C-2 BSAI HALIBUT ABM OF A80 PSC LIMIT

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Council
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OUTLINE OF PRESENTATION

1. Purpose and Need and refocus of analysis
2. Revised suite of alternatives and comparison
3. Inferences drawn from previous model on halibut SSB and survey state
4. Groundfish and halibut fishery background and revenue analysis
5. Social Impact Assessment –changes from previous review
6. Wrap up

See Page 14 of Executive Summary for what has changed and why
Table ES-1 shows where and why sections of analysis modified from October

PURPOSE AND NEED SECTION 1.1 P34

Halibut is an important resource in the Bering Sea and Aleutian Islands (BSAI), supporting commercial halibut fisheries, recreational fisheries, subsistence fisheries, and groundfish fisheries. The International Pacific Halibut Commission (IPHC) is responsible for assessing the Pacific halibut stock and establishing total annual catch limits for directed fisheries and the North Pacific Fishery Management Council (Council) is responsible for managing prohibited species catch (PSC) in U.S. commercial groundfish fisheries managed by the Council. The Amendment 80 sector is accountable for the majority of the annual halibut PSC mortality in the BSAI groundfish fisheries. While the Amendment 80 fleet has reduced halibut mortality in recent years, continued decline in the halibut stock requires consideration of additional measures for management of halibut PSC in the Amendment 80 fisheries.

When BSAI halibut abundance declines, PSC in Amendment 80 fisheries can become a larger proportion of total halibut removals in the BSAI, particularly in Area 4CDE, and can reduce the proportion of halibut available for harvest in directed halibut fisheries. The Council intends to establish ***an abundance-based halibut PSC management program in the BSAI for the Amendment 80 sector*** *that meets the requirements of the Magnuson-Stevens Act, particularly* ***to minimize halibut PSC to the extent practicable under National Standard 9*** *and* ***to achieve optimum yield in the BSAI groundfish fisheries*** *on a continuing basis under* ***National Standard*** *1. The Council is considering a program that links the Amendment 80 sector PSC limit to halibut abundance and* ***provides incentives for the fleet to minimize halibut mortality at all times****. This action* ***could also promote conservation of the halibut stock*** *and* ***may provide additional opportunities for the directed halibut fishery.***

HOW ANALYSIS REFOCUSED TO ADDRESS REVISED PURPOSE AND NEED

- Purpose and Need changes superseded the ‘5 overarching objectives’
- Refocused discussion of National Standards and balancing among them
- Revised Alternative set
- Revised methods for analysis
- Policy trade- off sections

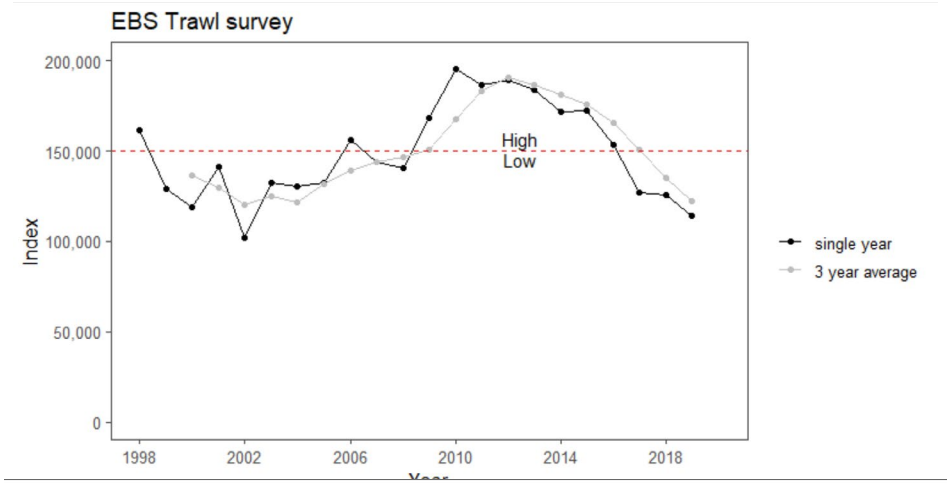
ALTERNATIVES

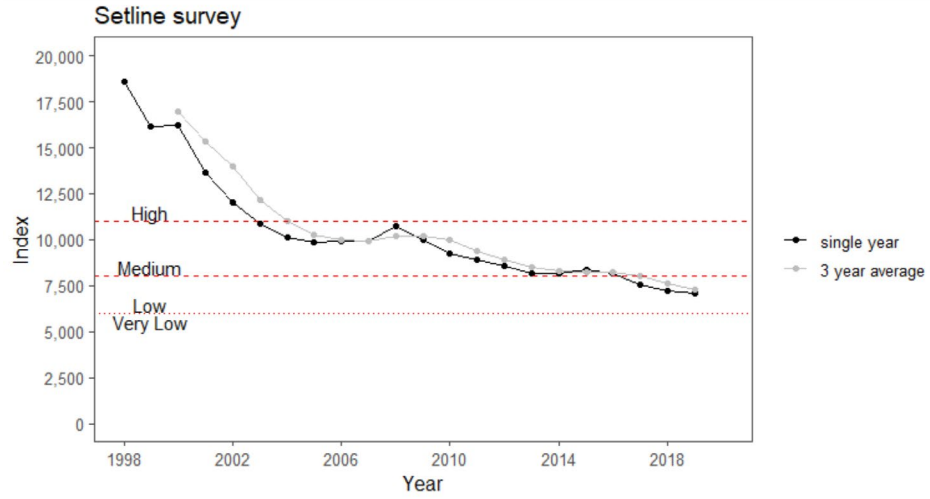
ALTERNATIVE 1: NO ACTION. BSAI HALIBUT AMENDMENT 80 PSC LIMIT IS 1,745 T.

A80 Sector	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
PSC limit	2,425	2,375	2,325	2,325	2,325	2,325	1,745	1,745	1,745	1,745	1,745
Halibut encounters	2,823	2,277	2,469	2,677	2,667	1,719	1,965	1,976	2,555	3,067	2,031
Halibut mortality	2,254	1,810	1,944	2,166	2,178	1,404	1,412	1,167	1,343	1,461	1,097

ALTERNATIVES 2-4

USE COMBINATION OF SURVEY STATES TO DETERMINED PRE-SPECIFIED PSC LIMITS IN LOOK UP TABLES





Alternative 2

		EBS shelf trawl survey index (t)	
		Low < 150,000	**High ≥ 150,000**
IPHC setline survey index in Area 4ABCDE (WPUE)	**High ≥ 11,000**	1,571 mt (10% below current)	1,745 mt (current limit)
	Medium 8,000 – 10,999	1,483 mt (15% below current)	1,571 mt (10% below current)
	Low < 8,000	1,396 mt (20% below current)	1,483 mt (15% below current)

Alternative 3

		EBS shelf trawl survey index (t)	
		Low < 150,000	**High ≥ 150,000**
IPHC setline survey index in Area 4ABCDE (WPUE)	**High ≥ 11,000**	1,745 mt (current limit)	2,007 mt (15% above current)
	Medium 8,000 – 10,999	1,396 mt (20% below current)	1,745 mt (current limit)
	Low 6,000-7,999	1,309 mt (25% below current)	1,396 mt (20% below current)
	Very Low < 6,000	1,222 mt (30% below current)	1,309 mt (25% below current)

Alternative 4

		EBS shelf trawl survey index (t)	
		Low < 150,000	**High ≥ 150,000**
IPHC setline survey index in Area 4ABCDE (WPUE)	**High ≥ 11,000**	1,396 mt (20% below current)	1,745 mt (current limit)
	Medium 8,000 – 10,999	1,222 mt (30% below current)	1,396 mt (20% below current)
	Low 6,000-7,999	1,047 mt (40% below current)	1,222 mt (30% below current)
	Very Low < 6,000	960 mt (45% below current)	1,047 mt (40% below current)

ALTERNATIVES 2-4 LOOK UP TABLES

HISTORICALLY CALCULATED PSC LIMITS (FIG 2-3; TABLE 2-5)

Year of survey

Year PSC limit set

	Setline		Trawl					
	Index	State	Index	State		Lookup tables		
Alternative		2,3,4		2, 3, 4	Alternative	2	3	4
2015	8,385	Medium	172,237	High	2016	1571	1745	1396
2016	8,134	Medium	153,704	High	2017	1571	1745	1396
2017	7,583	Low	126,684	Low	2018	1396	1309	1047
2018	7,228	Low	125,957	Low	2019	1396	1309	1047
2019	7,104	Low	113,855	Low	2020	1396	1309	1047

OPTIONS THAT COULD APPLY TO ALTERNATIVES 2,3,4

- **Option 1: Rolling survey average to determine PSC limits (Table 2-6)**

Option 1: 3-yr rolling average

	Setline average		Trawl average		PSC Limits from Lookup tables			
Survey years	Index	State	Index	State	PSC limit year	Alt 2.1	Alt 3.1	Alt 4.1
1998-2000	16,980	High	136,350	Low	2001	1571	1745	1396
1999-2001	15,348	High	129,671	Low	2002	1571	1745	1396
2000-2002	13,975	High	120,534	Low	2003	1571	1745	1396
2001-2003	12,193	High	125,025	Low	2004	1571	1745	1396
2002-2004	11,009	High	121,311	Low	2005	1571	1745	1396
2003-2005	10,282	Medium	131,581	Low	2006	1483	1396	1222
2004-2006	9,972	Medium	139,519	Low	2007	1483	1396	1222
2005-2007	9,903	Medium	144,128	Low	2008	1483	1396	1222
2006-2008	10,189	Medium	146,705	Low	2009	1483	1396	1222
2007-2009	10,208	Medium	150,751	High	2010	1571	1745	1396
2008-2010	9,991	Medium	167,961	High	2011	1571	1745	1396
2009-2011	9,385	Medium	183,434	High	2012	1571	1745	1396
2010-2012	8,902	Medium	190,400	High	2013	1571	1745	1396
2011-2013	8,523	Medium	186,552	High	2014	1571	1745	1396
2012-2014	8,282	Medium	181,472	High	2015	1571	1745	1396
2013-2015	8,230	Medium	175,884	High	2016	1571	1745	1396
2014-2016	8,231	Medium	165,789	High	2017	1571	1745	1396
2015-2017	8,034	Medium	150,875	High	2018	1571	1745	1396
2016-2018	7,648	Low	135,448	Low	2019	1396	1309	1047
2017-2019	7,305	Low	122,165	Low	2020	1396	1309	1047

4 OPTIONS TO APPLY TO ALTERNATIVES

- Option 1 rolling3-yr average of the survey estimate
- Other 2-4 applied following the determination of the PSC limits
- Option 4 is mutually exclusive with the selection of either Options 2 or 3.

Understanding the nomenclature of the Alternatives and Options: e.g. Alternative 3.2.1

	Lookup tables			Option 2 Suboption 1: ~~varies ≤10~~% per year			Suboption 2: varies ≤ 15% per year		
Alternative	2	3	4	2.2.1	3.2.1	4.2.1	2.2.2	3.2.2	4.2.2
2015	1,571	1,745	1,396	1,571	1,745	1,396	1,571	1,745	1,396
2016	1,571	1,745	1,396	1,571	1,745	1,396	1,571	1,745	1,396
2017	1,571	1,745	1,396	1,571	1,745	1,396	1,571	1,745	1,396
2018	1,396	1,309	1,047	1,414	1,571	1,256	1,396	1,483	1,187

OPTION 2: PSC VARIABILITY

- *PSC limit varies no more than a selected percentage per year.*
- *Suboptions:*
  - *10%*
  - *15%*

	Lookup tables			Option 2 Suboption 1: varies ≤10% per year			Suboption 2: varies ≤ 15% per year		
Alternative	2	3	4	2.2.1	3.2.1	4.2.1	2.2.2	3.2.2	4.2.2
2010	1,571	1,745	1,396	1,571	1,536	1,344	1,571	1,605	1,396
2011	1,571	1,745	1,396	1,571	1,689	1,396	1,571	1,745	1,396
2012	1,571	1,745	1,396	1,571	1,745	1,396	1,571	1,745	1,396
2013	1,571	1,745	1,396	1,571	1,745	1,396	1,571	1,745	1,396
2014	1,571	1,745	1,396	1,571	1,745	1,396	1,571	1,745	1,396
2015	1,571	1,745	1,396	1,571	1,745	1,396	1,571	1,745	1,396
2016	1,571	1,745	1,396	1,571	1,745	1,396	1,571	1,745	1,396
2017	1,571	1,745	1,396	1,571	1,745	1,396	1,571	1,745	1,396
2018	1,396	1,309	1,047	1,414	1,571	1,256	1,396	1,483	1,187
2019	1,396	1,309	1,047	1,396	1,413	1,131	1,396	1,309	1,047
2020	1,396	1,309	1,047	1,396	1,309	1,047	1,396	1,309	1,047

OPTION 3 ANNUAL LIMIT
80% OR 90% OF ANNUAL PSC LIMIT.
IF PSC USE > A.L. IN > 3 OF 7 YEARS = HARD CAP

Table 2-8 back-calculated annual limits and when historically exceeded (grey)

	Lookup tables			Option 3 80% of lookup table			90% of lookup table		
Alternative	2	3	4	2.3.1	3.3.1	4.3.1	2.3.2	3.3.2	4.3.2
2010	1,571	1,745	1,396	1,257	1,396	1,117	1,414	1,571	1,256
2011	1,571	1,745	1,396	1,257	1,396	1,117	1,414	1,571	1,256
2012	1,571	1,745	1,396	1,257	1,396	1,117	1,414	1,571	1,256
2013	1,571	1,745	1,396	1,257	1,396	1,117	1,414	1,571	1,256
2014	1,571	1,745	1,396	1,257	1,396	1,117	1,414	1,571	1,256
2015	1,571	1,745	1,396	1,257	1,396	1,117	1,414	1,571	1,256
2016	1,571	1,745	1,396	1,257	1,396	1,117	1,414	1,571	1,256
2017	1,571	1,745	1,396	1,257	1,396	1,117	1,414	1,571	1,256
2018	1,396	1,309	1,047	1,117	1,047	838	1,256	1,178	942
2019	1,396	1,309	1,047	1,117	1,047	838	1,256	1,178	942
2020	1,396	1,309	1,047	1,117	1,047	838	1,256	1,178	942

OPTION 3: TIMING FOR HARD CAP TO REVERT BACK TO ANNUAL LIMIT TABLE 2-10

Year	Mortality	Alt 3.3.2
2010	2,254	1571
2011	1,810	1571
2012	1,944	1571
2013	2,166	**1571**
2014	2,178	**1571**
2015	1,404	**1571**
2016	1,412	**1571**
2017	1,167	**1571**
2018	1,343	**1178**
2019	1,461	**1178**
2020	1,097	**1178**
2021	TBD	TBD
2022	TBD	TBD

Annual limit exceeded

First year annual limit is a hard cap

First possible year annual limit is no longer a hard cap (if mortality does not exceed A.L.)

OPTION 4 ROLLOVER OF UNUSED PSC (MUTUALLY EXCLUSIVE WITH OPTIONS 2 AND 3)

- *PSC unused in one year may roll to the following year to increase the PSC limit generated by the lookup table up to 20%. Any PSC savings in excess of 20% would stay in the water.*

Table 2-11

Year	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	***2021***	***2022***
PSC from lookup table	1745	1745	1745	1309	1309	1309	*1745*	*1745*
PSC use by A80	1404	1412	1167	1343	1461	1097	*1097*	
Remainder (Potential amount to rollover)	341	333	578	-34	-152	212	*648*	...
Maximum rollover possible	349	349	349	262	262	262	*349*	...
Effective PSC limit (lookup table PSC + rollover)	1745	2086	2078	1571	1309	1309	*1957*	*2094*
Difference in PSC limits	0	341	333	262	0	0	*212*	*349*

HISTORICAL COMPARISON OF ALTERNATIVES FIGURE 2-5

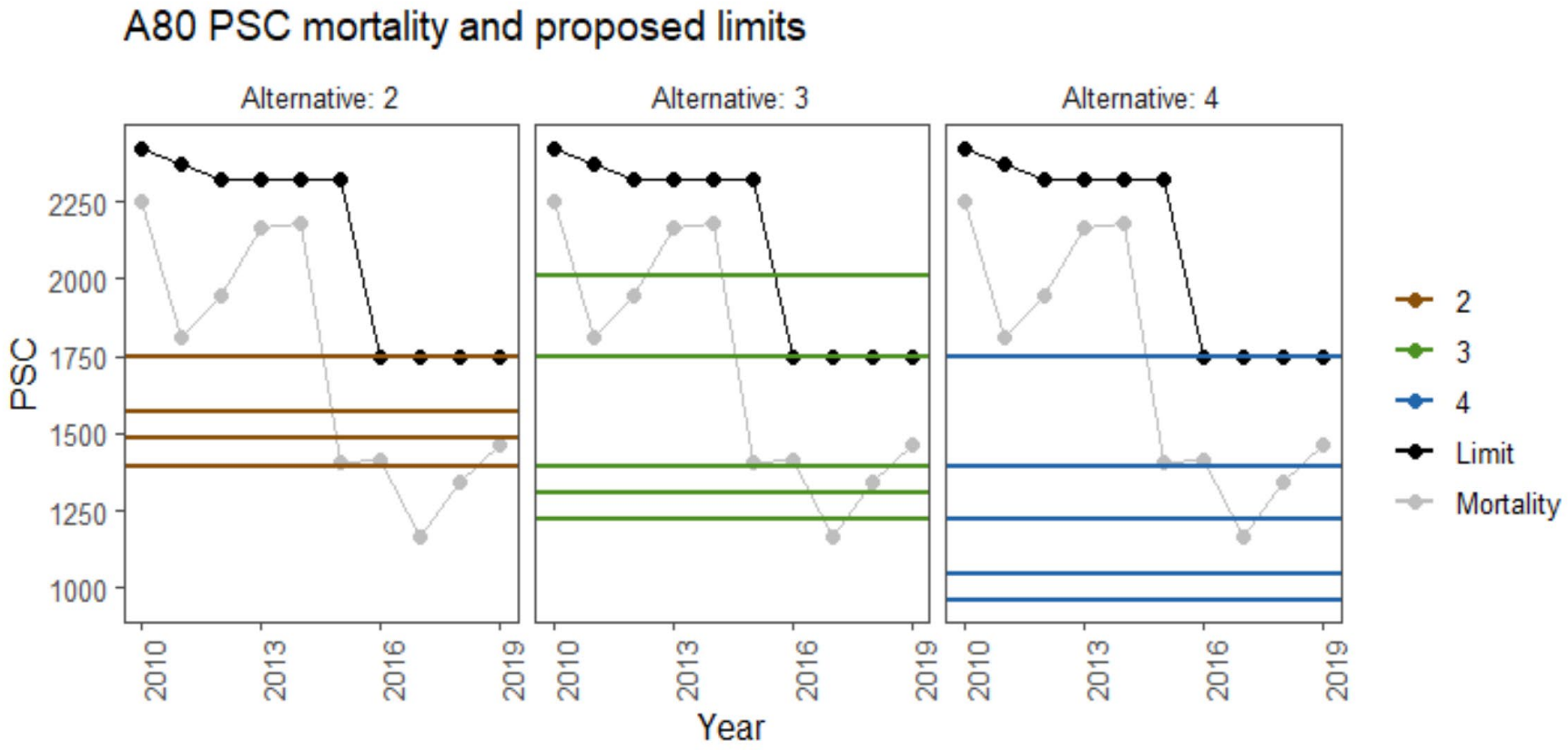


TABLE 2-12: COMPARISON OF PSC LIMITS ACROSS ALL THREE ACTION ALTERNATIVES WITH THE SURVEY STATES NECESSARY TO ACHIEVE THAT LIMIT.

	Alt 2				Alt 3				Alt 4			
	EBS		Setline		EBS		Setline		EBS		Setline	
PSC limit	State	Index	State	Index	State	Index	State	Index	State	Index	State	Index
960									low	<150,000	very low	<6,000
1047									low	<150,000	low	6,000-7,999
									high	>150,000	very low	<6,000
1222					low	<150,000	very low	<6,000	low	<150,000	medium	8,000-10,999
									high	>150,000	low	6,000-7,999
1309					low	<150,000	low	6,000-7,999				
					high	>150,000	very low	<6,000				
1396	low	<150,000	low	<8,000	low	<150,000	medium	8,000-10,999	low	<150,000	high	>=11,000
					high	>150,000	low	6,000-7,999	high	>150,000	medium	8,000-10,999
1483	low	<150,000	medium	8,000-10,999								
	high	>150,000	low	<8,000								
1571	low	<150,000	high	>=11,000								
	high	>150,000	medium	8,000-10,999								
1745	high	>150,000	high	>=11,000	low	<150,000	high	>=11,000	high	>150,000	high	>=11,000
					high	>150,000	medium	8,000-10,999				
2007					high	>150,000	high	>=11,000				

FIGURE 2-7

- **Proportion of short-term and long-term simulations in each of the combined alternative "states" of indices used to specify PSC Limits assuming the status quo PSC limit (left panels) and no PSC (right panels).**

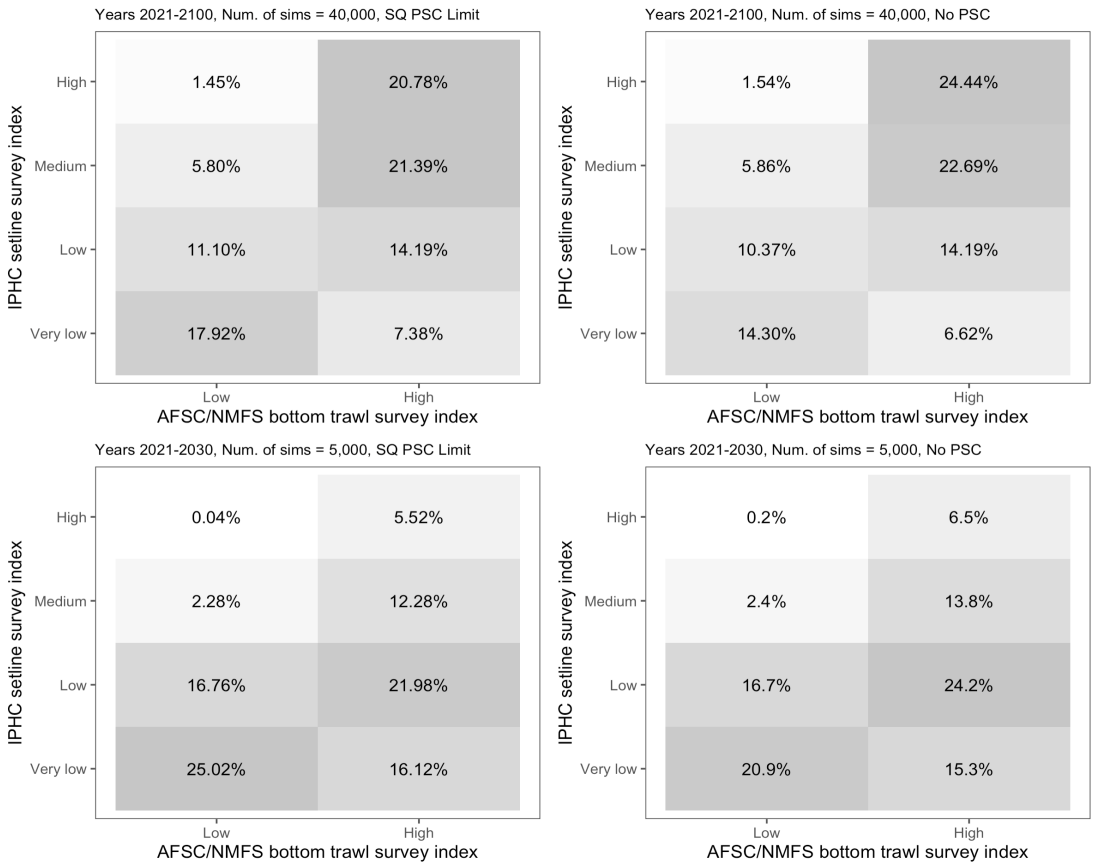
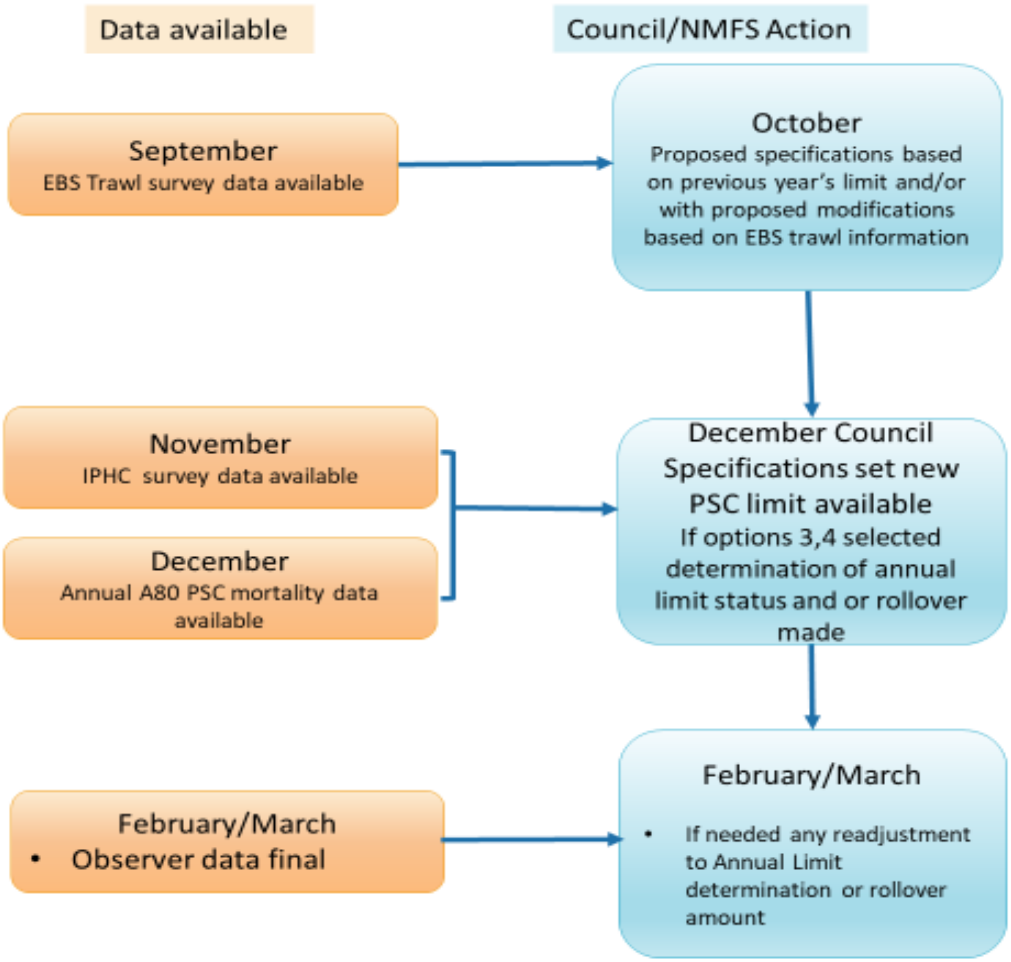


Table 2-13 Survey states, percentage of time model simulations over a range of time frames resulted in that combination of survey states and the PSC limits that result from those across alternatives

EBS		Setline		Proportion of simulations in each combination of survey states under status quo PSC				PSC limits		
State	Index	State	Index	2021-2030	2031-2060	2061-2100	2021-2100	Alt 2	Alt 3	Alt 4
low	<150,000	very low	<6,000	25%	14%	20%	18%	1396	1222	960
low	<150,000	low	6,000-7,999	17%	10%	11%	11%	1396	1309	1047
low	<150,000	medium	8,000-10,999	2%	7%	6%	6%	1483	1396	1222
low	<150,000	high	≥11,000	0%	2%	1%	1%	1571	1745	1396
high	>150,000	very low	<6,000	16%	4%	7%	7%	1483	1309	1047
high	>150,000	low	6,000-7,999	22%	11%	15%	14%	1483	1396	1222
high	>150,000	medium	8,000-10,999	12%	24%	22%	21%	1571	1745	1396
high	>150,000	high	≥11,000	6%	28%	19%	21%	1745	2007	1745

ANNUAL PROCESS TO SPECIFY PSC LIMIT

Process for Specifying Limits and optional management measures Under Alternatives 2, 3 & 4



IMPACTS ON HALIBUT SURVEY INDICES AND SSB

SSB

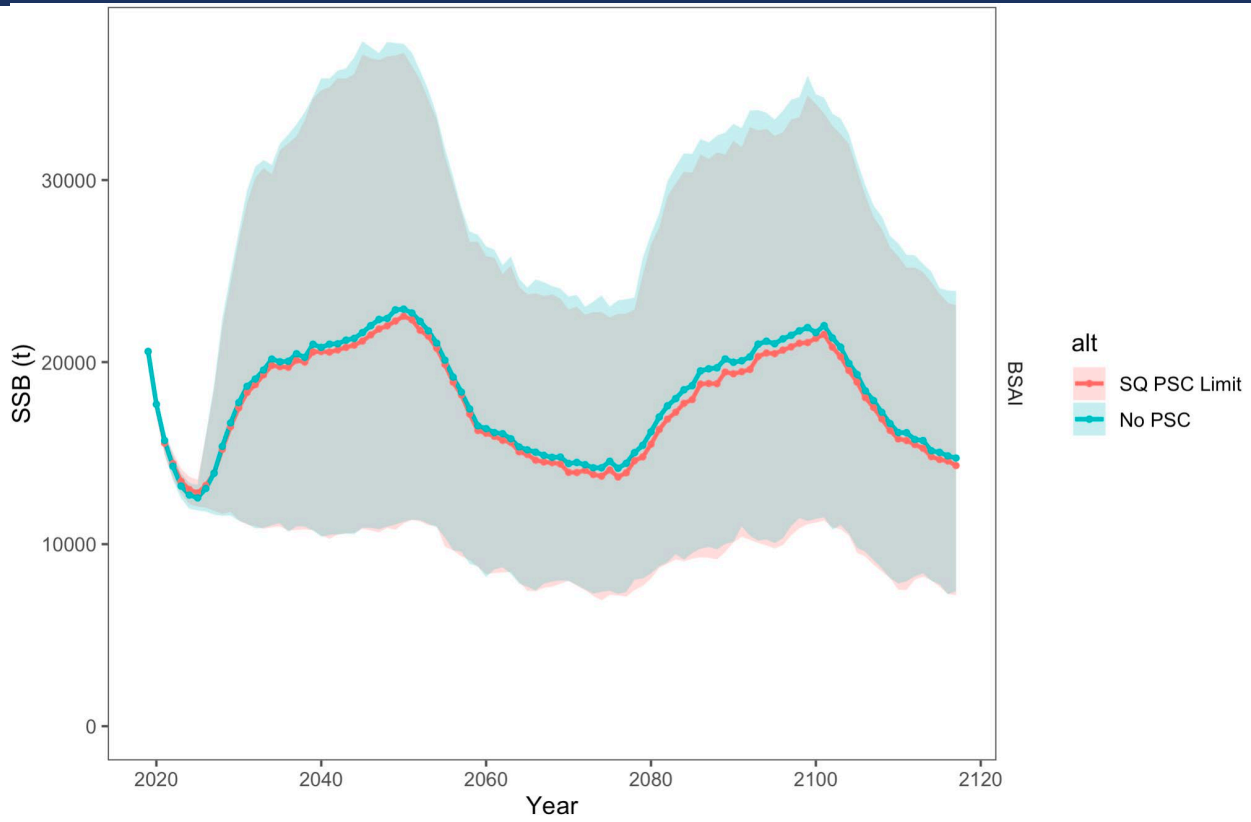


Fig 5-1 Projected Pacific halibut SSB for the BSAI region under status quo (SQ) and zero (no) PSC Pacific halibut mortality. Solid lines are median values and 90 out of 100 model realizations fall within the shaded areas.

EFFECT ON SURVEY INDICES

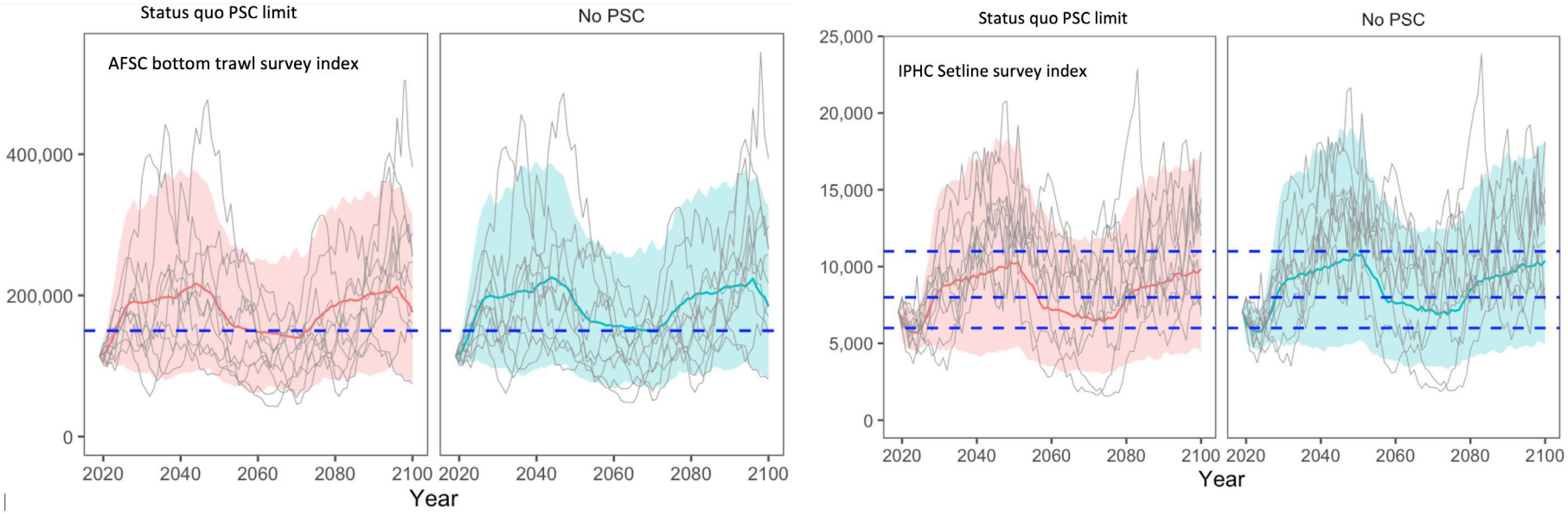


Figure 5-2 Projected Pacific halibut AFSC bottom trawl survey index (top row) and IPHC setline survey index (bottom row) in the BSAI for status quo PSC limits (left panels) and zero PSC (right panels). Dashed lines represent the thresholds between survey 'states' under Alternatives 2,3, and 4.

GROUNDFISH AND HALIBUT FISHERY BACKGROUND INFORMATION AND IMPACT ESTIMATION

AMENDMENT 80 SECTOR (3.3)

- Five companies (2020)
- Evolving sector: rationalization (2008); full cooperative participation (2011); AM111, decksorting EFP, Halibut Avoidance Plan (2015/16); ownership transition, fleet modernization, PCod stock decline (2017-19); COVID-19 (2020/21)
- Varies in reliance on flatfish → different exposure to PSC limit (Fig. 3-15, below)
- Varies in reliance on mothershipping, CDQ revenue, and dependence on non-BSAI fishing (Table 3-14 & Fig 3-19, p.107-8)
- CDQ Groups are stakeholders in A80, though A80 is a relatively small portion of total CDQ revenues (Fig 3-22, p.124)

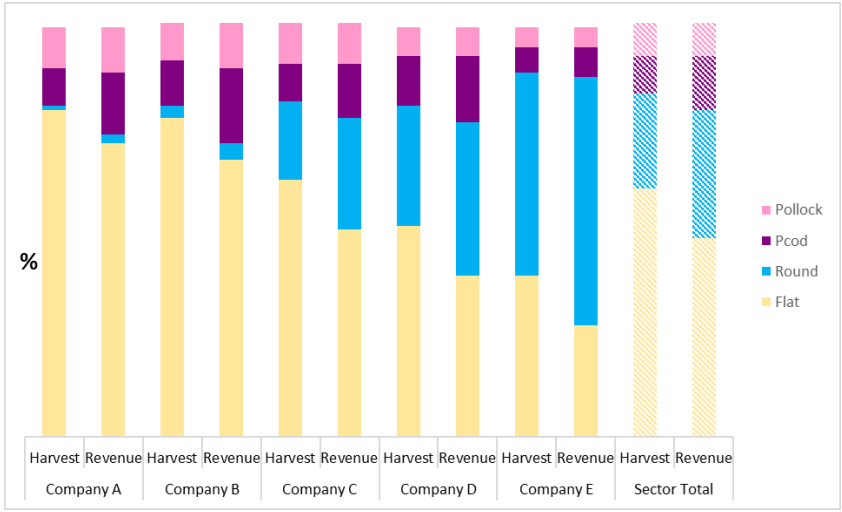


Figure 3-15, p.102

AMENDMENT 80 SECTOR (3.3.3)

Multispecies fishery with layered constraints

- Targets/areas are not necessarily substitutable during the year
- Companies differ in their response options to emergent constraints
  - e.g. Allocations, vessel capabilities, access to grounds
  - Limited allocations of PCod, halibut (company-level)
- A minority ‘piece’ of a company’s harvest portfolio could be necessary to sustain full participation but not sufficient to replace forgone targets

AMENDMENT 80 SECTOR (3.3)

Year	Revenue (2018$)	Total Harvest (t)
2010	323,787,060	305,192
2011	385,153,549	302,157
2012	397,530,330	307,406
2013	307,582,132	306,775
2014	316,928,372	308,022
2015	290,450,269	289,169
2016	306,495,840	298,443
2017	359,357,539	278,771
2018	379,443,654	290,173
2019	335,260,125	288,302
2020		290,382

Tab. 3-13, p.105

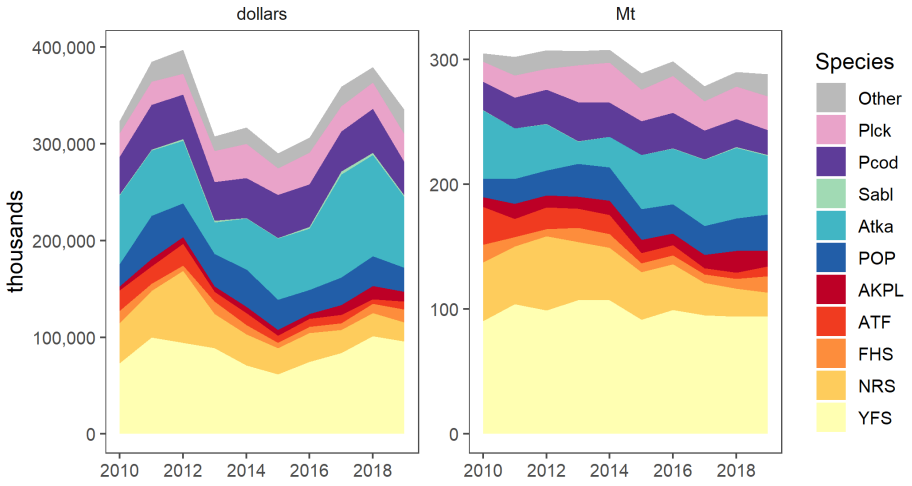


Fig. 3-17, p.105

Gross first wholesale revenues (Sec. 3.3.2.1) are the market price estimates for primary processed seafood products. Product-type prices are derived from COAR and applied to weights from processor production reports.

Ex-vessel equivalent prices can be estimated (e.g. fish taxes, Cost Recovery) but only by a rough imputation that does not reflect the actual A80 product supply chain and would be less reliable in capturing the actual distribution of product forms and recovery rates. (see examples in Sec. 3.3.2.4 or 3.3.2.5)

AMENDMENT 80 HALIBUT PSC (3.4)

- Absolute and Effective PSC mortality declines post-2014/15
  - Effective mortality = PSC mortality / Halibut Catch
- Groundfish catch/halibut and revenue/halibut diverge by flatfish v. roundfish (Figs 3-32 & 3-33, p.133-4)

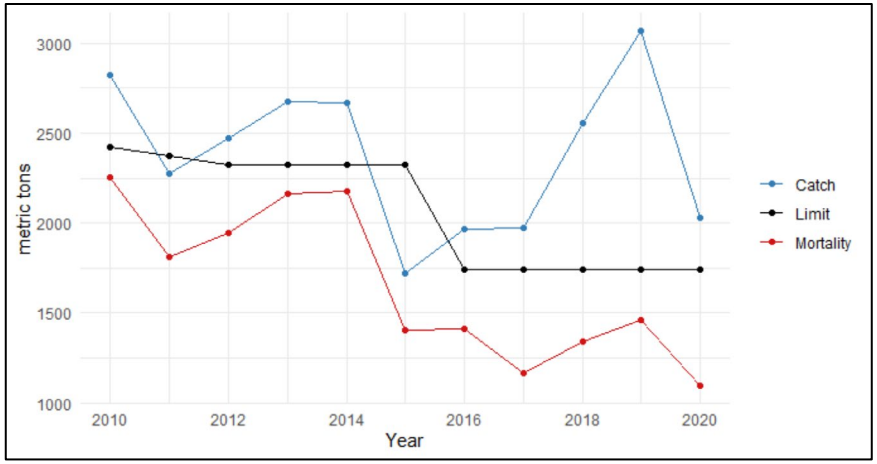


Fig. 3-25, p.127

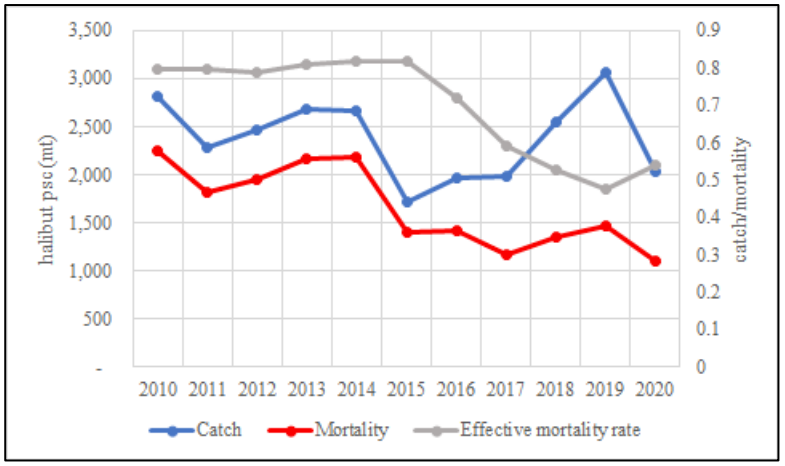


Fig. 3-26, p.128

AMENDMENT 80 HALIBUT PSC (3.4)

- Deck sorting became prevalent since 2017 (Table 3-22 & Figs 3-40/41, p.142-143)
- More hauls made to catch same or fewer groundfish – until 2020 (Table 3-21, p.141; Table 3-13, p.104)
- Avg haul-level catch/revenue/PSC (*requested), 2010-19 (Fig. 3-39, p.141)

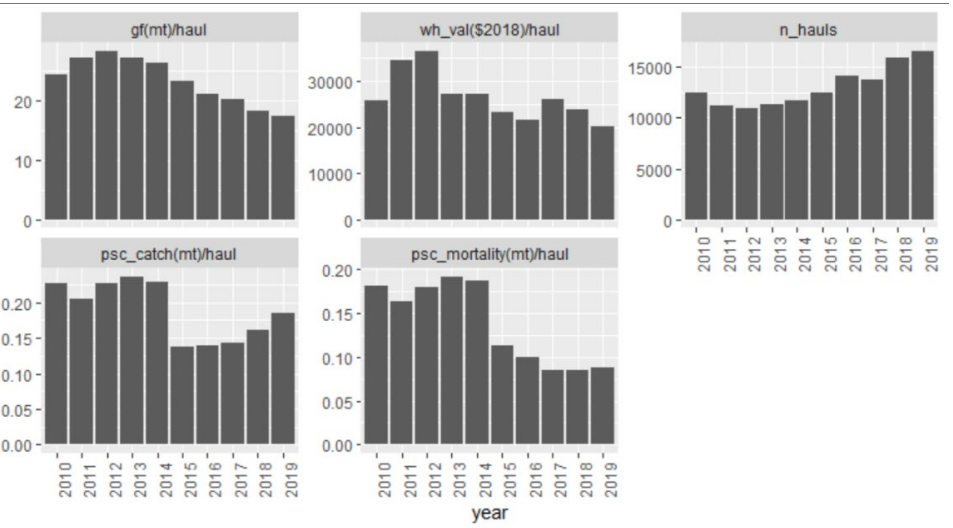


Fig. 3-39, p.141

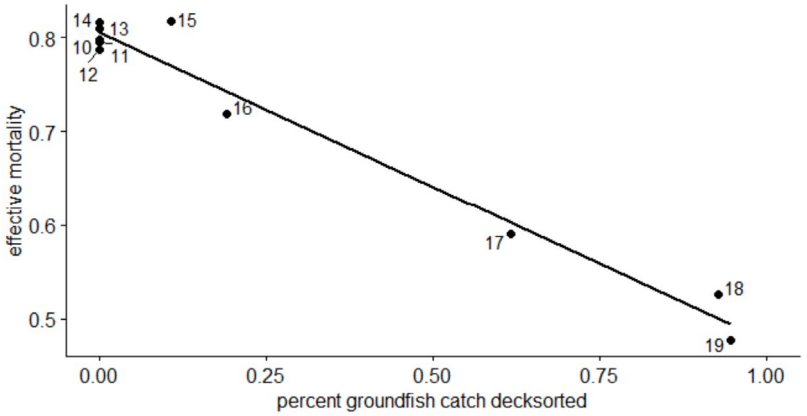
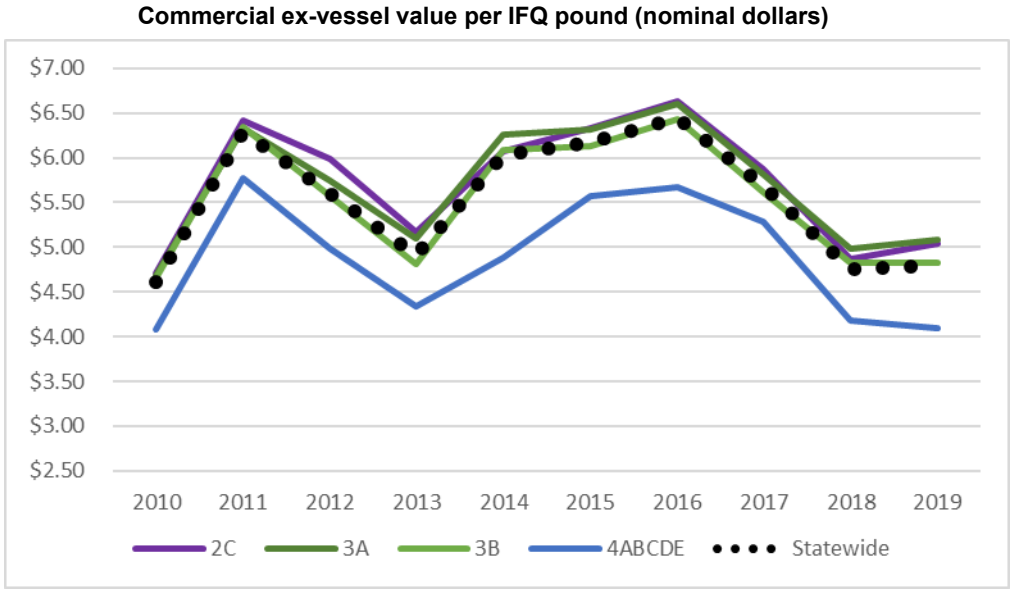


Fig. 3-40, p.143

AREA 4 HALIBUT FISHERY (4.4)

- High utilization of catch limit – IFQ: 91%, CDQ 90% (only slightly lower in 2020)
- Annual ex-vessel value (IFQ+CDQ; 2018$) between $16.9M and $24.9M since 2013… 2018 & 2019 lowest (Table 4-3, p.159 and Table 4-6, p.164)
- Ex-vessel unit value has declined since 2016 and is lowest in Area 4 (Figure 4-8)
- Near-term headwinds to $/lb. but 2020 dock prices reported (trade press) were higher than expected a year ago (p.162)

Figure 4-8, p.160



AREA 4 HALIBUT FISHERY (4.4)

- **Ex-vessel revenues** (and price-per-pound) are given as the primary measure of fishery value. This Fish Ticket data can be calculated specific to Area 4 (and subareas). Ex-vessel captures the amount paid to fishermen by primary processors and reflects the most common operation of the Alaska halibut supply chain – especially in Area 4. In 2019 the avg. price was **$4.43 (2018$)**, or $5.54 from 2015-2019.
- For comparison purposes, **Wholesale value** (per pound) from Econ SAFE statewide estimate for H&G (COAR data) **$6.37 (2018$)** in 2019, or $7.04 from 2015-2019

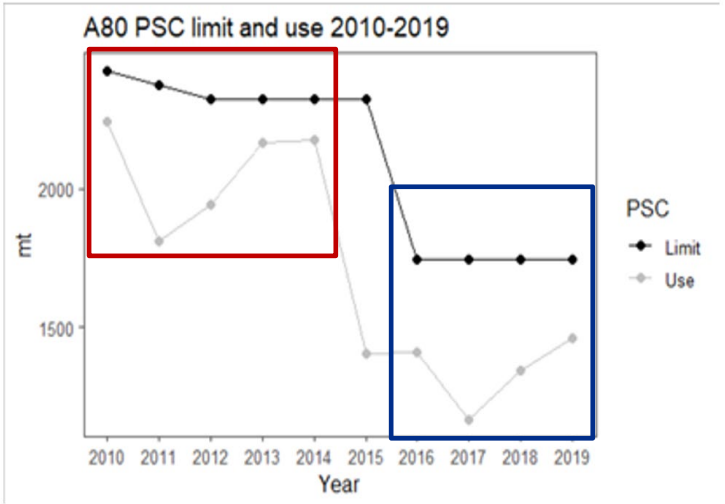
5.5 REVENUE IMPACT ESTIMATION

- Analysis of the relationship between halibut PSC limits and direct revenues generated by the Amendment 80 sector
  - Reported in $2018 gross first wholesale value
- Relative indirect effect of the considered alternatives on directed halibut fishery catch in the BSAI region
  - Reported in $2018 Ex-vessel value and estimated wholesale values
- Revenue estimates do not incorporate economic multipliers to estimate the total economic contributions of the A80 fishery or the directed halibut fishery in terms of output, income, employment or other economic measures.

5.5.1 GROUNDFISH REVENUE IMPACT ESTIMATION

Same as October DEIS

- General approach but with new PSC limits from lookup tables
  - A80 haul level data (PSC (t), groundfish catch (t), wholesale value ($2018))
  - Resample hauls without replacement until reaching PSC limit from lookup table or groundfish catch limit (290k t or 310k t)
- Sum wholesale values to estimate annual revenue
- Subset into three datasets
  - high PSC use years (2010-2014)
  - all years (2010-2019, excluding 2015)
  - low PSC use years (2016-2019)

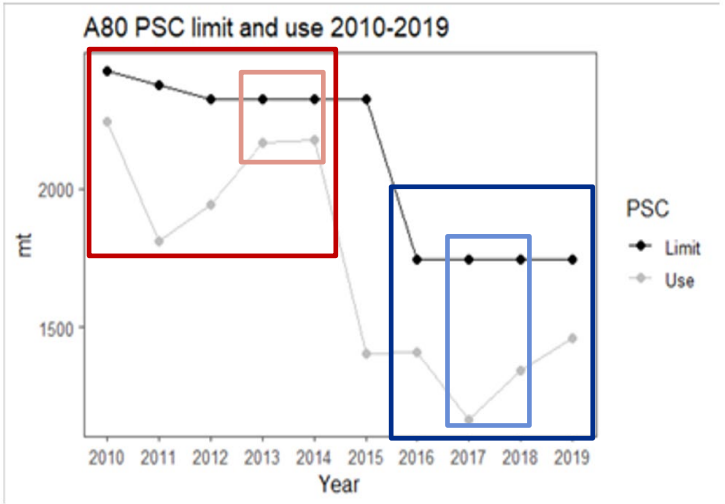


PSC limits and PSC use (in metric tons) for the A80 sector 2010-2019.

5.5.1 GROUNDFISH REVENUE IMPACT ESTIMATION

New since October DEIS

- Two new year subsets to incorporate wider range of potential revenues
  - Higher PSC use (2013-14)
  - Lower PSC use (2017-18)
- Stratified approach (based on SSC recommendation in Oct 2020)
  - Sampled hauls by month, maintaining max monthly effort levels, and summed in calendar order



PSC limits and PSC use (in metric tons) for the A80 sector 2010-2019.

5.5.1 GROUNDFISH REVENUE IMPACT ESTIMATION

- Each PSC limit has 16 revenue estimates based on "scenarios" defined by combination of
  - Groundfish limit (290,000t or 310,000t)
  - Dataset used (years of data included)
  - Sampling method (random or stratified and ordered by month)

Table 5-5 **Estimated revenue (million wholesale $2018) by PSC limit and Alternative using different estimation methods. Green shading indicates the results were constrained by the PSC limit, blue shading indicates the results were constrained by the groundfish limit (290,000 or 3310,000 t).**

Estimation	PSC limit	960		1047		1222		1309		1396		1483		1571		1745		2007	
	Alternative(s)	4		4		3		3		2,3,4		2		2		1,2,3,4		3	
	GF limit (1,000 mt)	290	310	290	310	290	310	290	310	290	310	290	310	290	310	290	310	290	310
Random	2010-14	160.582	160.815	174.982	175.215	204.050	204.313	219.181	218.550	233.493	233.235	248.384	247.668	262.813	262.705	291.338	291.603	327.968	335.497
	2010-19	189.686	190.121	207.396	206.935	241.993	241.715	259.314	258.923	276.215	276.468	293.723	293.380	310.690	310.046	335.887	345.264	335.937	359.123
	2016-19	246.206	246.385	268.807	268.887	313.489	313.519	335.524	335.829	346.417	358.232	346.366	370.300	346.425	370.269	346.417	370.311	346.454	370.271
	2013-14	137.994	138.184	150.453	150.591	175.812	175.384	187.950	187.992	200.795	200.295	213.141	213.202	225.934	225.979	251.137	251.123	288.273	288.545
	2017-18	282.581	282.479	307.928	308.073	359.795	359.146	376.517	385.223	376.582	402.458	376.509	402.584	376.623	402.591	376.558	402.546	376.604	402.554
Stratified	2010-14	182.258	182.272	195.088	195.065	216.307	216.059	227.666	227.668	246.072	246.276	268.338	267.997	283.966	283.479	313.799	313.520	327.054	349.666
	2010-19	202.931	202.828	216.382	216.445	242.752	242.719	255.780	256.090	277.083	277.964	305.385	305.515	326.047	326.307	336.782	360.053	336.793	360.511
	2016-19	218.741	218.978	253.143	253.251	319.090	318.907	341.704	341.720	349.070	366.178	349.027	372.528	349.165	372.536	349.034	372.499	349.147	372.479

5.5.1 GROUNDFISH REVENUE IMPACT ESTIMATION

- Generally, lower PSC limits tend to result in reduced groundfish revenue
- Revenue constrained by PSC at low PSC limits (shaded green in table)
  - Similar revenue estimates under both groundfish limits
- Revenue constrained by groundfish limits at higher PSC limits (shaded blue in table)
  - Revenue estimates vary with groundfish limit
- Revenue estimates are lower under the high PSC use and higher under low PSC use datasets
  - Large range of potential revenue for each PSC limit based on high or low PSC use
- The range of estimates under each dataset (years sampled) should be considered when comparing alternatives

5.5.1 GROUNDFISH REVENUE IMPACT ESTIMATION

- Minor differences in results using random or stratified sampling approach
- May represent upper bound of impacts

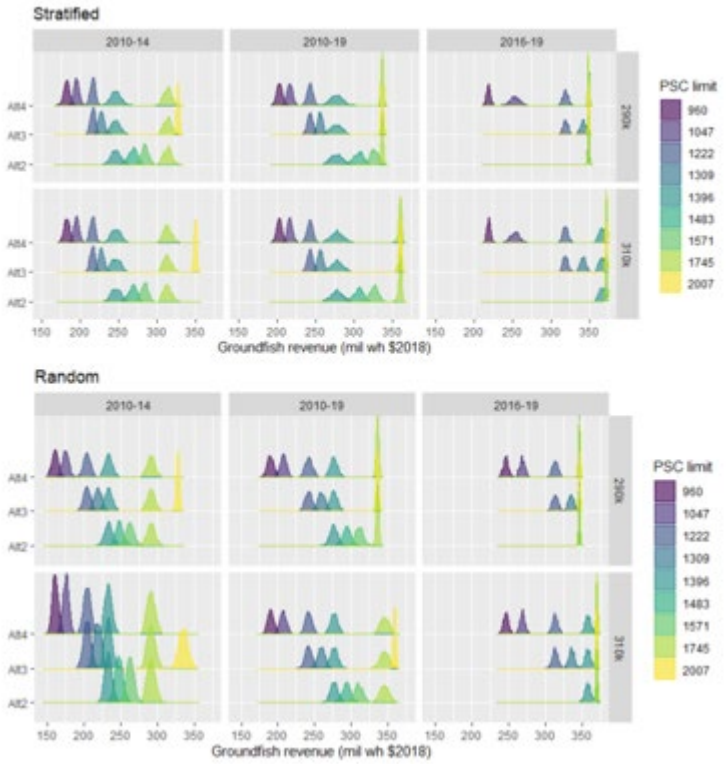


Fig 5-10 p. 194

5.5.1 GROUNDFISH REVENUE IMPACT ESTIMATION

Table 5-6 Estimated status quo revenues (millions wholesale $2018) and percent difference from status quo by Alternative and PSC limit based on survey states. Percent differences are calculated across the rows (comparing estimates using same methods and datasets)

Estimation method		EBS Trawl Survey Setline survey			Low Very Low		High Very Low		Low Low		High Low		Low Medium		High Medium		Low High		High High	
	PSC limit	**1745**			**1396**		**1483**		**1396**		**1483**		**1483**		**1571**		**1571**		**1745**	
	GF limit (1,000 t)	**290**	**310**		290	310	290	310	290	310	290	310	290	310	290	310	290	310	290	310
Random	2010-14	291.338	291.603	Alternative 2	-20%	-20%	-15%	-15%	-20%	-20%	-15%	-15%	-15%	-15%	-10%	-10%	-10%	-10%	0%	0%
Random	2010-19	335.887	345.264	Alternative 2	-18%	20%	-13%	-15%	-18%	-20%	-13%	-15%	-13%	-15%	-8%	-10%	-8%	-10%	0%	0%
Random	2016-19	346.417	370.311	Alternative 2	0%	-3%	0%	0%	0%	-3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Random	2013-14	251.137	251.123	Alternative 2	-20%	-20%	-15%	-15%	-20%	-20%	-15%	-15%	-15%	-15%	-10%	-10%	-10%	-10%	0%	0%
Random	2017-18	376.558	402.546	Alternative 2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Strat.	2010-14	313.799	313.520	Alternative 2	-22%	-21%	-14%	-15%	-22%	-21%	-14%	-15%	-14%	-15%	-10%	-10%	-10%	-10%	0%	0%
Strat.	2010-19	336.782	360.053	Alternative 2	-18%	-23%	-9%	-15%	-18%	-23%	-9%	-15%	-9%	-15%	-3%	-9%	-3%	-9%	0%	0%
Strat.	2016-19	349.034	372.499	Alternative 2	0%	-2%	0%	0%	0%	-2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	PSC limit	**1745**			**1222**		**1309**		**1309**		**1396**		**1396**		**1745**		**1745**		**2007**	
	GF limit (1,000 t)	**290**	**310**		290	310	290	310	290	310	290	310	290	310	290	310	290	310	290	310
Random	2010-14	291.338	291.603	Alternative 3	-30%	-30%	-25%	-25%	-25%	-25%	-20%	-20%	-20%	-20%	0%	0%	0%	0%	13%	15%
Random	2010-19	335.887	345.264	Alternative 3	-28%	-30%	-23%	-25%	-23%	-25%	-18%	-20%	-18%	-20%	0%	0%	0%	0%	0%	4%
Random	2016-19	346.417	370.311	Alternative 3	-10%	-15%	-3%	-9%	-3%	-9%	0%	-3%	0%	-3%	0%	0%	0%	0%	0%	0%
Random	2013-14	251.137	251.123	Alternative 3	-30%	-30%	-25%	-25%	-25%	-25%	-20%	-20%	-20%	-20%	0%	0%	0%	0%	15%	15%
Random	2017-18	376.558	402.546	Alternative 3	-4%	-11%	0%	-4%	0%	-4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Strat.	2010-14	313.799	313.520	Alternative 3	-31%	-31%	-27%	-27%	-27%	-27%	-22%	-21%	-22%	-21%	0%	0%	0%	0%	4%	12%
Strat.	2010-19	336.782	360.053	Alternative 3	-28%	-33%	-24%	-29%	-24%	-29%	-18%	-23%	-18%	-23%	0%	0%	0%	0%	0%	0%
Strat.	2016-19	349.034	372.499	Alternative 3	-9%	-14%	-2%	-8%	-2%	-8%	0%	-2%	0%	-2%	0%	0%	0%	0%	0%	0%
	PSC limit	**1745**			**960**		**1047**		**1047**		**1222**		**1222**		**1396**		**1396**		**1745**	
	GF limit (1,000 t)	**290**	**310**		290	310	290	310	290	310	290	310	290	310	290	310	290	310	290	310
Random	2010-14	291.338	291.603	Alternative 4	-45%	-45%	-40%	-40%	-40%	-40%	-30%	-30%	-30%	-30%	-20%	-20%	-20%	-20%	0%	0%
Random	2010-19	335.887	345.264	Alternative 4	-44%	-45%	-38%	-40%	-38%	-40%	-28%	-30%	-28%	-30%	-18%	-20%	-18%	-20%	0%	0%
Random	2016-19	346.417	370.311	Alternative 4	-29%	-33%	-22%	-27%	-22%	-27%	-10%	-15%	-10%	-15%	0%	-3%	0%	-3%	0%	0%
Random	2013-14	251.137	251.123	Alternative 4	-45%	-45%	-40%	-40%	-40%	-40%	-30%	-30%	-30%	-30%	-20%	-20%	-20%	-20%	0%	0%
Random	2017-18	376.558	402.546	Alternative 4	-25%	-30%	-18%	-23%	-18%	-23%	-4%	-11%	-4%	-11%	0%	0%	0%	0%	0%	0%
Strat.	2010-14	313.799	313.520	Alternative 4	-42%	-42%	-38%	-38%	-38%	-38%	-31%	-31%	-31%	-31%	-22%	-21%	-22%	-21%	0%	0%
Strat.	2010-19	336.782	360.053	Alternative 4	-40%	-44%	-36%	-40%	-36%	-40%	-28%	-33%	-28%	-33%	-18%	-23%	-18%	-23%	0%	0%
Strat.	2016-19	349.034	372.499	Alternative 4	-37%	-41%	-27%	-32%	-27%	-32%	-9%	-14%	-9%	-14%	0%	-2%	0%	-2%	0%	0%

CONTEXT FOR GROUNDFISH RESULTS

- Revenue estimates should be read for comparison across alternatives
  - Results are not stand-alone predictions of future A80 revenue under each PSC limit.
  - Harvesters are expected to make strategic choices that are different from the randomized selection or stratified sampling of hauls used in this analysis.
- Estimates are based on actual fishery data
  - Only reflects the environmental conditions and fishing behavior that occurred during the past 10 years
  - Does not estimate outcomes under a changed environment or management regime, future TACs or market conditions, or incorporate potential future fishing adaptations or operational changes
- No predetermined relationship between PSC use and PSC limit
  - Implicit assumption that 100% of PSC use is possible (and is reached unless groundfish limit is reached first)

CONTEXT FOR GROUNDFISH RESULTS

- Results center around the mean
  - Less likely to include the most extreme examples such as a year in which the fleet has difficulty avoiding halibut and accumulates PSC at a more rapid rate
- Results are gross revenue estimates
  - Does not estimate costs associated with avoiding halibut
- Results are aggregated at the A80 sector
  - The distribution of impacts across companies and vessels will differ based on many factors, most notably fishing portfolio

BSAI HALIBUT COMMERCIAL CATCH (5.5.3)

- **Objective**: Relate change in A80 PSC limit to "BSAI" directed commercial halibut catch limit
  - Build off near-term BSAI catch limit estimations (2021-2030), which include assumptions about A80 PSC usage & halibut dynamics (Oct. 2020 DEIS)
  - Calculate ***ratio*** of change in directed halibut catch limit to change in PSC limit
  - Apply ***ratio*** to the alternatives in the look-up tables

$$\frac{BSAI\ directed\ halibut\ catch\ limit_{SQ} - BSAI\ directed\ halibut\ catch\ limit_{Alt}}{PSC\ limit_{SQ} - PSC\ limit_{Alt}} = \boldsymbol{Ratio}$$

- **Inputs**:
  - Median simulation estimates for 2021 – 2030
  - PSC limits ranged from 849 t to 2,325 t
  - BSAI directed catch limits ranged from 4.44 million net lbs. to 7.52 million net lbs

BSAI HALIBUT COMMERCIAL CATCH

- Applied ***ratio*** to calculate ***potential change in directed halibut catch*** resulting from ***PSC limits changes*** in the lookup table for each alternative
  - Used the minimum, median and maximum of calculated ratios
  - Results should be read for **direction and magnitude**; best used for looking *across* the table to relate *PSC limit*$_{Alternative}$ to one another in terms of BSAI directed catch limits

$$\Delta\ PSC\ limit\ (from\ lookup\ table) * Ratio = Potential\ \Delta\ BSAI\ directed\ halibut\ catch$$

BSAI HALIBUT COMMERCIAL CATCH

$$\Delta\ PSC\ limit\ (from\ lookup\ table) * Ratio = Potential\ \Delta\ BSAI\ directed\ halibut\ catch$$

Table 5-7 **Change from status quo (SQ) BSAI directed catch limits (million net pounds) resulting from proposed PSC limits (t). The bottom three rows display change from status quo directed BSAI catch limits resulting from the PSC listed at top, calculated using the minimum, median and maximum ratios.**

PSC Limit (t)			960	1047	1222	1309	1396	1483	1571	1745	2007
Difference from SQ PSC limit (t)			-785	-698	-523	-436	-349	-262	-174	0	262
Difference from SQ PSC limit (mil. net pounds)			-1.298	-1.154	-0.865	-0.721	-0.577	-0.433	-0.288	0	0.433
Change in directed catch limit (million net pounds)	Min. ratio	0.094	0.122	0.109	0.082	0.068	0.054	0.041	0.027	0	-0.041
	Median ratio	0.327	0.424	0.377	0.283	0.236	0.189	0.142	0.094	0	-0.142
	Max. ratio	0.609	0.790	0.703	0.526	0.439	0.351	0.264	0.175	0	-0.264

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BSAI HALIBUT COMMERCIAL CATCH

- **Caveats** to specific ***ratio*** value estimates:
  - "BSAI" ≠ IPHC Area 4
  - Ratios based on Oct. 2020 closed-loop sim. median estimates
  - Based on near-term PSC limit and halibut catch limit estimates (2021 – 2030)
  - Bounded by ΔPSC in the look-up tables (Alternatives), not "zero PSC"
  - Actual ***ratio*** – all else equal – varies over time based on external factors
    - e.g., halibut size-at-age; selectivity of trawl gear ~ population age-structure; availability to HAL gear ~ population age-structure

BSAI HALIBUT COMMERCIAL CATCH

- Other studies have assessed the “ratio” (aka. “yield gain” or “rate of exchange”) that relates PSC use to the directed halibut fishery
  - IPHC (2021) compared results of coastwide assessment with/without coastwide bycatch
    - Resulting estimates ranged from 86% to 139% rate of exchange
    - Caveats:
      - Coastwide data are not a clean analogy for BSAI/Area 4 (e.g. different population dynamics and selectivities)
      - Study based on stock assessment as opposed to two-area simulation model that includes variable recruitment and movement
      - Comparison to “no bycatch” is a starker contrast than the low-end PSC limits analyzed in the simulation

BSAI HALIBUT COMMERCIAL CATCH

- The downstream effect of a PSC usage change on halibut fishery catch – as driven by the PSC limits in the Alternatives and assumptions about use relative to the limit – is:
  - Indirect, but can be understood in terms of direction and rough magnitude
  - A function of biological and environmental factors that can be modeled but entail assumptions
  - Cannot be isolated from annual catch limit policy decisions at the IPHC-level
- Analysts' approach builds off of:
  - Short-term estimations that are specific to the BSAI/Area 4 (relative to other studies)
  - Modeling results that were specific to PSC limit changes (rel. to status quo) that are more similar to the current set of Alternatives (lookup tables)
  - Readers can interpolate beyond ratios presented
  - Would not affect the ranking of the alternatives against each other
  - Could change the relative magnitude of the "likely effects"

BSAI HALIBUT COMMERCIAL CATCH

Table 5-8 **Potential change in revenue from status quo based on PSC limit (2018$)** **p. 205**

				960	1047	1222	1309	1396	1483	1571	1745	2007
Ex-Vessel Values	2019	$4.33	min	529,693	470,988	352,903	294,199	235,494	176,789	117,410	0	-176,789
			med	1,836,865	1,633,289	1,223,797	1,020,221	816,645	613,068	407,152	0	-613,068
			max	3,421,134	3,041,976	2,279,303	1,900,146	1,520,988	1,141,831	758,315	0	-1,141,831
	Average 2015-19	$5.54	min	677,713	602,603	451,521	376,411	301,302	226,192	150,219	0	-226,192
			med	2,350,170	2,089,705	1,565,782	1,305,317	1,044,852	784,388	520,929	0	-784,388
			max	4,377,155	3,892,044	2,916,245	2,431,133	1,946,022	1,460,910	970,223	0	-1,460,910
Wholesale Head-and-Gut	2019	$6.37	min	779,248	692,885	519,167	432,805	346,443	260,080	172,725	0	-260,080
			med	2,702,271	2,402,784	1,800,366	1,500,879	1,201,392	901,904	598,975	0	-901,904
			max	5,032,938	4,475,148	3,353,155	2,795,365	2,237,574	1,679,783	1,115,581	0	-1,679,783
	Average 2015-19	$7.04	min	861,209	765,763	573,774	478,328	382,882	287,435	190,892	0	-287,435
			med	2,986,497	2,655,510	1,989,730	1,658,742	1,327,755	996,767	661,975	0	-996,767
			max	5,562,306	4,945,846	3,705,842	3,089,382	2,472,923	1,856,464	1,232,919	0	-1,856,464

- **Ex-vessel** values reported as 2018-dollar adjusted annual averages for Area 4
- **Wholesale** values are state-wide estimates of first wholesale production for H&G fish as reported in the 2020 Economic SAFE
- Calculated based on change in PSC limit (not estimated use)
- Assumes 100% usage of the additional directed halibut catch limit – Results in slight overestimate as Area 4 TAC utilization rate was 91% from 2011-2020 (85% in 2020)

BSAI HALIBUT COMMERCIAL CATCH

Table 5-9 Estimated percent change in BSAI directed catch limit from status quo by survey state and alternative

EBS Trawl Survey	Low			High			Low			High			Low			High			Low			High		
Setline survey	Very Low			Very Low			Low			Low			Medium			Medium			High			High		
ratio	low	med	max	low	med	max	low	med	max	low	med	max	low	med	max	low	med	max	low	med	max	low	med	max
Alternative 2	**1396**			**1483**			**1396**			**1483**			**1483**			**1571**			**1571**			**1745**		
	1%	5%	9%	1%	3%	6%	1%	5%	9%	1%	3%	6%	1%	3%	6%	1%	2%	4%	1%	2%	4%	0%	0%	0%
Alternative 3	**1222**			**1309**			**1309**			**1396**			**1396**			**1745**			**1745**			**2007**		
	2%	7%	13%	2%	6%	11%	2%	6%	11%	1%	5%	9%	1%	5%	9%	0%	0%	0%	0%	0%	0%	-1%	-3%	-6%
Alternative 4	**960**			**1047**			**1047**			**1222**			**1222**			**1396**			**1396**			**1745**		
	3%	10%	19%	3%	9%	17%	3%	9%	17%	2%	7%	13%	2%	7%	13%	1%	5%	9%	1%	5%	9%	0%	0%	0%
Legend		-50%	-25%	0%	25%	50%																		

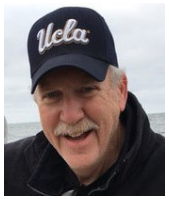
p. 205

REVENUE ANALYSIS SUMMARY

- This analysis should be used to **compare relative impacts of alternatives within each sector** as a whole, recognizing there are differential impacts to individual operations
  - Results should not be used to compare across sectors
- A80 is the directly affected entity by this management action. Impacts to the directed halibut fishery are indirect as they are subject to annual IPHC management decisions.
- Potential revenue impacts are just one aspect of overall impacts

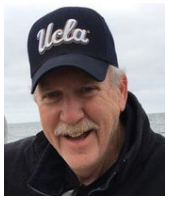
DRAFT EIS SECTION 5.6: SOCIAL AND ENVIRONMENTAL JUSTICE

- **Summarizes findings of Social Impact Assessment (Appendix 1)**
- **Provides limited additional information on impacts by alternative**



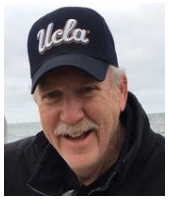
SOCIAL IMPACT ASSESSMENT (APPENDIX 1)

- **Changes since October 2020 Council review**
  - **Summarized in "Note to Reviewers" table** (follows title page)
  - **Revision drivers**
    - SSC comments
    - Other (P&N and Alternatives changes; new EOs; newly available 2019 data)
- **SSC Comments on October 2020 SIA Version**:
  - ***"…The SSC recommends that future versions of the document explore some of the concerns raised in public testimony regarding National Standard 4 and the disproportional impact to tribes, given the number of Alaska Native communities in the analysis."***



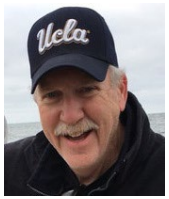
SOCIAL IMPACT ASSESSMENT (APPENDIX 1)

- **Revisions in response SSC Comments**:
  - **SIA Section 3 (Regulatory Context)**
    - A new subsection on MSA National Standard 4 added
    - A new subsection on Tribal Consultation and Coordination added
  - **DEIS Section 7.1 (Magnuson-Stevens Act and Pacific Halibut Act Considerations)**
    - National Standard 4 (and other National Standards) subsections have been developed in advance of selection of a Preliminary Preferred Alternative



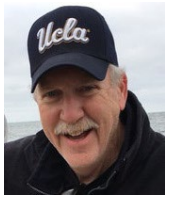
SOCIAL IMPACT ASSESSMENT (APPENDIX 1)

- **Revisions in response SSC Comments (continued)**:
  - **"Community Institutional Summary" table in each CDQ region Historical Overview section now notes for each potentially substantially engaged or substantially dependent Amendment 80 groundfish and/or BSAI/Area 4 halibut fishing community:**
    - ANCSA status;
    - ANCSA regional corporation;
    - ANCSA village corporation;
    - Federally recognized tribal status;
    - CDQ membership status.



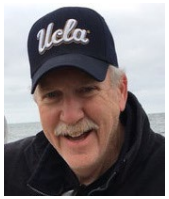
SOCIAL IMPACT ASSESSMENT (APPENDIX 1)

- **Revisions in response SSC Comments (continued):**
  - **Language on tribal status has been revisited and further clarified or emphasized in each of the community impact and Environmental Justice concerns discussions where relevant for potentially substantially engaged or dependent:**
    - Groundfish communities (Section 7.1.1)
    - Halibut communities (Section 7.2.3)



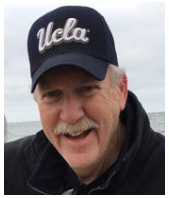
SOCIAL IMPACT ASSESSMENT (APPENDIX 1)

- **Revisions in response SSC Comments (continued):**
  - **Section 6.8 (Cross-Cutting Community Engagement Ties)**
    - "Communities Engaged in the Commercial BSAI/Area 4 Halibut Fishery" subsection added to more clearly portray pattern of directed halibut fishery quota holdings across states.
  - **Section 7.2.6 (Potential Cumulative Small/Rural Community and Cultural Context Issues)**
    - Section expanded to provide additional description of non-economic social and cultural aspects of halibut fishing in BSAI coastal communities.



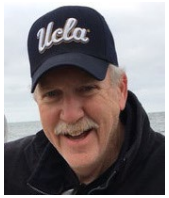
SOCIAL IMPACT ASSESSMENT (APPENDIX 1)

- **Other revisions to the SIA driven by:**
  - **Changes to the Purpose and Need statement**
  - **Changes to the Action Alternatives**
  - **Recent Executive Orders** (added to regulatory context)
  - **Newly available 2019 community level data**
    - Income and poverty data (all communities)
    - Community financial data (Adak)
- **None of the revisions change the previously reviewed overall findings of the SIA**



DRAFT EIS SECTION 5.6: SOCIAL AND ENVIRONMENTAL JUSTICE

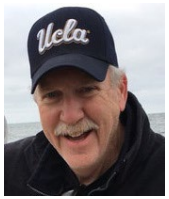
- **Preliminary Impacts: Amendment 80 Groundfish Communities**
  - **Impacts to operations influenced by environmental, regulatory, and behavioral factors**
    - Alaska communities
      - Ports of call: fishery resource landing taxes; harbor fees; support service sector business activity
      - CDQ group communities: multispecies groundfish quota leasing; industry partnerships
    - Pacific Northwest communities
      - Amendment 80 firms, direct employment and income, large scale support sector business activity



DRAFT EIS SECTION 5.6: SOCIAL AND ENVIRONMENTAL JUSTICE

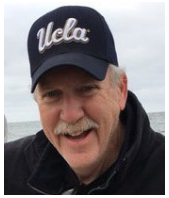
- **Preliminary Impacts: BSAI Halibut-Dependent Communities**
  - **Additional opportunities for directed halibut fishery**
    - Problematic nature of the no-action alternative for directed halibut fishery under low abundance conditions inherently recognized in the Council's purpose and need statement
    - Conditions for potential occurrence of additional opportunities vary by action alternative
    - Level influenced by IPHC decision making
    - Individual community outcomes influenced by:
      - CDQ group decision making
      - Individual entity decision making
    - Would be realized in the near term

	Alternative 2		Alternative 3		Alternative 4	
	Low Trawl Index	High Trawl Index	Low Trawl Index	High Trawl Index	Low Trawl Index	High Trawl Index
High Setline Index	PSC Limit **LOWER** than Status Quo	PSC Limit **SAME** as Status Quo	PSC Limit **SAME** as Status Quo	PSC Limit **HIGHER** than Status Quo	PSC Limit **LOWER** than Status Quo	PSC Limit **SAME** as Status Quo
Medium Setline Index	PSC Limit **LOWER** than Status Quo	PSC Limit **LOWER** than Status Quo	PSC Limit **LOWER** than Status Quo	PSC Limit **SAME** as Status Quo	PSC Limit **LOWER** than Status Quo	PSC Limit **LOWER** than Status Quo
Low Setline Index	PSC Limit **LOWER** than Status Quo	PSC Limit **LOWER** than Status Quo	PSC Limit **LOWER** than Status Quo	PSC Limit **LOWER** than Status Quo	PSC Limit **LOWER** than Status Quo	PSC Limit **LOWER** than Status Quo
Very Low Setline Index	*(Note: Alt 2 does not have a separate Very Low category)*		PSC Limit **LOWER** than Status Quo	PSC Limit **LOWER** than Status Quo	PSC Limit **LOWER** than Status Quo	PSC Limit **LOWER** than Status Quo



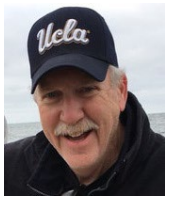
DRAFT EIS SECTION 5.6: SOCIAL AND ENVIRONMENTAL JUSTICE

- **Preliminary Impacts: BSAI Halibut-Dependent Communities (continued)**
  - **Promotion of conservation of halibut stock**
    - Dependent in part on actual mortality (vs PSC upper bounds)
    - Dependent on actual effects on halibut stock (net of mortality changes in other fisheries)
    - Potentially benefit commercial, sport, and subsistence fisheries
    - Would be realized over the longer term

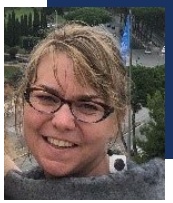


DRAFT EIS SECTION 5.6: SOCIAL AND ENVIRONMENTAL JUSTICE

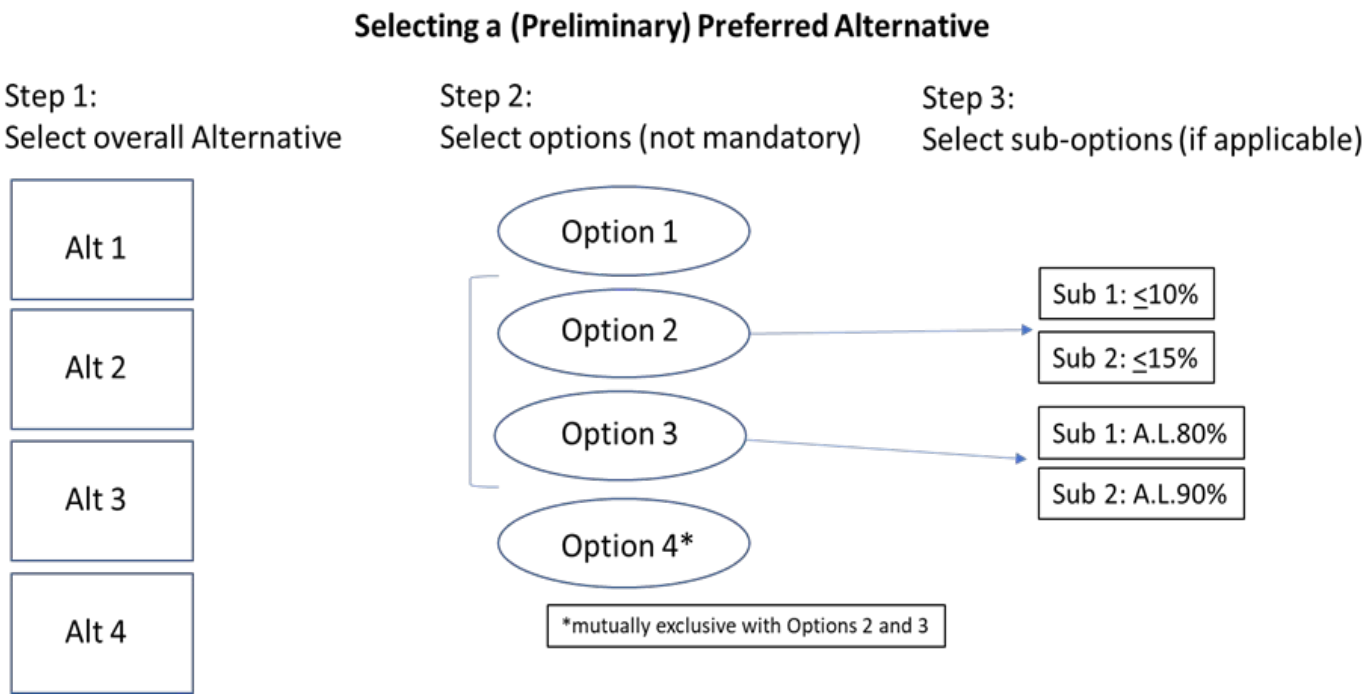
- **Next Steps for this DEIS Section**
  - **More detailed alternative-specific analysis following the selection of a preliminary preferred alternative**



POLICY CONSIDERATIONS AND NEXT STEPS



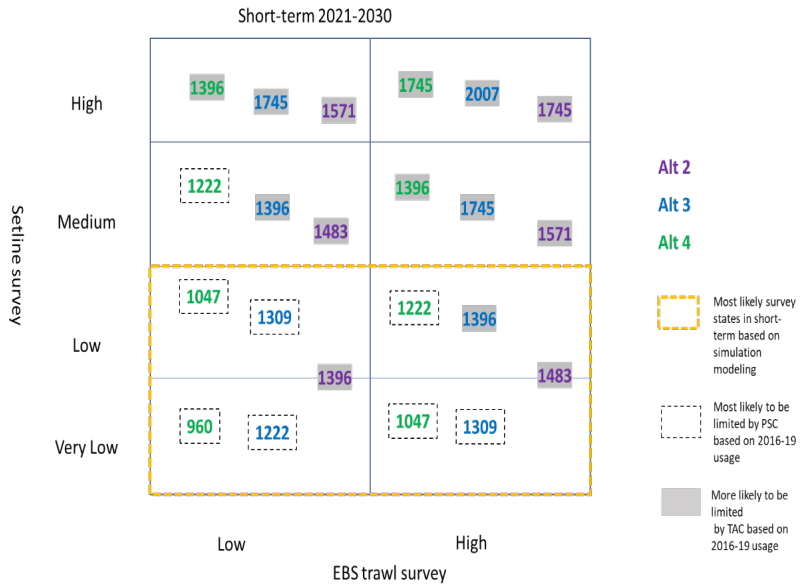
SELECTING A PRELIMINARY PREFERRED ALTERNATIVE

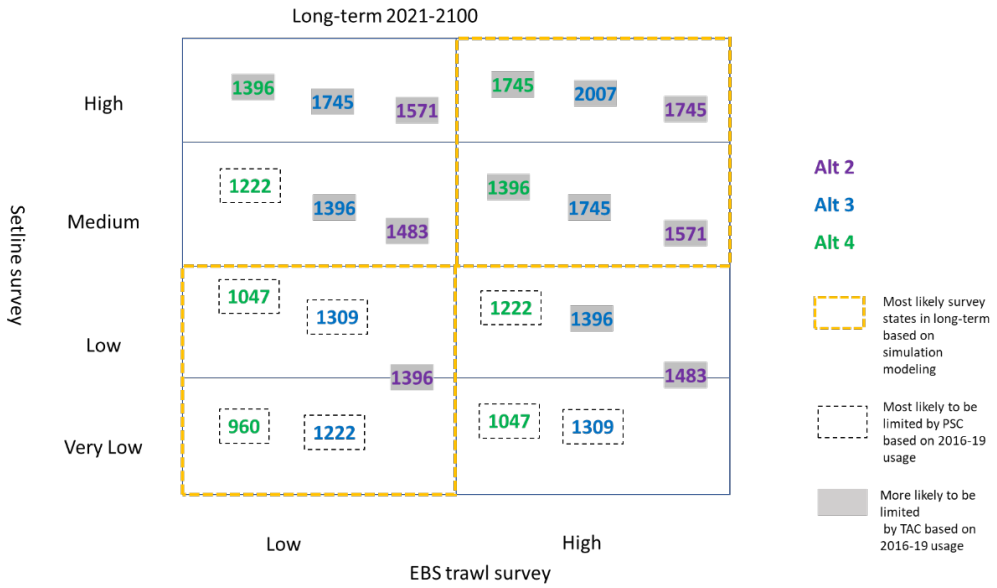


GENERAL CONCLUSIONS: BALANCING POLICY CONSIDERATIONS

- Capturing the trade-off between National Standard 1 (as estimated by the A80 contribution to overall BSAI OY by achieving their TAC) and National Standard 9 (minimize bycatch to the extent practicable)
  - Trade-off between constraint by PSC limit vs constraint by TAC
- Qualitative discussion of additional incentives to reduce bycatch below PSC cap levels by Options 3 and 4
- Developed a figure to show policy tradeoffs between NS1,9 and NS 4 and 8

SHORT-AND LONG-TERM POSSIBLE PSC LIMITS ACROSS ALTERNATIVES





BALANCING THE NATIONAL STANDARDS: POLICY TRADE-OFFS

National Standards 1 and 9: Balance between allowing A80 to achieve OY and to minimizing bycatch to extent practicable

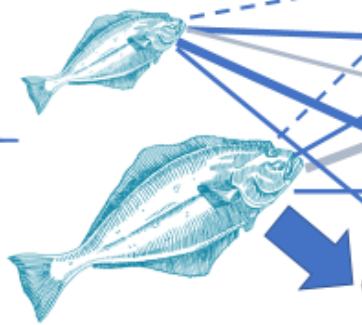
National Standards 4 and 8: Consider indexing a fishing allocation or privilege (PSC limit) to abundance to promote conservation in a fair and equitable manner; Consider beneficial and adverse direct and indirect impacts to groundfish- and halibut-dependent fishing communities.

Policy Considerations

Fate of U26 and O26 halibut

Selection of Look-up table and PSC limit; choose options to incentivize bycatch minimization and/or flexibility to achieve TAC

Groundfish Community benefits



Natural mortality

Caught as bycatch or in non-commercial fisheries

Contribute to SSB

Emigrate

Caught in directed fisheries (Area 4)

CDQ

IFQ

Halibut Community benefits

STEPS IN MOVING TO FINAL ACTION