

Participation and Effort in the BSAI Trawl Limited Access Yellowfin Sole Fishery February 2016¹

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1 Introduction

In October, the Council received public testimony from a few participants in the offshore sector of the Bering Sea and Aleutian Islands (BSAI) trawl limited access (TLA)² yellowfin sole fishery. Testimony indicated that several new vessels entered the fishery during 2015, and that new entrants were negatively impacting the ability of historical participants to maintain yellowfin sole harvest and may increase halibut prohibited species catch (PSC) in the fishery.

After considering this public testimony, the Council tasked staff to prepare a discussion paper that examines participation and effort in the yellowfin sole BSAI TLA fishery in relation to a potential need to limit entry in the offshore sector in that fishery. To dampen the effect of speculative entry into the offshore sector of the yellowfin sole BSAI TLA fishery in anticipation of potential future action to further limit access to the fishery, the Council announced a control date of October 13, 2015. The control date would not apply to trawl catcher vessels that participate in the inshore sector of the yellowfin sole BSAI TLA fishery. The control date may be used as a reference date for a future management action to further limit access to this offshore fishery. The Council clarified that the control date would neither obligate the Council to use this control date in any future management action, nor obligate the Council to take any action or prevent the Council from selecting another control date. NMFS published an advance notice of proposed rulemaking announcing the control date in the *Federal Register* (81 FR 72408, November 19, 2015) <https://alaskafisheries.noaa.gov/sites/default/files/80fr72408.pdf>.

This document addresses the Council’s request by providing historical participation and effort data for the yellowfin sole BSAI TLA fishery. Following the introduction are sections on the management of BSAI yellowfin sole fisheries and a description of the BSAI TLA yellowfin sole fishery.

2 Management of BSAI yellowfin sole fisheries

The BSAI yellowfin sole fishery was historically managed as a single total allowance catch (TAC) until 1998 when 7.5% was allocated to the Community Development Quota (CDQ) Program (the allocation increased to 10.7% with the implementation of the Amendment 80 Program). NOAA Fisheries credited both directed harvest and the incidental harvest of yellowfin sole against the TAC, to prevent overharvest. For the non-CDQ allocation, directed fishing was allowed until the direct fishing allowance was reached. After a directed fishery was closed, NOAA Fisheries allowed vessels to retain incidental catch of a yellowfin sole taken in other directed fisheries until the TAC was taken. Incidental catch retention,

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² Commonly referred to as the trawl limited access sector (TLAS).

however, was limited to the maximum retainable amount (MRA), which is the percentage of yellowfin sole incidental catch relative to the retained directed species catch. Catch of a species in excess of the MRA had to be discarded. If the TAC for yellowfin sole was reached, NOAA Fisheries issued a prohibition on retention for yellowfin sole and all further catch of yellowfin sole had to be discarded. For the CDQ allocations, the CDQ groups manage their yellowfin sole allocations.

Starting in 2008, Amendment 80 established catch shares for several species, including yellowfin sole, for the Amendment 80 fleet. Each year, NOAA Fisheries allocates an amount of Amendment 80 species available for harvest, called the initial allowable catch (ITAC), and crab and halibut PSC to the Amendment 80 sector and the BSAI TLA sector. The Council's intent of establishing the TLA fisheries was to provide harvesting opportunities for American Fisheries Act (AFA) catcher processors (CPs), AFA catcher vessels (CVs), and non-AFA CVs. The Amendment 80 sector would be precluded from participating in these TLA fisheries (NPFMC, 2007).

Allocations made to the Amendment 80 sector are not subject to harvest by participants in other fishery sectors. The ITAC represents the amount of TAC for each Amendment 80 species that is available for harvest, after allocations to the CDQ program and the incidental catch allowance (ICA) have been subtracted from the TAC. The ICA is set aside for the incidental harvest of an Amendment 80 species, while vessels are targeting other groundfish species in non-trawl fisheries and in the BSAI TLA sector fisheries.

The proportion of yellowfin sole ITAC allocated between the Amendment 80 and BSAI TLA sectors fluctuates with the yellowfin sole TAC. The intent of the fluctuating yellowfin sole allocations between the Amendment 80 and BSAI TLA sectors was to better accommodate major shifts in the yellowfin sole trawl fisheries during periods of high ITAC. In addition, this approach was thought to provide harvesting opportunities for some trawl sectors, while also maintaining some consistency in the historical catch in other trawl sectors (NPFMC, 2007). Presented below is the BSAI yellowfin sole allocation calculation between the Amendment 80 sector and the BSAI TLA fishery.

<u>ITAC</u>	<u>Allocation</u>
0 - 87,499	93%
87,500 - 94,999	87.5%
95,000 - 102,499	82%
102,500 - 109,999	76.5%
110,000 - 117,499	71%
117,500 - 124,999	65.5%
125,000 and greater	60%

Table 1 provides historical acceptable biological catch (ABC), TAC, ITAC, Amendment 80 and BSAI TLA allocations for BSAI yellowfin sole, 2003 through 2015.

Table 1 BSAI yellowfin sole ABC (mt), TAC (mt), ITAC (mt), AM80 (mt) and TLA (mt) allocations, 2003-2016

Year	ABC	TAC	ITAC*	AM80	BSAI TLA
2003	114,000	83,750	71,188		
2004	114,000	86,075	73,164		
2005	124,000	90,686	77,083		
2006	121,000	95,701	81,346		
2007	225,000	136,000	115,600		
2008	248,000	225,000	200,925	160,413	38,512
2009	210,000	210,000	187,530	146,376	39,154
2010	219,000	219,000	195,567	171,198	22,369
2011	240,000	196,000	175,028	140,875	32,153
2012	239,000	202,000	180,386	142,089	36,297
2013	203,000	198,000	176,814	139,946	34,868
2014	206,000	184,000	164,312	132,205	29,707
2015	239,800	149,000	133,057	120,912	16,165
2016	248,800	144,000	127,592	110,113	14,979

Source: NMFS Final Specifications

TLA = trawl limited access

*ITAC = TAC - CDQ

To help facilitate the BSAI TLA yellowfin sole fishery, the Amendment 80 program relieves AFA sideboard limits for yellowfin sole when the yellowfin sole ITAC is equal to or greater than 125,000 metric tons (mt). The intent in removing the BSAI yellowfin sole sideboards was to allow AFA sectors the potential to expand their harvest in the yellowfin sole fishery in periods of diminished availability of pollock (NPFMC, 2007). Because most of the yellowfin sole ITAC was allocated to the Amendment 80 sector for exclusive harvest, the need for AFA sideboard limits was greatly reduced since AFA vessels no longer directly compete with the Amendment 80 sector active in the yellowfin sole fishery.

Below a 125,000 mt ITAC, the yellowfin sole sideboard limits are based on the 1995 through 1997 aggregated retained catch of yellowfin sole for AFA CV sector and CP sector relative to the total catch of yellowfin sole during the same time period. The resulting ratios (.230 for AFA CPs and .0647 for AFA CVs) are then multiplied by the available yellowfin sole TAC minus the CDQ allocation. Table 2 provides the yellowfin sole sideboard limits for AFA CVs and CPs from 2003 through 2016. Since 2008, the yellowfin sole ITAC has been higher than 125,000 mt, so sideboard limits have not been in place for AFA vessels.

Table 2 Yellowfin sole sideboard limits for AFA CVs and CPs from 2003 through 2016

Year	ITAC*	AFA CV	AFA CP
2003	71,188	4,606	16,587
2004	73,164	4,734	17,047
2005	77,083	4,987	17,960
2006	81,346	5,263	18,954
2007	115,600	7,479	26,935
2008	200,925	None	None
2009	187,530	None	None
2010	195,567	None	None
2011	175,028	None	None
2012	180,386	None	None
2013	176,814	None	None
2014	164,312	None	None
2015	133,057	None	None
2016	127,592	None	None

Source: NMFS Final Specifications

As part of the Amendment 80 Program, halibut PSC limit is allocated to the Amendment 80 sector and the BSAI TLA fisheries (see Table 3). When Amendment 111 is implemented by the Secretary of Commerce, the 2016 halibut PSC limit apportioned to the Amendment 80 sector will be 1,745 mt, while the 2016 apportionment of halibut PSC limit to the BSAI TLA fisheries will be 745 mt. Of the 745 mt halibut PSC apportioned to the BSAI TLA fisheries during 2016, 150 mt will be reserved for the yellowfin sole fishery. Table 3 provides the halibut PSC limits for the trawl yellowfin sole fishery from 2003 through 2007. The table also provides the halibut PSC limits for all BSAI TLA groundfish fisheries, BSAI TLA yellowfin sole fishery, and the Amendment 80 sector from 2008 through 2016.

Table 3 Halibut PSC limit for yellowfin sole trawl fishery (2000 through 2007), all BSAI TLA fisheries, BSAI TLA yellowfin sole fishery, and Amendment 80 fisheries, 2003 through 2016

Year	YFS trawl	BSAI TLA total	BSAI TLA YFS*	AM80
2003	886			
2004	886			
2005	886			
2006	886			
2007	886			
2008		875	241	2,525
2009		875	162	2,475
2010		875	187	2,425
2011		875	167	2,375
2012	N/A	875	167	2,325
2013		875	167	2,325
2014		875	227	2,325
2015		875	167	2,325
2016		745	150	1,745

Source: NMFS Final Specifications

TLA = trawl limited access

YFS = yellow fin sole

* BSAI TLA YFS halibut PSC limit is part of the BSAI TLA total halibut PSC limit

The process for reallocating halibut PSC limits in the BSAI groundfish fisheries varies by sector/fishery. For the Amendment 80 sector, the Regional Administrator may reallocate a portion of the halibut PSC limit from the BSAI TLA fisheries to the Amendment 80 sector if Regional Administrator determines it is appropriate. For the BSAI TLA fisheries, there are no regulations that authorize the reallocation of halibut PSC limit between fisheries. In one case for halibut PSC to be reallocated between BSAI TLA fisheries, the Regional Administrator, after determining some portion of halibut PSC in a BSAI TLA fishery will go unused, and after consultation with the Council, and in accordance with § 679.21(e)(3)(i)(B), may reapportion that halibut PSC to another BSAI TLA fishery by publishing a temporary rule. As an example, June 25, 2014, NMFS published a temporary rule to reapportion a projected unused 60 mt of the 2014 halibut PSC limit from the BSAI TLA Pacific cod fishery to the BSAI TLA yellowfin sole fishery. This action was necessary to provide opportunity for harvest of the 2014 BSAI TLA yellowfin sole allocation by participating vessels. Table 4 provides details on the annual reallocations of halibut PSC limits.

As with other “race for fish” fisheries, the halibut PSC limit has the potential to close directed fishing for the yellowfin sole BSAI TLA fishery, or move fishing activity out of a preferred fishing area. NMFS monitors halibut PSC limits in this fishery, and may close or otherwise restrict trawl harvests in this fishery if PSC limits are projected to be reached. Fishery closures due to reaching halibut PSC limits can

limit harvest of the yellowfin sole ITAC and reduce overall revenue to vessel operators and crew. As vessel operators seek to maximize harvest of yellowfin sole ITAC, they may accelerate fishing operations to maximize harvest of yellowfin sole ITAC before the halibut PSC limit is reached, thus a ‘race for fish’ is possible.

Table 4 provides fishery closure dates for the BSAI yellowfin sole fishery (for both Amendment 80 and BSAI TLA from 2008 through 2015) and fishery closure dates for the yellowfin sole trawl fishery (from 2003 through 2007). The table indicates that the yellowfin sole BSAI TLA fishery has remained open most of the year, closing in November or December. The only exception was in 2014, when the fishery closed on May 15 to prevent exceeding the halibut PSC limit apportioned to the fishery. On June 18, 2014, 60 mt of halibut PSC was reapportioned from the BSAI TLA Pacific cod and pollock fisheries to the BSAI TLA yellowfin sole fishery, which allowed the BSAI TLA yellowfin sole fishery to open on June 20, and remain open for the rest of 2014.

Table 4 Status of the BSAI yellowfin sole fishery from 2003 through 2015

Year	Action	Purpose	Date	Amendment 80			BSAI TLA		
				Action	Purpose	Date	Action	Purpose	Date
2003	Closed-trawl	Halibut	16-Apr	N/A	N/A				
	Open-trawl	Sufficient halibut	29-Apr						
	Closed-trawl bycatch limitation zone 1	Red king crab	21-May						
	Closed-trawl	Halibut	3-Jun						
	Closed-trawl	Halibut	24-Sep						
Reapportionment from reserve	3,500 mt	24-Dec							
2004	Closed	TAC	2-Jun						
	Closed-trawl bycatch limitation zone 1	Red king crab	14-Mar						
2005	Closed	TAC	17-May						
	Open	Sufficient TAC	21-Jul						
	Reapportionment from reserve	6,800 mt	25-Jul						
	Closed-trawl	Halibut	17-Aug						
	Prohibit retention	TAC	22-Aug						
	Rescinds prohibition retention	Sufficient TAC	16-Sep						
	Apportionment from reserve	3,500 mt	16-Sep						
Apportionment from reserve	401 mt	30-Dec							
2006	Closed-trawl	Halibut	19-Apr						
	Closed-trawl	Halibut	7-Jun						
	Prohibit retention	TAC	15-Jun						
	Open	Sufficient TAC	12-Jul						
	Apportionment from reserve	7,500 mt	24-Jul						
2007	Closed	TAC	7-Aug						
	Closed-trawl	Halibut	18-Apr						
	Closed-trawl	Halibut	7-Jun						
2008	Closed-trawl	Halibut	3-Aug						
	Closed AMB0 LAF	Halibut	16-May						
	Closed AMB0 LAF bycatch limitation zone 1	Red king crab	21-May						
	Reallocation from TLA to AMB0	6,000 mt	20-Oct						
2009	Closed AMB0 LAF	Halibut	20-Nov						
	Reallocation from TLA to AMB0	6,000 mt	2-Oct						
	Reallocation from TLA to AMB0	20,000 mt							
2010	Reallocation from TLA to AMB0	2,000 mt	5-Oct						
2011	Nothing to report								
2012	Nothing to report								
2013	Nothing to report								
2014	Nothing to report								
	Nothing to report								
	Nothing to report								
2015	Nothing to report								
	Nothing to report								

Source: NMFS Final Specifications

TLA = trawl limited access

LAF = AMB0 limited access fishery

3 Description of the BSAI TLA yellowfin sole fishery

This section of the discussion paper will examine the offshore participation and effort in the yellowfin sole BSAI TLA fishery. Vessels that participate in the offshore sector of the BSAI TLA yellowfin sole

fishery include CVs, CPs, and motherships. Catcher vessels participate in the offshore sector by delivering yellowfin sole to CPs acting as motherships. Catcher processors participate in the offshore sector by catching and processing yellowfin sole or by receiving and processing deliveries of yellowfin sole from catcher vessels. Motherships participate in the offshore sector by receiving and processing deliveries of yellowfin sole from catcher vessels.

Catch data used in this discussion paper was from 2003 through 2015. Data before 2003 was not included in the discussion paper to maintain consistent catch data calculations. Offshore catch data from 2003 through 2015 is from the Catch Accounting System which predominantly uses observer data, while catch data before 2003 is from Blend data that primarily selected production over observer data. For this reason, the discussion paper relies only on data from Catch Accounting System.

3.1 Catch of BSAI yellowfin sole

This section provides information on catch of BSAI yellowfin sole from 2003 through 2015. Table 5 provides data on BSAI TLA yellowfin sole catch in relation to yellowfin sole ITAC and BSAI TLA allocation. Prior to implementation of the BSAI TLA yellowfin sole allocation in 2008, annual target catch of BSAI yellowfin sole by non-Amendment 80 vessels increased from 4,386 mt in 2004 to 22,214 mt in 2007. The increasing BSAI yellowfin sole target catch during this period is likely related to the increasing BSAI yellowfin sole ITAC, which increased from 71,188 mt in 2003 to 115,600 mt in 2007. During the first five years of the BSAI TLA yellowfin sole fishery (2008 through 2012), fishing effort, combined with high allocations, were such that the fishery was not fully utilized. Harvest percentages ranged from a low of 31% in 2009 to a high of 87% in 2010, after accounting for the reapportionment of BSAI TLA yellowfin sole allocation to the Amendment 80 sector (see Table 4 for reapportionments and dates). Starting in the 2013, the BSAI TLA yellowfin sole fishery was a fully utilized fishery. In 2013, 99% of the BSAI TLA yellowfin sole allocation was harvested. In 2014, 93% of the BSAI TLA yellowfin sole allocation was harvested. In 2015, 99% of the BSAI TLA yellowfin sole allocation was harvested. Table 5 also provides annual incidental catch of BSAI yellowfin sole, which has ranged from a low of 232 mt in 2010 to a high of 3,370 mt in 2014. The largest portion of incidental catch occurs in the BSAI TLA Pacific cod fishery. This BSAI yellowfin sole incidental catch is accommodated by the ICA, which in 2015 was 5,000 mt.

Disaggregating BSAI TLA yellowfin sole fishery by sector shows that the fishery is entirely an offshore fishery composed of two groups: 1) AFA CPs, and 2) AFA and non-AFA CVs that deliver to a few Amendment 80 motherships. Prior to 2009, there were also two floaters that participated in the fishery as motherships, but those floaters have not participated in the fishery since 2008. Table 6 provides vessel counts for each group. With the exception of 2015, catch by year for each vessel sector is confidential and could not be provided due to the limited number of motherships participating in the fishery on an annual basis.

Looking first at the CPs, prior to 2008, the number of vessels ranged from 3 in 2003 to 9 in 2007. Since implementation of the BSAI TLA yellowfin sole fishery in 2008, the number of CPs has ranged a low of 8 in 2009 and 2013 to a high of 12 in 2008. In total, there were 13 unique CPs that participated in the BSAI yellowfin sole fishery from 2003 through 2015. All participating CPs are AFA vessels. Table 7 provides annual participation of the CPs from 2003 through 2015. All 13 CPs participated at least once in the BSAI TLA yellowfin sole fishery (2008-2015), while only 1 CP has participated in the fishery every year since 2003.

In 2015, 7 CPs harvested 8,875 mt of yellowfin sole in the BSAI TLA fishery, which is 55% of the BSAI TLA allocation and significantly lower than their average annual percent of total BSAI TLA yellowfin sole catch of 80% from 2008 through 2014.

Table 5 Yellowfin sole ITAC, BSAI TLA allocation, and target and incidental catch of YFS BSAI TLA (2003 through 2015)

Year	YFS ITAC* (mt)	YFS BSAI TLA allocation (mt)	YFS BSAI TLA allocation as a % of YFS ITAC	YFS BSAI target catch from 2003-2007** & YFS BSAI TLA target catch from 2008-2015 (mt)	YFS BSAI TLA target catch as a % of BSAI TLA allocation	YFS BSAI target catch as a % of YFS ITAC	YFS incidental catch (mt)
2003	71,188			4,461		6	853
2004	73,164			4,386		6	771
2005	77,083	N/A	N/A	7,995	N/A	10	904
2006	81,346			13,361		16	1,206
2007	115,600			22,214		19	887
2008***	200,925	32,512	16	20,017	62	10	1,017
2009***	187,530	33,154	18	10,181	31	5	2,506
2010***	195,567	22,369	11	19,421	87	10	232
2011	175,028	32,153	18	25,485	79	15	1,632
2012	180,386	36,297	20	28,140	78	16	1,698
2013	176,814	34,868	20	34,606	99	20	2,534
2014	164,312	29,707	18	27,720	93	17	3,370
2015	133,057	16,165	12	16,073	99	12	2,691

Source: NMFS Final Specifications

Source file: BSAI_Yellow fin(12-28)

*ITAC = TAC - CDQ

**Catch of YFS BSAI target catch by AM80 vessels has been removed from YFS BSAI target catch (2003-2007)

***YFS BSAI TLA allocation was adjusted to account for reapportionment of YFS from the BSAI TLA to Amendment 80 (see Table 4 for amounts reapportioned)

TLA = trawl limited access

YFS = yellow fin sole

Table 6 Vessel count and catch for BSAI TLA yellowfin sole fishery, 2003 through 2015

Year	YFS ITAC* (mt)	YFS BSAI TLA allocation (mt)	Offshore activity (CP and mothership)				YFS BSAI target catch from 2003-2007** & YFS BSAI TLA target catch from 2008-2015 (mt)	
			CP Vessel count	Harvest YFS BSAI from 2003-2007** and YFS TLA from 2008-2015 (mt)	CV vessel count (delivering to motherships)	Harvest YFS BSAI from 2003-2007** and YFS TLA from 2008-2015 (mt)		Mothership vessel count
2003	71,188		3	*	0	*	0	4,461
2004	73,164		5	*	2	*	2	4,386
2005	77,083	N/A	5	*	1	*	1	7,995
2006	81,346		7	*	4	*	2	13,361
2007	115,600		9	*	3	*	2	22,214
2008***	200,925	32,512	12	*	3	*	2	20,017
2009***	187,530	33,154	8	*	1	*	1	10,181
2010***	195,567	22,369	9	*	0	*	0	19,421
2011	175,028	32,153	9	*	2	*	1	25,485
2012	180,386	36,297	10	*	3	*	1	28,140
2013	176,814	34,868	8	*	3	*	1	34,606
2014	164,312	29,707	10	*	3	*	1	27,720
2015	133,057	16,165	7	8,875	6	7,198	5	16,073

Source file: BSAI_Yellow fin(12-28)

*ITAC = TAC - CDQ

**Catch of YFS BSAI target catch by AM80 vessels has been removed from YFS BSAI target catch (2003-2007)

***YFS BSAI TLA allocation was adjusted to account for reapportionment of YFS from the BSAI TLA to Amendment 80 (see Table 4 for amounts reapportioned)

TLA = trawl limited access

YFS = yellow fin sole

Table 7 Years catcher processors participated in the BSAI yellowfin sole fishery (2003-2007) and the BSAI TLA yellowfin sole fishery (2008 through 2015)

Catcher processor	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total of years active
Vessel 1	X					X								2
Vessel 2	X	X	X	X	X	X		X	X	X	X	X	X	12
Vessel 3	X	X	X	X	X	X	X	X	X	X	X	X	X	13
Vessel 4		X	X	X	X	X	X		X	X	X	X	X	11
Vessel 5		X	X	X	X	X	X	X						7
Vessel 6			X	X	X	X		X	X	X	X	X	X	10
Vessel 7				X	X	X	X	X	X	X		X		8
Vessel 8					X	X		X		X	X	X	X	7
Vessel 9					X	X	X	X	X	X	X	X		8
Vessel 10						X	X	X	X					4
Vessel 11						X	X		X	X	X	X	X	7
Vessel 12						X	X		X	X	X	X	X	7
Vessel 13								X		X		X		3

Source file: BSAI_Yellow fin(12-28)

As for CVs participating in the BSAI yellowfin sole fishery and BSAI TLA yellowfin sole fishery, there were fewer on an annual basis than the CPs and they did not participate in the fisheries as often as the CPs. Prior to 2008, the number of CVs ranged from 1 in 2005 to 4 in 2006. Since implementation of the BSAI TLA yellowfin sole fishery in 2008, the number of CVs has ranged a low of 0 in 2010 to a high of 6 in 2015. In total, there were 16 unique CVs that participated in the two BSAI yellowfin sole fisheries from 2003 through 2015. Of these 16 CVs, 5 were AFA vessels. Looking at the annual participation of these 16 CVs (Table 8), 8 vessels participated in the BSAI TLA yellowfin sole fishery (2008-2015) at least one year. Of these 8 CVs that participated in the yellowfin sole BSAI TLA fishery, 3 vessels had 4 or more years in that fishery.

In 2015, 6 CVs harvested 7,198 mt of yellowfin sole in the BSAI TLA fishery, which is 45% of the BSAI TLA yellowfin sole allocation and is significantly higher than the sectors average annual percent of total BSAI TLA yellowfin sole catch of 20%.

Table 8 Years catcher vessels delivering to motherships participated in the BSAI yellowfin sole fishery (2003-2007) and the BSAI TLA yellowfin sole fishery (2008-2015)

Catcher vessel	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total of years active
Vessel 1		X	X	X	X	X								5
Vessel 2		X												1
Vessel 3				X										1
Vessel 4				X										1
Vessel 5				X										1
Vessel 6					X									1
Vessel 7					X									1
Vessel 8						X								1
Vessel 11						X	X		X	X	X	X	X	7
Vessel 12									X	X	X	X	X	4
Vessel 13									X	X	X	X	X	5
Vessel 14													X	1
Vessel 15													X	1
Vessel 16													X	1

Source file: BSAI_Yellow fin(12-28)

The number of mothership participating in the BSAI yellowfin sole fishery and the BSAI TLA yellowfin sole fishery could be characterized as limited. Prior to implementation of the BSAI TLA yellowfin sole fishery in 2008, only 3 motherships participated in the fishery and two of those vessels were floaters. After implementation of the BSAI TLA yellowfin sole fishery in 2008 through 2014, the number of participating motherships ranged from 0 in 2010 to 2 in 2008. In general though, only 1 mothership participated in the fishery during this period. In 2015, the number of participating motherships expanded to include 4 new entrants for a total 5 motherships, the largest number in any one year from 2003 through 2015. This expansion in the number of motherships in the BSAI TLA yellowfin sole fishery provided increased opportunity for CV deliveries, which is reflective in the increased number of CVs that participated in 2015 (see Table 8) and the higher proportion of yellowfin sole harvested during that year relative to the 2008 through 2015 average.

Table 9 Years mothership vessels participated in the BSAI yellowfin sole fishery (2003-2007) and the BSAI TLA yellowfin sole fishery (2008-2015)

Mothership	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total of years active
Vessel 1		X												1
Vessel 2		X	X	X	X	X	X		X	X	X	X	X	11
Vessel 3				X	X	X								3
Vessel 4													X	1
Vessel 5													X	1
Vessel 6													X	1
Vessel 7													X	1

Source file: BSAI_Yellowfin(12-28)

Weekly catch of BSAI TLA yellowfin sole for the CPs and CVs from 2008 through 2015 has changed. During the first three years of the BSAI TLA yellowfin sole fishery, CPs fished from January 20 through February and in some cases March, with a peak harvest generally in week 13. The remainder of the year, the CPs did not participate in the BSAI TLA yellowfin sole fishery. Starting in 2011, the character of the fishery changed from a single two month fishery at the start of the new fishing year for all participating CPs to two distinct fishing patterns. The first CP fishing pattern is similar to the previous three years except that the harvest period is compressed to generally two weeks starting on January 20 with a peak harvest during week 4. The second CP fishing pattern in the BSAI TLA yellowfin sole fishery stretches all year, has no identifiable peak harvest week, and generally is composed of only two CP vessels. Of the two CP fishing patterns in the BSAI TLA yellowfin sole fishery, the CP vessels fishing year round in general harvest a larger share of the total CP harvest of BSAI TLA yellowfin sole.

Weekly harvest patterns for CVs in the BSAI TLA yellowfin sole fishery have changed over the eight years. During the 2008 fishing season, the CVs participated in the BSAI TLA yellowfin sole fishery from March until December. During the next two years, the CVs participated in the BSAI TLA yellowfin sole fishery for a few weeks in April and a few weeks in September and October. Starting in 2012, CVs generally participated in the fishery all year.

3.2 Halibut mortality in the BSAI TLA yellowfin sole fishery

This section provides an overview of halibut mortality in the BSAI TLA yellowfin sole fishery. As noted Table 10, halibut mortality in the BSAI TLA yellowfin sole fishery is directly related to the total catch of BSAI TLA yellowfin sole. As the harvest of BSAI TLA yellowfin sole increases, so does halibut mortality. For example, in 2013, harvest of BSAI TLA yellowfin sole fishery was the highest since 2008 at over 34,600 mt and the halibut mortality in that fishery was 185 mt. During that year, halibut mortality in the BSAI TLA yellowfin sole fishery exceeded the halibut PSC limit by 18 mt. In 2014, over 27,000 mt of BSAI TLA yellowfin sole was harvested with a halibut mortality of 194 mt. During that year, 60 mt of halibut PSC limit was reapportioned from the BSAI TLA Pacific cod fishery to the BSAI TLA yellowfin sole fishery, which allowed NMFS to reopen the BSAI TLA yellowfin sole fishery. In contrast to those years of high BSAI TLA yellowfin sole harvest and halibut mortality, 2009 saw only 95 mt of halibut mortality for 10,181 mt of BSAI TLA yellowfin sole harvested. In another example, 2015 saw only 92 mt of halibut mortality for a harvest of over 16,000 mt of BSAI TLA yellowfin sole. In both examples, a large percentage of the halibut PSC limit remained in the water. One year, 2010, stands out as an unusual year with only 27 mt of halibut mortality for 19,421 mt of BSAI TLA yellowfin sole harvested. It is possible that the low halibut mortality in 2010 was the result of reduced halibut on the yellowfin sole fishing grounds in January and February and the fishery lasted only 8 weeks immediately following the January 20 opening date. Table 10 also provides the annual halibut rate in the BSAI TLA yellowfin sole fishery from 2007 through 2015.

Figure 1 shows that from 2008 through 2015, halibut mortality in the BSAI TLA yellowfin sole fishery has been positively correlated with the BSAI TLA yellowfin sole catch.

Table 10 Halibut PSC limit, halibut mortality, and halibut mortality rate for the BSAI TLA yellowfin sole fishery

Year	YFS BSAI TLA target catch from 2008-2015 (mt)	BSAI TLA YFS halibut PSC limit (mt)	Total halibut mortality (mt)	Unused halibut PSC limit (mt)	% of halibut PSC limit	Halibut rate (kg halibut/mt groundfish)
2008	20,017	241	158	83	66	5.8213
2009	10,181	162	95	67	58	6.5533
2010	19,421	187	27	160	14	1.1115
2011	25,485	167	81	86	49	2.3276
2012	28,140	167	142	25	85	3.5656
2013	34,606	167	185	-18	111	3.6115
2014*	27,720	227	194	33	85	4.8133
2015	16,073	167	92	75	55	4.7081

Source file: BSAI_Yellow fin(12-28), BSAI_Yellow fin(1-13), and NMFS Final Specifications

*60 mt of halibut PSC was transferred to the BSAI TLA YFS fishery from BSAI TLA Pacific cod fishery

TLA = trawl limited access

YFS = yellow fin sole

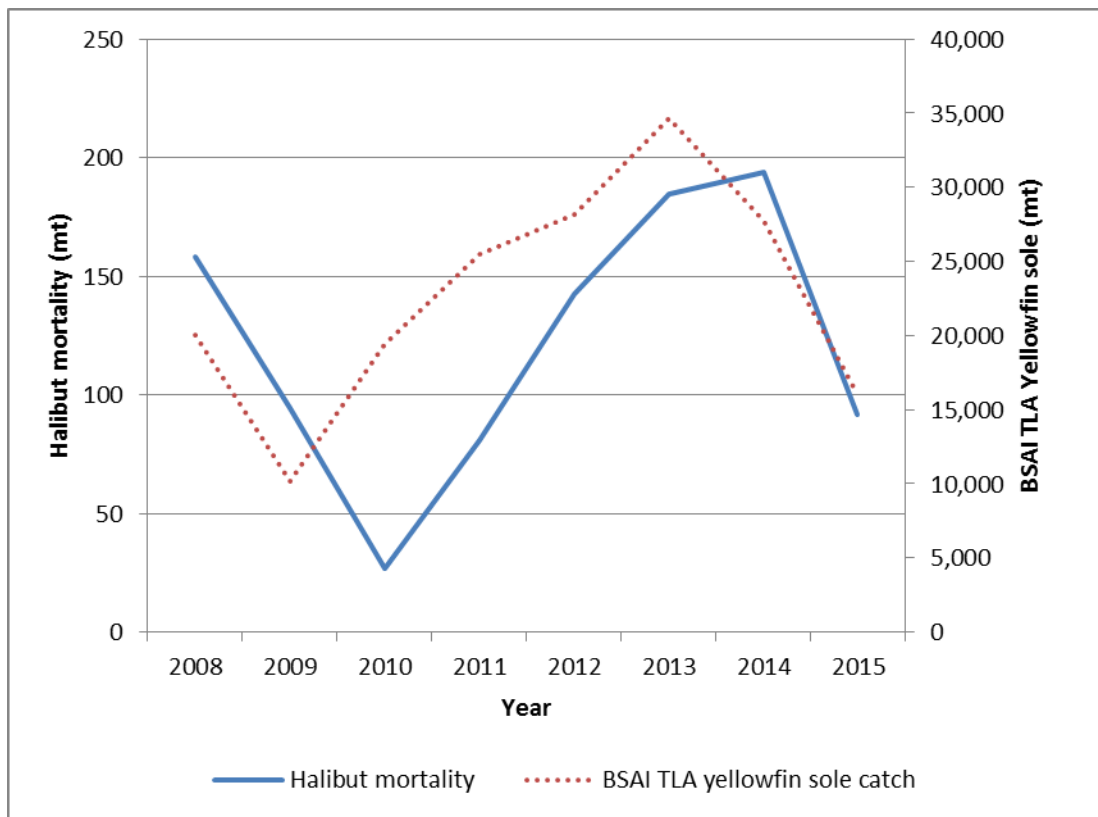


Figure 1 Annual halibut mortality (mt) in the BSAI TLA yellowfin sole fishery and catch of yellowfin sole in the BSAI TLA fishery (mt) from 2008 through 2015

As noted in the December 2015 public testimony on this issue, an approach used by some companies participating in the BSAI TLA yellowfin sole fishery to help reduce halibut mortality in the fishery was

the development of a best practices agreement. Since 2012, a few AFA companies and one Amendment 80 company have entered into agreements to help reduce halibut mortality in the BSAI TLA yellowfin sole fishery. Elements of the agreements have included suggested target rates of halibut mortality, reporting real-time halibut mortality and location of the mortality, and established procedures for sharing of halibut mortality information via Sea-State. In some years, the agreements have also included informal apportionment of remaining halibut mortality among participating vessels, which fish late in the year.

3.3 Value and product type

Table 11 provides production information and wholesale prices for the BSAI TLA yellowfin sole fishery from 2008 through 2014. At 62%, whole fish was the primary product form in the BSAI TLA yellowfin sole fishery with a wholesale price of \$0.63 per pound. Headed and gutted, eastern cut was the next most popular product form at 25% of the total BSAI TLA yellowfin sole processed and had a wholesale price of \$0.57 per pound. Headed and gutted, western cut at 7% with a wholesale price of \$0.62 per pound and fish meal at 5% with a wholesale price of \$0.91 per pound round out the top four products produced from the BSAI TLA yellowfin sole fishery. In contrast to production patterns for the BSAI TLA yellowfin sole fishery, the Amendment 80 sector processed 94% of their allocated yellowfin sole into headed and gutted, eastern cut. The wholesale price for Amendment 80 eastern cut yellowfin cut was \$0.56 per pound, which is nearly identical to the wholesale price for the same product in the BSAI TLA yellowfin sole fishery.

Table 11 Production and wholesale prices for BSAI TLA yellowfin sole fishery from 2008 through 2014

Product type	Wholesale price	Pounds	% of total pounds processed
Whole fish/food fish	0.6301	145,138,586	62
Headed & gutted, eastern cut	0.5659	59,219,785	25
Headed & gutted, western cut	0.6237	15,833,112	7
Fish meal	0.9123	11,764,795	5
Headed & gutted, tail removed	0.4264	2,104,130	1
Total	0.6257	234,060,407	100

Source: BSAI_Yellow fin_PRICES(12-29)

3.4 Summary

The following are summary observations from the BSAI TLA yellowfin sole data review:

- The BSAI TLA yellowfin sole fishery has generally remained open for most of the year.
- Prior to 2011, the BSAI TLA yellowfin sole fishery lasted 8 to 12 weeks during the February to March period.
- Since 2011, the BSAI TLA yellowfin sole fishery is both a short two-week fishery in January for participating CPs and a year-round fishery for CVs and a few CPs.
- Since 2013, the BSAI TLA yellowfin sole fishery has been fully utilized.
- Since 2013, the BSAI TLA yellowfin sole allocation has declined despite having sufficient yellowfin sole ABC for significantly larger TAC and yellowfin sole TLA allocation.
- In 2015, the BSAI TLA yellowfin sole saw an increase in the number of CVs and motherships participating in the fishery.
- Halibut PSC mortality has been directly related to the BSAI TLA yellowfin sole harvest

4 References

NPFMC. 2007. Secretarial Review Draft for Allocation of Non-Pollock Groundfish and Development of a Cooperative Program for the H&G Trawl Catcher Processor Sector. North Pacific Fishery Management Council. 605 W. 4th Ave. Suite 306, Anchorage, AK 99501. July 20, 2007.