cases pot gear. Commercial landings are reported on landing receipts and converted from head-on, gutted weight to net weight.

<sup>2</sup> Includes estimate of discard mortality from IPHC research.

<sup>3</sup> Recreational landings are of Pacific halibut that may be subject to a size limit and may vary by Regulatory Area (as described in domestic regulations). Data collection methods vary by Regulatory Area and are collated by IPHC from domestic and state agencies.

<sup>4</sup> Fish landed against transfers from commercial quota fisheries (XRQ in Area 2B, GAF in Areas 2C and 3A).

<sup>5</sup> Regulatory Area 2A based on previous 5-year average. Regulatory Area 2B is the value reported by DFO and differs from the value used in the 2017 stock assessment (53,161 lb). The stock assessment value is based on the method developed by the IPHC, which applies the rate of discarding from the Regulatory Area 2C charter fishery applied to 2B catch.

<sup>6</sup> Bycatch mortality is from fisheries targeting other fish and shellfish that inadvertently catch Pacific halibut. The bycatch mortality estimates are of Pacific halibut that are caught and released at sea but subsequently die.

<sup>7</sup> Includes 2016 Alaskan subsistence harvest estimates (tribal and rural SHARC holders). Area 4 includes 7,380 pounds of U32 Pacific halibut retained in the 2017 Regulatory Area 4DE Community Development Quota fishery.

<sup>8</sup> IPHC Research landings include landings from the fishery-independent setline survey and other research projects.

<sup>9</sup> Does not include pounds from the underage/overage programs in Area 2B or Alaska or pounds from the Annette Island Reserve fishery in Area 2C.

<sup>10</sup> Catch limit and landings reported include commercial, recreational, and treaty subsistence landings.

<sup>11</sup> Catch limit and landings reported include commercial and recreational (including commercial leasing) landings and recreational discard mortality.

<sup>12</sup> Catch limit and landings reported include commercial and recreational guided/charter (including commercial leasing) landings and discard mortality for all commercial and guided recreational. Unguided recreational landings and discard mortality are not included.

<sup>13</sup> Regulatory Area 2C commercial landings includes 64,363 pounds taken in the Metlakatla fishery within the Annette Islands Reserve.

**Table 2.** Commercial fishing periods, number of fishing days, catch limits, commercial, research, and total landings (thousands of pounds, net weight) by Regulatory Area for the 2017 Pacific halibut commercial fishery (preliminary, as of 9 November 2017).

Regulatory Area 2A	Fishing Period	Catch Limit	Length of Opening	Commercial Landings	Research Landings	Total Landings
Treaty Indian	Unrestricted: 20 Mar 15-16 Apr  Restricted: 1-2 May  Late Fishery: 19-20 May (WA coast) 22-23 May (PS) 18-19 Jun 21-22 Jul		11 hrs 39 hrs  35 hrs  34 hrs 34 hrs 34 hrs 34 hrs	264  41.6  126.9		
Total		435.9		432.5		432.5
Incidental in Salmon Fishery	1 Apr – 3 Aug	39.8	124 days	38.6		38.6
Incidental in Sablefish Fishery	1 Apr – 31 Oct	70	214 days	35.9		35.9
Directed <sup>1</sup>	28 Jun 12 Jul 26 Jul		10 hours 10 hours 10 hours	83 77.5 <u>69.5</u>		
Directed Total		225.6		230		230
2A Total		771.3		737	16	753
Regulatory Area	Fishing Period	Catch Limit	Adjusted Catch Limit <sup>2</sup>	Commercial Landings <sup>3</sup>	Research Landings	Total Landings <sup>4</sup>
2B	11 Mar – 7 Nov	6,272	NA	6,193 <sup>4</sup>	65	6,258
2C	11 Mar – 7 Nov	4,212	NA	4,108 <sup>5</sup>	124	4,232
3A	11 Mar – 7 Nov	7,739	NA	7,587	198	7,785
3B	11 Mar – 7 Nov	3,140	NA	3,022	72	3,094
4A	11 Mar – 7 Nov	1,390	NA	1,270	28	1,298
4B	11 Mar – 7 Nov	1,140	NA	1,048	44	1,092
4C	11 Mar – 7 Nov	752	NA	1,620 <sup>6,7</sup>	9	1,644
4D	11 Mar – 7 Nov	752	NA		15	
4E	11 Mar – 7 Nov	196	NA			
Alaska Total		19,321	NA	18,655	490	19,145
<b>Grand Total</b>		<b>26,364<sup>8</sup></b>	<b>NA<sup>8</sup></b>	<b>25,585<sup>8</sup></b>	<b>571<sup>8</sup></b>	<b>26,156<sup>8</sup></b>

<sup>1</sup> Fishing period limits by vessel class.

<sup>2</sup> Includes adjustments from the underage/overage programs, and in Regulatory Area 2B, quota held by DFO (Canada) for First Nations through relinquishment processes, and the Use of Fish allocation.

<sup>3</sup> Includes pounds from 23 October 2017 Prior Notice of Landings in Alaska and hail-ins from Fishery Operations System in Canada.

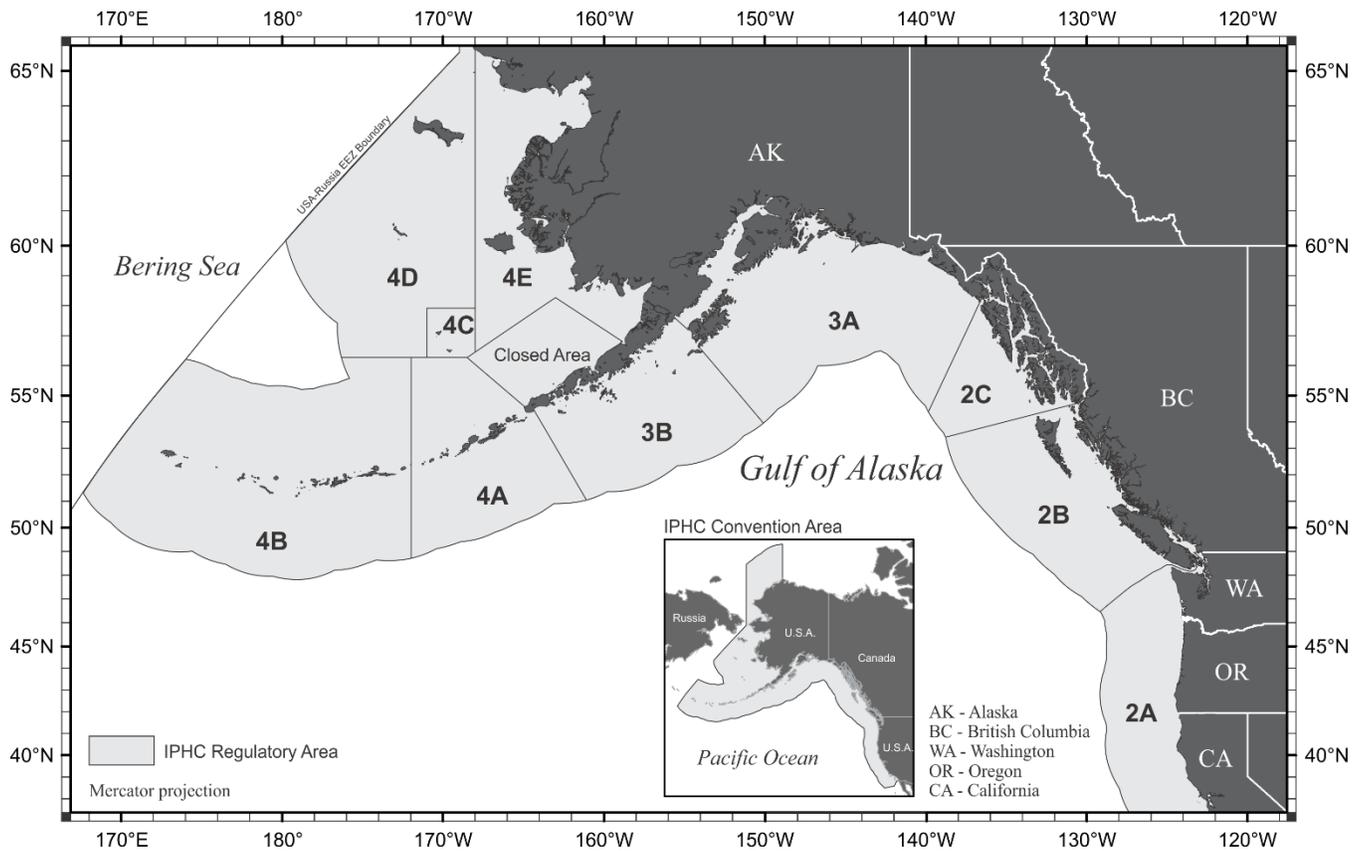
<sup>4</sup> Includes the pounds that were landed by Native communal commercial licenses (FL licenses).

<sup>5</sup> Includes the pounds taken in the Metlakatla fishery within the Annette Islands Reserve.

<sup>6</sup> Regulatory Area 4C IFQ and CDQ could be fished in Regulatory Area 4D by NMFS and IPHC Fishery Regulations.

<sup>7</sup> Regulatory Area 4D CDQ could be fished in Regulatory Area 4E by NMFS and IPHC Fishery Regulations.

<sup>8</sup> Includes IPHC Regulatory Area 2A catch limit and landings.



**Figure 1.** IPHC Convention Area with associated Regulatory Areas.

## Appendix I

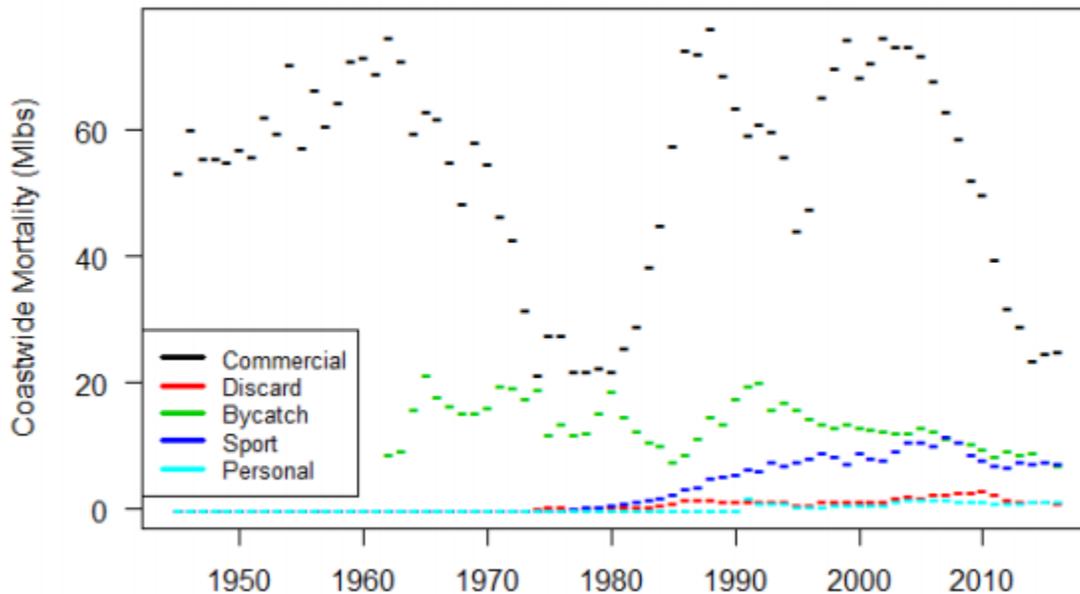
### COMMERCIAL BYCATCH IN THE BERING SEA

AM093– Rec.09 ( <a href="#">para. 110</a> )	<b>Exempted Fishing Permit (EFP) updates</b>  <b>NOTING</b> that the Commission had previously requested the IPHC Secretariat to examine bycatch reduction by the Amendment 80 sector versus other sectors in the Bering Sea, by regulatory area (see AM92.10), which was yet to be undertaken, the Commission <b>RECOMMENDED</b> that the IPHC Secretariat undertake a detailed examination of changes in bycatch levels among all gears/sectors, and for results to be presented to the Commission at its 93 <sup>rd</sup> Interim Meeting (in November 2017).
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The information provided in this Appendix shows trends in bycatch by sector and IPHC Regulatory Area in the Bering Sea and Aleutian Islands.

**The IPHC defines bycatch as follows:** *Incidentally caught fish by fisheries targeting other species and that cannot legally be retained. Bycatch mortality, or bycatch removals, refers only to those fish that subsequently die due to capture.*

Bycatch of Pacific halibut has been an ongoing management issue since the 1960s. For perspective, the trend in total removals of Pacific halibut, including bycatch, coastwide for all IPHC Regulatory Areas is shown in Figure 1.



**Figure 1.** Trend in Pacific halibut total removals coastwide (millions of lbs). Commercial is the directed longline fishery, Discard is the discard mortality from the directed commercial fishery, Bycatch is mortality from non-directed fisheries, Sport (Recreational) is guided and unguided recreational fisheries, and Personal is personal use and subsistence. (Source: *Abundance-based Management (ABM) discussion paper, Figure 2, p.8 (see references)*)

## **ESTIMATING BYCATCH**

Bycatch of Pacific halibut is estimated because not all fisheries have 100% monitoring and not all Pacific halibut that are discarded are assumed to die. Agencies estimate the amount of bycatch that will not survive, called discard mortality.

The 2016 Report on Assessment and Research Activities (RARA) (Chapter 2.6) provides previous sources of bycatch information, as well as the estimated bycatch mortality by Regulatory Area. For Alaska, NMFS Alaska Region provides the bycatch estimates by fishery for most fisheries. The Alaska Department of Fish and Game (ADFG) provides estimates of Pacific halibut bycatch in scallop dredge and crab fisheries, although not every year. Several fishery programs have a mandatory 100% monitoring requirement, including the Bering Sea Aleutian Islands (BSAI) community Development Quota (CDQ) fisheries, the American Fisheries Act (AFA) pollock cooperatives, and the BSAI Amendment 80 (A80) fishery cooperatives. The NMFS Alaska Fisheries Science Center provides an annual deployment plan with scientific guidelines on the amount of coverage and the selection criteria for vessels without 100% monitoring, including vessels in the directed Pacific halibut individual fishing quota fishery.

Further information on discard mortality rates (DMRs) and estimating bycatch can be found in the 2016 RARA (Chapter 2.6, p.73), the ABM discussion paper, and [Amendment 111](#) to the BSAI Groundfish Fishery Management Plan (AM 111)(p.78 – 79).

## **AREA EXAMINED – BERING SEA AND ALEUTIAN ISLANDS**

The area of focus for this paper is the Bering Sea and Aleutian Islands. The Bering Sea is north of Alaska's Aleutian Island chain and south of Alaska's western mainland. The Bering Sea and Aleutian Islands includes IPHC's Regulatory Areas 4A, 4B, 4C, 4D, 4E, and the IPHC Closed Area.

## **DESCRIPTION OF COMMERCIAL FISHERIES WITH BYCATCH**

In the Bering Sea and Aleutian Islands, several commercial fisheries, or sectors, have bycatch of Pacific halibut to varying degrees, including trawl (midwater/pelagic and bottom trawl), hook and line, pot (or trap), and dredge fisheries. For this examination, the BSAI fisheries are grouped as follows:

- Groundfish Trawl
- Hook & Line (non-IFQ)
- Hook & Line (IFQ)
- Groundfish Pot
- Scallop Dredge
- Crab Pot

Four fisheries that catch Pacific halibut as bycatch in the Bering Sea and Aleutian Islands are restricted by what the NPFMC has termed PSC limits. They are the Amendment 80 cooperatives, the BSAI trawl limited access fisheries, the Pacific cod longline fisheries (catcher/processors and catcher vessels), and the CDQ fisheries. Within the IPHC reported categories of commercial fisheries, the fisheries with PSC limits (defined in regulation at 50 CFR §679.21) (listed in the right side of the table) are:

BSAI commercial fishery categories	PSC limited fisheries
Groundfish Trawl	<ul style="list-style-type: none"> <li>• Am80 cooperatives</li> <li>• BSAI trawl limited access <ul style="list-style-type: none"> <li>– Yellowfin sole</li> <li>– Rockfish</li> <li>– Pacific cod</li> <li>– Pollock, atka mackerel, other</li> </ul> </li> <li>• CDQ (trawl)</li> </ul>
Hook & Line (non-IFQ)	<ul style="list-style-type: none"> <li>• longline fishery <ul style="list-style-type: none"> <li>– Pacific cod <ul style="list-style-type: none"> <li>○ Catcher/processors</li> <li>○ Catcher vessels</li> </ul> </li> <li>– Other fisheries</li> </ul> </li> </ul>
Hook & Line (IFQ)	<ul style="list-style-type: none"> <li>• CDQ (non-trawl)</li> </ul>
Groundfish Pot	
Scallop Dredge	
Crab Pot	

The four fishery sectors in the BSAI with Pacific halibut PSC limits are described further below. Much of these descriptions are excerpted from the ABM discussion paper, pages 15-18.

- **Amendment 80 cooperatives (trawl) –**

*Trawl catcher/processors in the BSAI active in groundfish fisheries other than Bering Sea pollock (i.e., the head-and-gut fleet or Amendment 80 vessels). The Amendment 80 species are the following six species: BSAI Atka mackerel, Aleutian Islands Pacific ocean perch, BSAI flathead sole, BSAI Pacific cod, BSAI rock sole, and BSAI yellowfin sole (§ 679.2). The Amendment 80 sector can be divided between vessels that focus primarily on flatfish (i.e., Alaska plaice, arrowtooth flounder, flathead sole, rock sole, and yellowfin sole) and those vessels that focus on Atka mackerel. The flatfish-focused vessels have higher rates of halibut bycatch than the Atka mackerel vessels. The Amendment 80 cooperatives include the Alaska Seafood Cooperative (AKSC) and the Alaska Groundfish Cooperative (AGC).*

- Bering Sea Aleutian Island (BSAI) trawl limited access (TLA) fisheries -**  
*The BSAI trawl limited access sector comprises all the trawl vessels in the BSAI except Amendment 80 catcher/processors. This includes both pelagic and non-pelagic (bottom) trawls. Pelagic trawl generally targets pollock. NMFS apportions this sector's PSC limit into PSC allowances (some have seasonal releases) among the following trawl fishery categories: 1) yellowfin sole fishery, 2) rock sole/flathead sole/"other flatfish" fishery, 3) Greenland turbot/arrowtooth flounder/Kamchatka flounder/sablefish fishery, 4) rockfish fishery, 5) Pacific cod fishery, and 6) pollock/Atka mackerel/"other species" fishery, which includes the midwater pollock fishery. This sector includes the following cooperatives: Pollock Conservation Cooperative, and United Catcher Boast and Midwater Trawlers Association.*
- Longline fisheries (also called BSAI Non-trawl) –**  
*The BSAI non-trawl sector comprises all the non-trawl vessels in the BSAI except vessels fishing for groundfish in the community development quota (CDQ) sector. However, the Council and NMFS have exempted pot gear, jig gear, and the sablefish IFQ hook-and-line gear fishery categories from halibut PSC limits. Therefore, only the hook-and-line catcher/processor vessels (primarily targeting Pacific cod and to a lesser extent Greenland turbot) and hook-and-line catcher vessels (exclusively targeting Pacific cod) are subject to PSC limits. All but one hook-and-line catcher/processor fishing in the BSAI participates in a voluntary cooperative, the Freezer Longline Conservation Cooperative (FLCC). The FLCC has allowed hook-and-line catcher/processors to fish as a coordinated group and has allowed less efficient vessels to decrease fishing or stop entirely.*
- Community Development Quota (CDQ) fisheries –**  
*The CDQ sector includes all trawl and non-trawl vessels that harvest groundfish under the CDQ Program. CDQ vessels primarily target pollock using trawl gear and target Pacific cod using hook-and-line gear. Other species such as yellowfin sole, several flatfish species, Atka mackerel and Pacific ocean perch allocated to the CDQ sector are targeted by vessels using trawl gear.*

The Pacific halibut PSC limits among these four fishery sectors was implemented through AM 111. AM 111 further reduced PSC limits for these sectors as follows (adapted from ABM discussion paper, p.15):

	Previous PSC limit (mt)	PSC limit reduction	Current PSC limit (mt)
Am 80 cooperatives	2,325	-25%	1,745
BSAI trawl limited access fisheries	875	-15%	745
Longline fisheries	833	-15%	710
CDQ fisheries	393	-20%	315
<b>TOTAL</b>	<b>4,426</b>	<b>-21%</b>	<b>3,515</b>

The ABM discussion paper included the table below showing the trends from 2008-2016 in percent attainment of the PSC limit by fishery compared to Pacific halibut mortality estimates for each fishery (ABM discussion paper, p.19). The table shows that, in general, most fisheries have remained well below their PSC limits. In 2012, the BSAI trawl limited access fishery exceeded its PSC limit.

Table 4. Pacific halibut mortality estimates (top rows) and mortality relative to the limits (bottom rows) by sector for 2008-2016.

	Am80	BSAI TLA	Longline fisheries	CDQ	Total PSC mortality
2008	1,869	838	593	215	3,515
2009	1,985	815	597	155	3,552
2010	2,154	584	526	162	3,426
2011	1,722	717	498	243	3,179
2012	1,890	1,012	570	272	3,744
2013	2,089	784	471	266	3,611
2014	2,106	717	408	247	3,478
2015	1,362	527	299	130	2,318
2016	1,333	650	197	174	2,354
2017*	699	524	124	92	1,439
	Am80	BSAI TLA	Longline fisheries	CDQ	% of Total PSC limit
2008	74%	96%	71%	63%	77%
2009	80%	93%	72%	45%	78%
2010	89%	67%	63%	41%	76%
2011	72%	82%	60%	62%	71%
2012	81%	116%	68%	69%	85%
2013	90%	90%	57%	68%	82%
2014	91%	82%	49%	63%	79%
2015	59%	60%	36%	33%	52%
2016	76%	87%	28%	55%	67%
2017*	40%	70%	17%	29%	41%

\* Halibut mortality to date week of 8/14/2017

## TRENDS IN BYCATCH BY SECTOR AND IPHC REGULATORY AREA

The IPHC reports Pacific halibut bycatch mortality from commercial fisheries by year, sector, and IPHC Regulatory Area in the RARA. The table below provides the bycatch mortality in the BSAI from 2007-2017.

IPHC Reg Area and Gear	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>AREA 4A</b>											
Scallop Dredge	0	0	0	0	0	0	0	0	0	0	0
Crab Pot	2	7	5	22	14	12	27	0	0	0	0
Groundfish Trawl	1,418	1,021	1,315	800	789	1,314	606	615	483	466	288
Hook & Line (non-IFQ)	153	178	220	213	145	130	204	160	149	99	104
Hook & Line (IFQ)	15	15	15	15	15	5	4	3	3	2	2
Groundfish Pot	3	8	2	7	8	10	32	27	7	5	7
<b>Total</b>	<b>1,591</b>	<b>1,229</b>	<b>1,557</b>	<b>1,058</b>	<b>971</b>	<b>1,472</b>	<b>873</b>	<b>805</b>	<b>642</b>	<b>572</b>	<b>400</b>
<b>AREA 4B</b>											
Crab Pot	2	2	0	0	1	0	3	0	0	0	0
Groundfish Trawl	293	206	299	371	402	215	116	101	202	137	175
Hook & Line (non-IFQ)	139	114	119	65	32	27	6	24	20	5	18
Hook & Line (IFQ)	40	40	40	40	40	12	10	5	2	2	0
Groundfish Pot	3	2	1	1	1	1	5	2	0	0	2
<b>Total</b>	<b>477</b>	<b>364</b>	<b>459</b>	<b>477</b>	<b>476</b>	<b>255</b>	<b>140</b>	<b>132</b>	<b>223</b>	<b>144</b>	<b>195</b>
<b>AREA 4CDE+CL</b>											
Scallop Dredge	0	0	0	0	0	0	0	0	0	0	0
Crab Pot	43	54	33	63	49	29	29	0	37	37	37
Groundfish Trawl	4,145	3,469	3,160	3,429	2,496	3,458	4,110	4,205	3,003	2,895	2,427
Hook & Line (non-IFQ)	609	978	821	684	472	768	668	538	384	311	281
Hook & Line (IFQ)	5	5	5	5	5	1	151	11	0	0	0
Groundfish Pot	1	2	1	1	2	4	18	13	2	2	2
<b>Total</b>	<b>4,804</b>	<b>4,508</b>	<b>4,021</b>	<b>4,182</b>	<b>3,024</b>	<b>4,260</b>	<b>4,977</b>	<b>4,767</b>	<b>3,425</b>	<b>3,245</b>	<b>2,747</b>
<b>AREA 4 Subtotal</b>											
Scallop Dredge	0	0	1	0	0	0	0	0	0	0	0
Crab Pot	48	63	39	85	65	41	59	0	37	37	37
Groundfish Trawl	5,856	4,696	4,774	4,600	3,687	4,987	4,832	4,921	3,687	3,499	2,890
Hook & Line (non-IFQ)	901	1,270	1,160	962	649	925	878	722	552	415	403
Hook & Line (IFQ)	60	60	60	60	60	18	165	19	5	3	2
Groundfish Pot	7	12	4	9	11	15	55	42	8	7	10
<b>Total</b>	<b>6,872</b>	<b>6,101</b>	<b>6,037</b>	<b>5,717</b>	<b>4,472</b>	<b>5,987</b>	<b>5,989</b>	<b>5,704</b>	<b>4,290</b>	<b>3,961</b>	<b>3,342</b>

Figure 9 from the 2016 RARA, Chapter 2.6, shows the Pacific halibut bycatch mortality for all of Area 4 by gear type from 2007-2016.

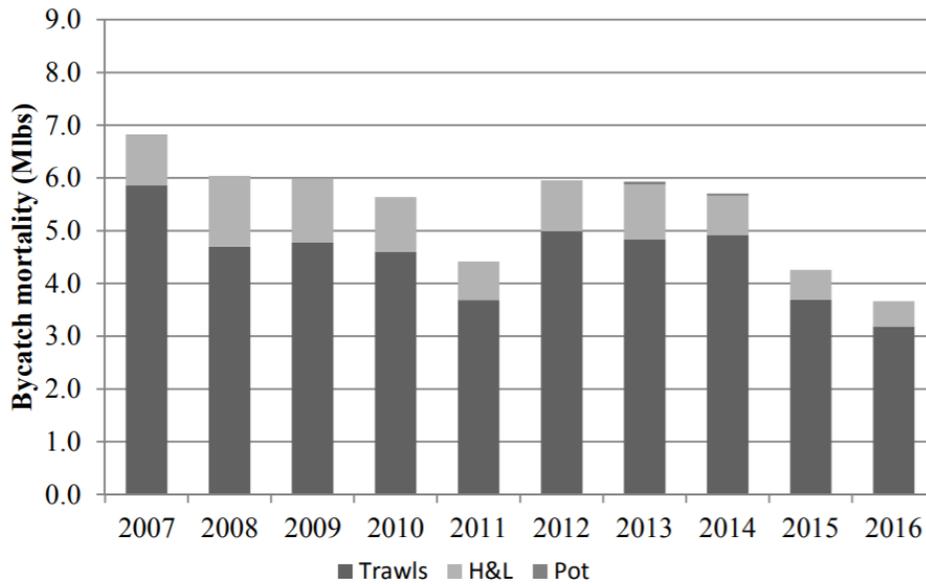


Figure 9. Bycatch mortality (millions of pounds, net weight) in Area 4 by gear type during 2007-2016.

Figure 10 from the 2016 RARA, Chapter 2.6, shows the Pacific halibut bycatch mortality for all gears by IPHC Regulatory Area (Area 4A, 4B, and 4CDE plus the Closed Area combined) from 2007-2016.

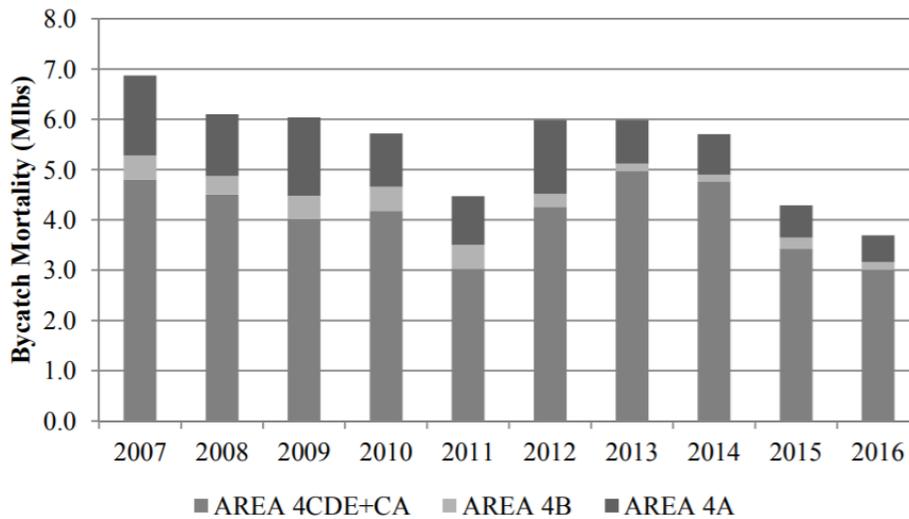


Figure 10. Bycatch mortality among the Bering Sea IPHC regulatory areas since 2007. (“CA” = Closed Area)

In addition to the information available from the IPHC, the North Pacific Fishery Management Council's (NPFMC) ABM working group has produced an ABM discussion paper that provides bycatch mortality for Area 4 combined for PSC-limited fisheries. Figures 12 and 13 from the ABM discussion paper show the trawl fleet had a steady decline in Pacific halibut CPUE in both number and weight. Figure 15 shows the non-IFQ groundfish longline fleet decline in Pacific halibut CPUE (weight) in recent years.

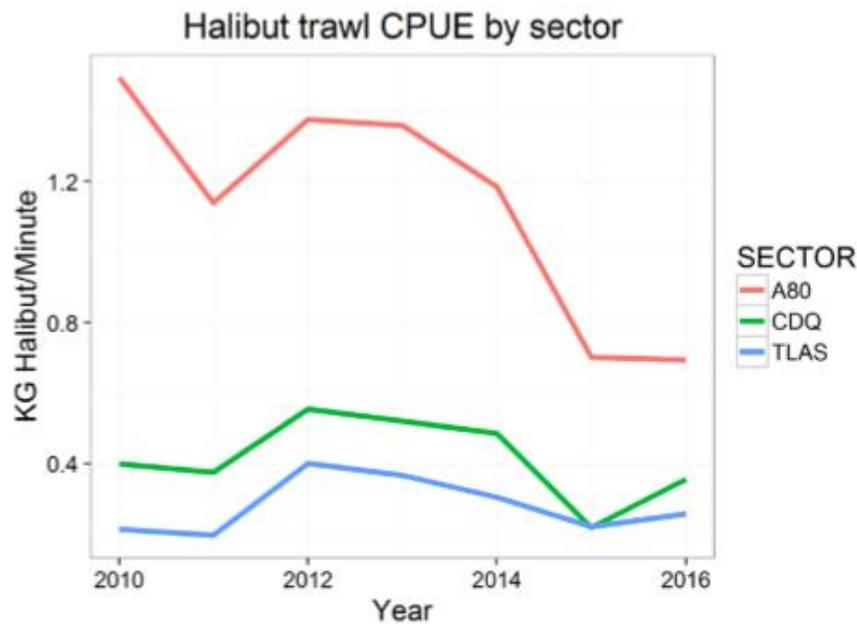


Figure 12. Catch per unit effort (weight) of halibut by trawl sector from 2010-2016.

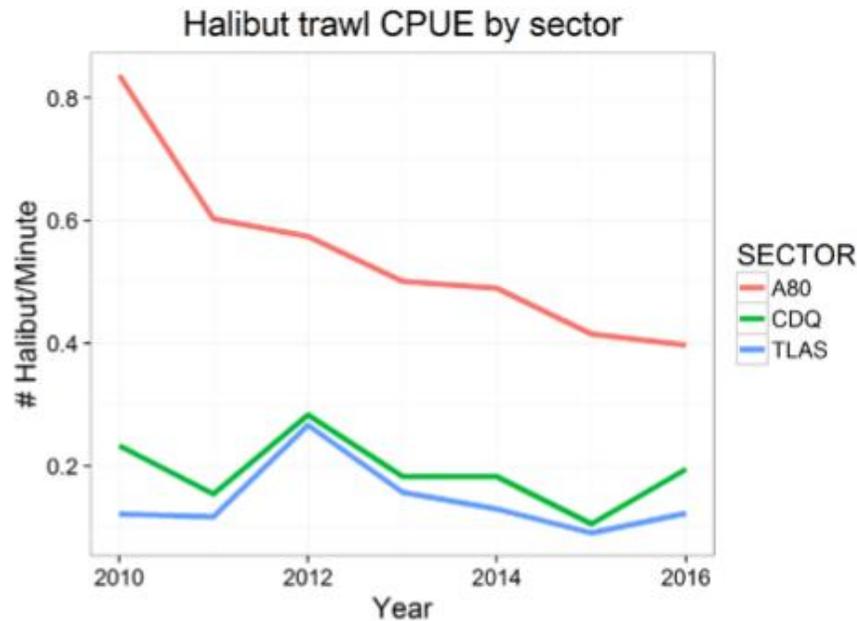


Figure 13. Catch per unit effort (numbers) halibut by trawl sector from 2010-2016.

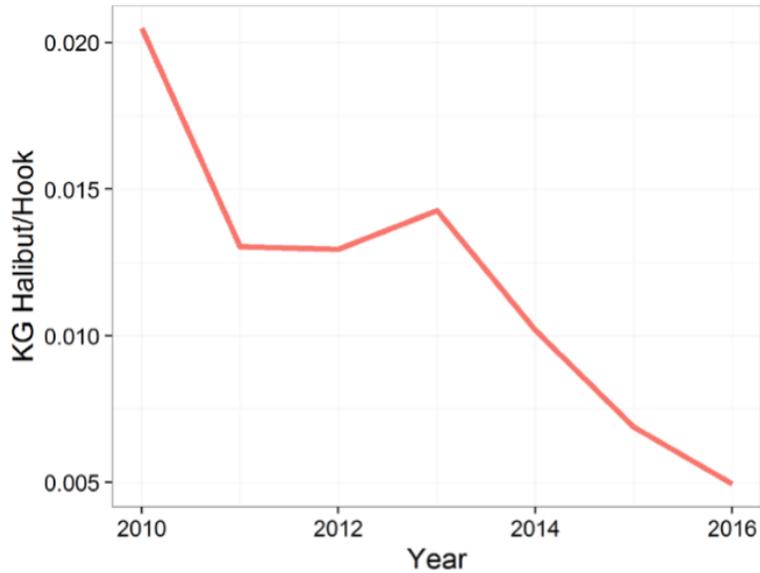


Figure 15. Catch per unit effort (weight) of halibut for longline gear (non-IFQ) in the EBS from 2010 – 2016.

An additional view of the data below, from NMFS inseason management report (see references) to the NPFMC at their December 2016 meeting, shows the reduction in halibut mortality by PSC limited fisheries in 2016 compared to the previous 5-year average (2011-2015) in the BSAI.

B2 NMFS BSAI Inseason Mgt Report  
DECEMBER 2016

## 2016 BSAI Reduction in Halibut Mortality Compared to 5 year Average

Sector	2011-2015 Average (mt)	2016 (mt)	% Change (mt)	2011-2015 Rate*	2016 Rate*	% Change (Rate)	
<b>Hook-and-line</b>							
Catcher/Processors	437	181	-59%	3.20	1.37	-57%	
Catcher Vessels	3	0	-100%	2.68	1.33	-50%	
<b>Total</b>	<b>439</b>	<b>181</b>	<b>-59%</b>	<b>3.20</b>	<b>1.37</b>	<b>-57%</b>	
<b>Non-Pelagic Trawl</b>							
Amendment 80 Catcher/Processors	1,946	1,327	-32%	6.00	4.33	-28%	
AFA Catcher/Processors	123	109	-11%	3.96	5.29	34%	
Catcher Vessels	349	410	18%	6.19	6.64	7%	
<b>Total</b>	<b>2,418</b>	<b>1,846</b>	<b>-24%</b>	<b>5.87</b>	<b>4.75</b>	<b>-19%</b>	
<b>Pelagic Trawl</b>							
AFA Catcher/Processors	133	64	-52%	0.30	0.13	-55%	
AFA Catcher Vessels	80	19	-76%	0.12	0.03	-78%	
<b>Total</b>	<b>214</b>	<b>83</b>	<b>-61%</b>	<b>0.19</b>	<b>0.07</b>	<b>-63%</b>	
<b>CDQ</b>							
Hook-and-line Vessels	49	23	-52%	2.30	1.26	-45%	
Non-pelagic Trawl Vessels	163	113	-31%	4.47	2.83	-37%	
Pelagic Trawl Vessels	18	9	-52%	0.14	0.06	-56%	
<b>Total</b>	<b>230</b>	<b>145</b>	<b>-37%</b>	<b>1.25</b>	<b>0.74</b>	<b>-41%</b>	
<b>* Rate is kg of halibut / mt of groundfish</b>	<b>TOTAL</b>	<b>3,301</b>	<b>2,255</b>	<b>-32%</b>	<b>1.79</b>	<b>1.19</b>	<b>-34%</b>

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