

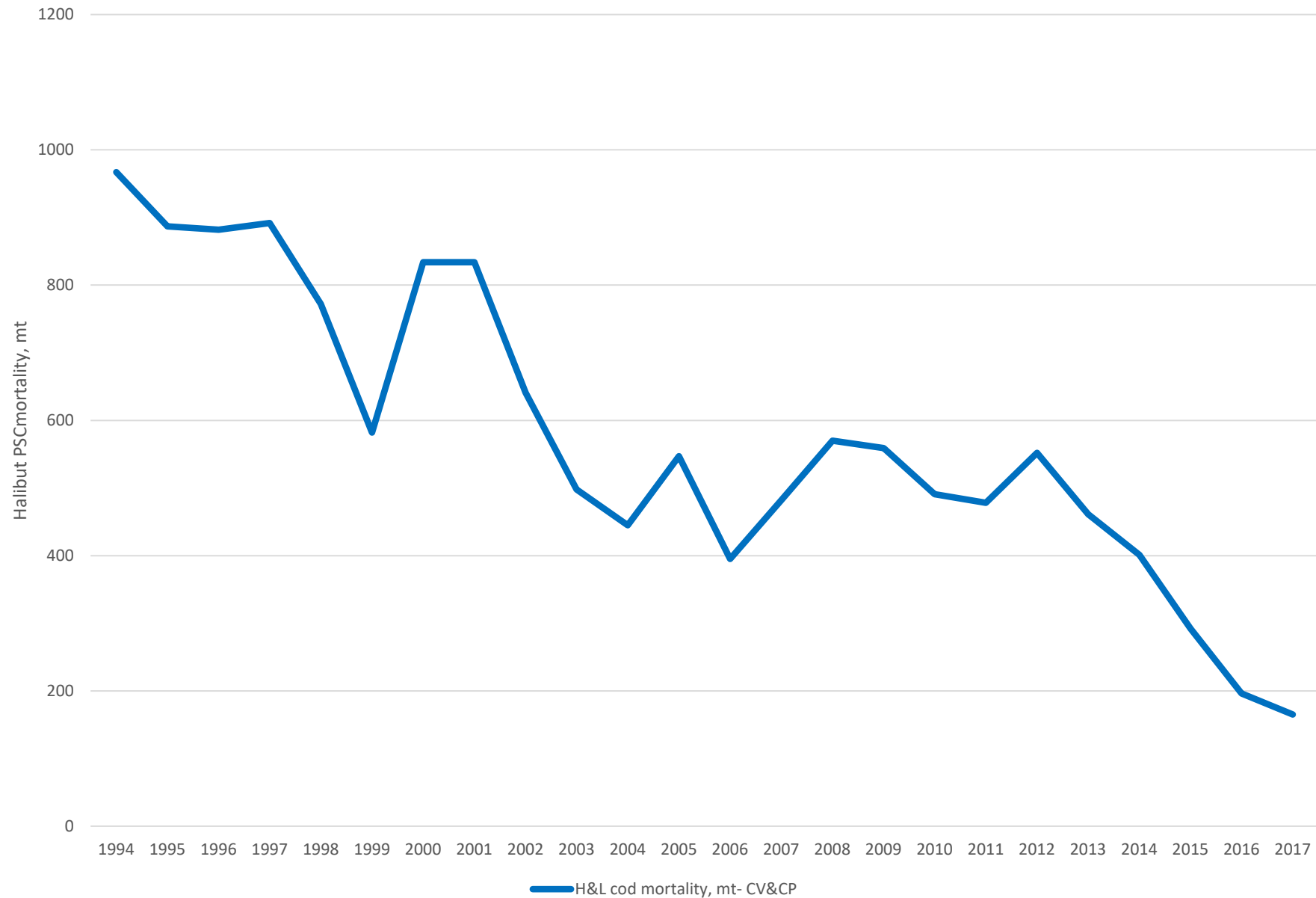


**C-6 Halibut ABM**  
**October 2018 NPFMC**

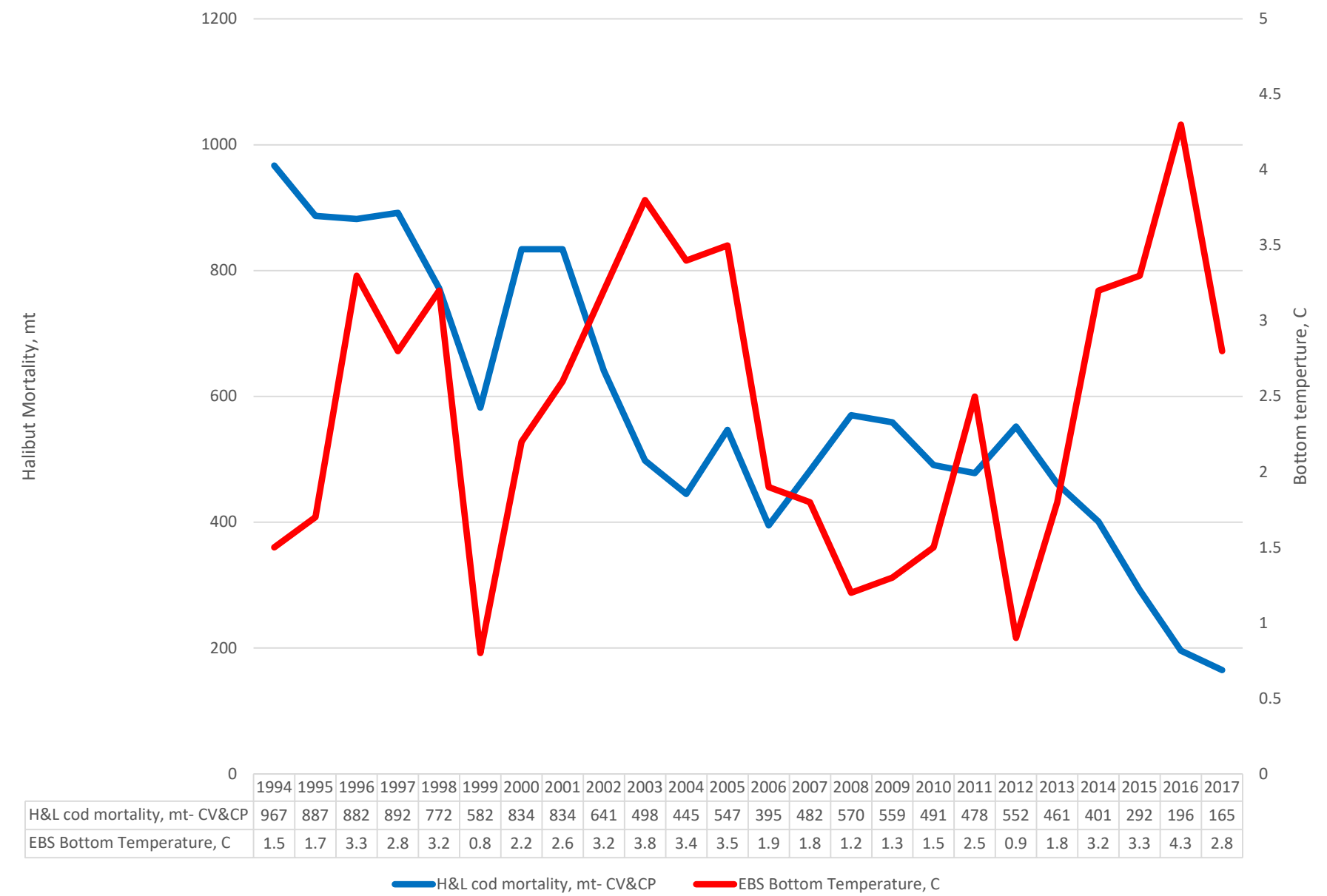
# BSAI CP H&L halibut PSC use

- 2018 (as of 9/29) = 92 mt PSC use (same time in 2017 = 151 mt)
- 2017 PSC use = 172 mt
- Total BSAI 2017 all gear PSC use = 1958 mt (of which CP H&L = 8.8%)
- Total BSAI 2016 all gear PSC use = 2353 mt (of which CP H&L = 8.3%)
- 2017: CP H&L was 3.75% of total halibut removals in IPHC Area 4.
- 2017: CP H&L (GOA+BSAI PSC) was 1.22% of total AK halibut removals.

**BSAI H&L (CP and CV) halibut PSC mortality (mt), 1994-2017.**



BSAI cod H&L halibut mortality and EBS bottom temperature, 1994-2017



## April 2018: Sectors requested to submit an ABM strawman

- Previous two years testimony was to develop abundances indices first (science) and keep distinct from policy issues.
- Request for a strawman was made after the SSC to bring up at the AP.
- The appropriate fixed gear index was not as yet clear in discussion papers.
- Fixed gear (longline) responded with a look up table using thresholds in both the EBS trawl survey and IPHC setline Area 4 survey.
- Proposals submitted (with a disclaimer); Proposal modified by Council April
- Oct 2018: Work group has questions regarding proposal
- “Should the Council intend that Alternative 5 would be functionally similar to Table 2-2, some substantial revisions to the Alternative structure and description would be necessary as well as clarification on the missing aspects to the table (as listed in bold).”
- Retain alt 5; questions addressed in AP motion.

# Staff Requests: Intent of alternative

- **General Intent:** *The size composition of the BSAI cod longline sector halibut bycatch is different than (though related to) the size composition of both the IPHC Area 4 setline survey and the EBS shelf trawl survey. This alternative uses high/medium/low values of both surveys in combination to trigger changes in the PSC limit in a clear and transparent manner. Under a mostly static PSC cap, the BSAI longline cod fishery halibut bycatch mortality has gone down by -80% since 1994. Regardless of the cap, FLC will continue efforts to minimize halibut bycatch, and the alternative provides for a lower cap at low survey abundance.”*

# Alternative 5 “fix-its: Addressed in AP motion. FLC “strawman” 3x3 (hi/med/lo) - the “Honda three-wheeler ATV example”

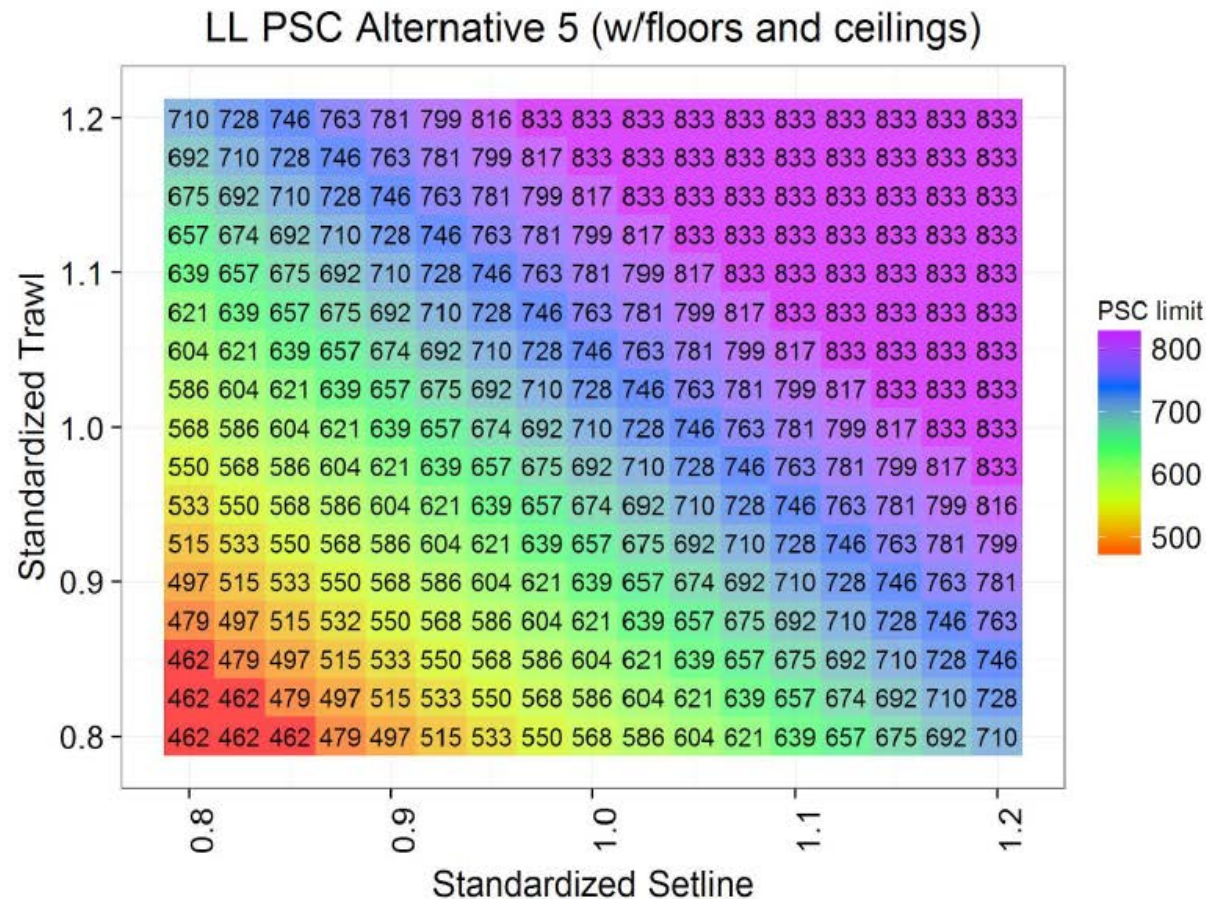
		Standardized EBS Shelf Trawl Survey		
		>1.1	<1.1 and >= 0.5	<0.5
Standardized IPHC All Sizes Setline Survey	> 1.1	PSC limit = Ceiling	PSC limit = Ceiling	Does PSC limit equal the Ceiling or the Floor?
	<1.1 and >= 0.5	PSC limit = Ceiling	PSC limit = Starting Point	PSC limit = Floor
	<0.5	Does PSC limit equal the Ceiling or the Floor?	PSC limit = Floor	PSC limit = Floor

# Look-up table based on EBS/IPHC surveys

- FLC strawman proposal was a 3x3 look-up table (hi/medium/lo) as an example – but would result in large stair-step changes in PSC limits.
- **Staff:** *“This would represent a coarse look up table with PSC limits specified based upon the indices being between a range of values.”*
- **P. 40: Table 2-4:** Staff provided a more refined look-up table based on the same concept (standardized surveys to the mean) that would result in similar adjustments - in a 4x4 look up table (hi/med-hi/med-lo/lo) with finer gradations – resulting in smaller stair step changes.
- Moving forward – FLC supports the approach staff has put forth in Table 2-4 for Alternative 5



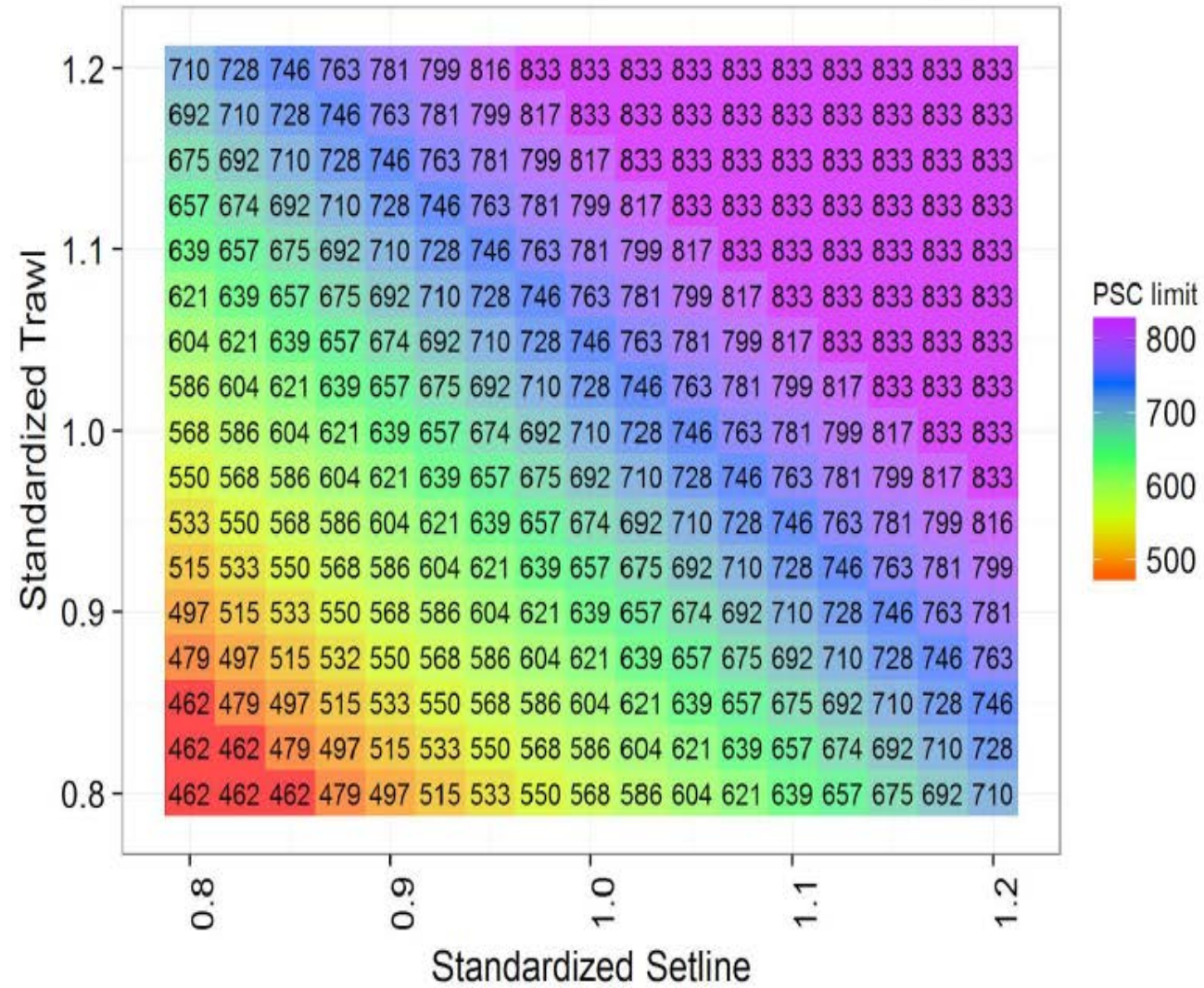
# P. 40: Figure 2-4: 4X4 (hi/med-hi/med-lo/lo): Staff: “Eddie Bauer deluxe 17X17 package”



# Historic IPHC survey WPUE values in index keep changing over time. Area 4CDE (2010-2017)

Area 4CDE O32 WPUE	2017	2016	2015	2014	2013	2012	2011	2010
1998	20.2	21.2	30	26.7	40.7	44.5	45	45
1999	20.2	20.6	27.6	24.4	36.3	42.1	42	42
2000	21.7	21.4	26.4	23.5	26.4	31.5	32	32
2001	20.9	20.6	26	23.5	26.5	31.3	31	31
2002	18.2	18	26.2	24.1	26.6	31.1	31	31
2003	16.8	16.6	23.4	21.4	24.7	29	29	29
2004	15.1	14.9	22.5	20.4	21.1	23.2	23	23
2005	12.3	12.2	14	13	13.2	17.4	18	18
2006	13.6	13.4	14.4	14.1	14.2	17	17	17
2007	11.8	11.6	14	12	12.9	13.1	13	13
2008	11.8	11.7	11.5	10.7	11.1	12.1	13	13
2009	12.5	12.4	14.1	12.9	13	14.5	15	15
2010	12.1	11.9	12	11	11.1	13.1	13	13
2011	11.4	11.2	10.7	9.3	9.3	10.1	10	
2012	12.1	11.8	12.7	10.5	10.8	11.2		
2013	12	11.8	10.4	9.1	9.1			
2014	13.4	13.1	12	10.2				
2015	14.6	14.2	15.2					
2016	14.2	14.1						
2017	13.5							

# LL PSC Alternative 5 (w/floors and ceilings)



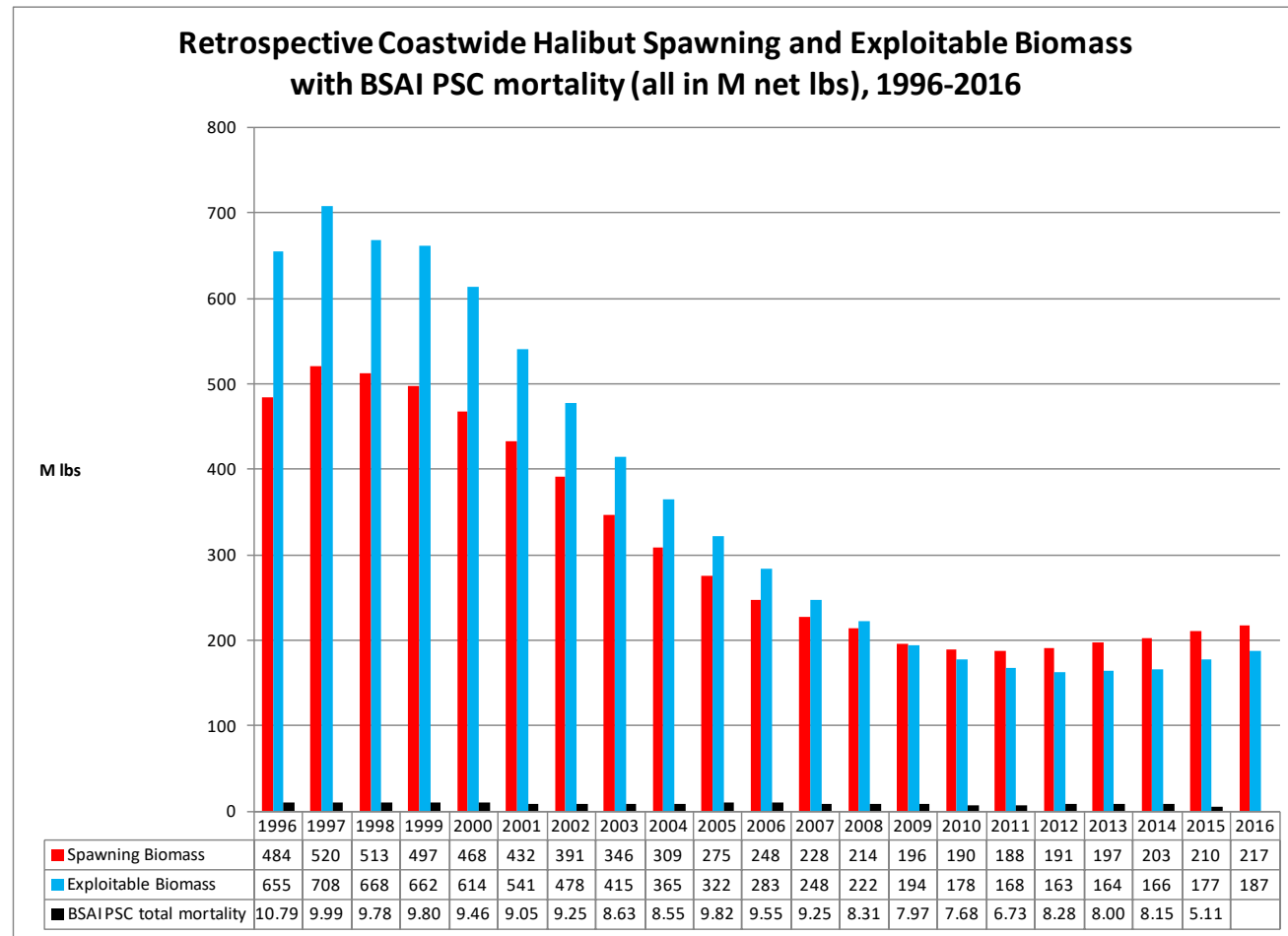
**For fixed gear (as is for other sectors) include primary index is trawl survey and/or trawl primary and IPHC is secondary**

- Rationale: U26/026/032 component of CP H&L is more similar to other ABM sectors by weight (i.e. sectors indexing to the EBS trawl survey). From June 2018 discussion paper:
- **O26 component by weight by sector (2009-2017 average and range)**
  - **A.80: Average = 42.9%- 44.7%. Yearly range = 26.8% - 52.1%**
  - **TLAs: Average = 33.1% - 36.7%. Yearly range = 19.1% -49.1%.**
  - **H&L: Averages = 54.7% -54.9%. Yearly range = 51.2% - 60%.**
  - **CDQ: Average = 36.4% - 47.1%. Yearly range = 25.6% -58.1%.**
  - **AFA: Average = 36.9%. Yearly range = 26% -67.5%.**

**U26/O26 Size composition (in N, numbers of fish, 2008-2016 avg), from Oct 2017 discussion paper, Table 6, p. 37.**

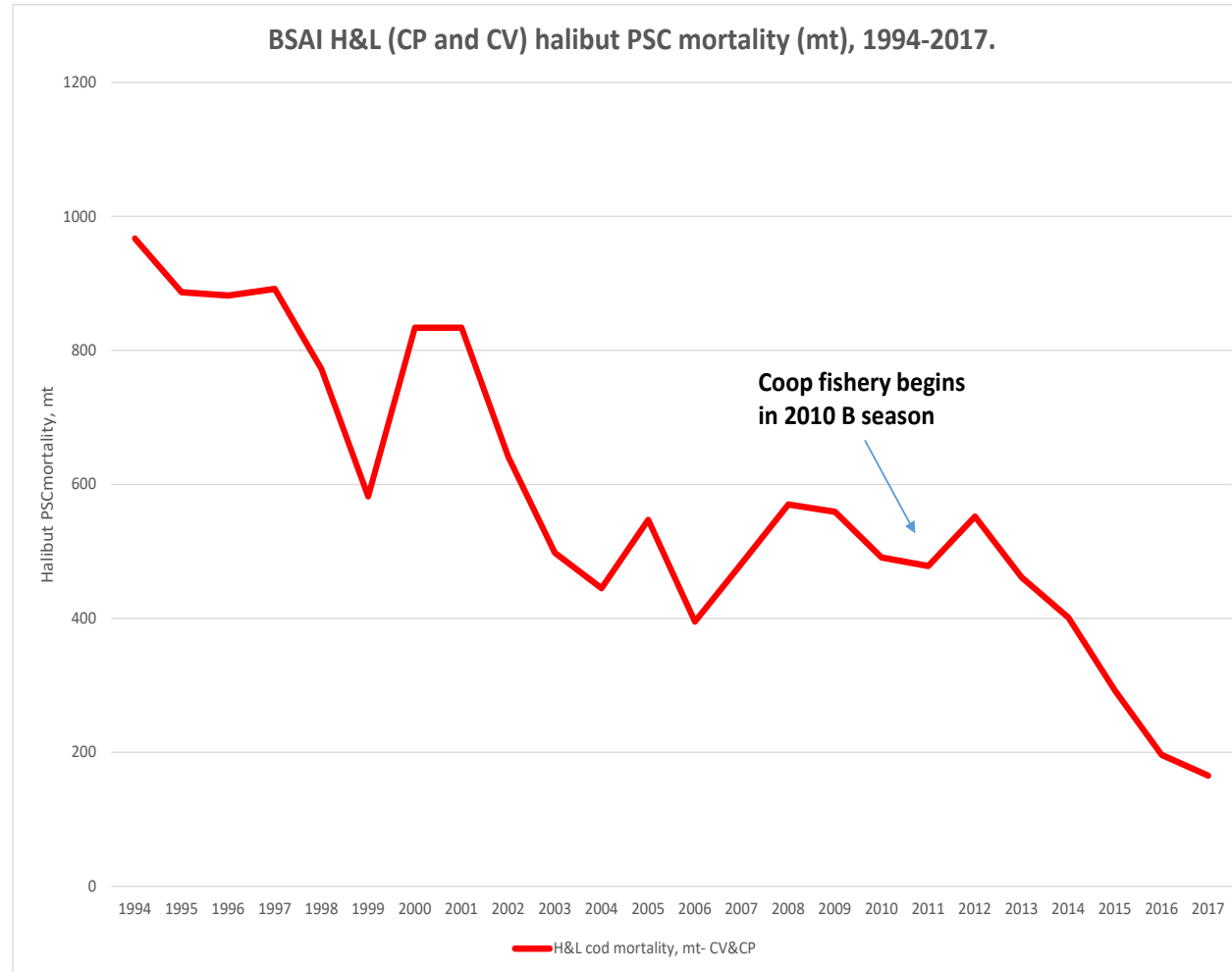
<b><u>Survey/Sector</u></b>	<b><u>%U26</u></b>	<b><u>% O26</u></b>	<b><u>%O32</u></b>
<b>EBS shelf trawl</b>	<b>80%</b>	<b>20%</b>	<b>6%</b>
<b>IPHC survey</b>	<b>10%</b>	<b>89%</b>	<b>55%</b>
<b>NPT groundfish</b>	<b>87%</b>	<b>13%</b>	<b>3%</b>
<b>PT groundfish</b>	<b>85%</b>	<b>15%</b>	<b>3%</b>
<b>H&amp;L groundfish</b>	<b>57%</b>	<b>43%</b>	<b>10%</b>

# Coastwide spawning and exploitable biomass (modeled) and BSAI PSC use (all gear), 1994-2015





# BSAI CP H&L Halibut PSC mortality (mt), 1994-2017.





# Area 4A: 2010-2017

Area 4A O32 WPUE	2017	2016	2015	2014	2013	2012	2011	2010
1998	391	411.6	343.6	343.6	307.3	299	299	299
1999	358.7	366.4	332.3	332.3	291.1	290.3	290	290
2000	354.5	365.8	314.6	314.6	281.4	275.8	276	276
2001	276.3	284.3	228	228	203.9	198.8	199	199
2002	246.4	250.9	193	193	172.7	168.4	168	168
2003	209.7	214.9	176.4	176.4	157.8	154.1	154	154
2004	181.9	183.9	157.7	157.7	141.1	137.4	137	137
2005	160	161.9	122.6	122.6	109.7	106.8	107	107
2006	134.2	134.1	97.6	97.6	87.3	84.9	85	85
2007	119.1	118.8	76.5	76.5	68.4	66.5	67	67
2008	128	129.3	95.5	95.5	85.4	84.1	84	84
2009	118	117.2	96.3	96.3	86.1	84.1	84	84
2010	99.8	97.2	83.6	83.6	74.7	73	73	73
2011	92.7	91.9	66.3	66.3	59.3	58.4	58	
2012	91.9	92.1	73.2	73.2	65.5	63.6		
2013	74.6	74.2	48.1	48.1	43			
2014	79.2	77.9	62.2	62.2				
2015	78.8	74.3	56.1					
2016	73.5	68.8						
2017	72.6							

# Area 4B: 2010 to 2017

Area 4B O32  
WPUE

	2017	2016	2015	2014	2013	2012	2011	2010
1998	254.2	258.3	216.6	216.6	216.6	215.6	216	216
1999	208.8	213.8	203.3	203.3	203.3	203.1	203	203
2000	186.5	192	216.5	216.5	216.5	216.3	216	216
2001	137.6	143.5	171.4	171.4	171.4	171.3	171	171
2002	105.4	108.4	119.3	119.3	119.3	119.1	119	119
2003	85.8	89.7	104.1	104.1	104.1	104.1	104	104
2004	78	80	73.4	73.4	73.4	73.3	73	73
2005	74.2	77	86.3	86.3	86.3	86.2	86	86
2006	81.9	85.1	95.5	95.5	95.5	95.5	96	96
2007	96	100.1	87.4	87.4	87.4	87.2	87	87
2008	98.2	103.1	103.5	103.5	103.5	103.3	103	103
2009	81.9	85.3	106.8	106.8	106.8	106.8	107	107
2010	71.8	74.7	68.4	68.4	68.4	68.4	68	68
2011	72.7	74.6	68.1	68.1	68.1	67.9	68	
2012	60.1	62.4	48.5	48.5	48.5	48.3		
2013	64.7	65.8	57.3	57.3	57.3			
2014	56.3	56.6	49.9	49.9				
2015	58.3	56.8	56.3					
2016	57	55.9						
2017	53.5							

# Closed Area

- “The current IPHC Closed Area was initially created to protect juvenile Pacific halibut in a nursery ground from foreign fishing effort, including Japanese and Soviet trawl fisheries and longline fisheries.”
- “Since 1998, the Commission has accumulated sufficient data and has been able to generate stock assessments for the Bering Sea with considerably greater confidence than was possible in 1998. Therefore, the staff no longer sees a purpose for the Closed Area as such a guard against uncertainty.”

# Closed area

- **Definition of an IPHC nursery area is very broad and includes large “near shore” areas:** *“Concentrations of young Pacific halibut exist throughout much of the range of the population from the Bering Sea to at least as far south as British Columbia. A “nursery ground” may be defined broadly as any habitat in which “a juvenile fish or invertebrate species grows at higher densities, avoids predation more successfully, or grows faster there than in a different habitat” (Beck et al. 2001). The IPHC considers Pacific halibut nurseries to be those nearshore habitats where young halibut reside until emigrating to the offshore areas more commonly occupied by adult fish.....It appears that the majority of halibut settlement and rearing occurs west of Cape St. Elias in the central Gulf of Alaska (Best 1974, Best and Hardman 1982) and throughout the southeastern Bering Sea (Best 1977).”*

# NPFMC closure areas – near or within the closed area

- o Chum Salmon Savings Area
- o Red King Crab Savings Area
- o Steller Sea Lion Protection Areas, Bering Sea Subarea - Pollock Restriction Area (SSLPA, Bering Sea Subarea - Pollock RA)
- o Zone 1 (516) Closure to Trawl Gear
- o Scallop Closed Areas - Eastern Bering Sea
- o Trawl Gear Restricted Area - Bristol Bay (TGRA - Bristol Bay)
- o Zone 1 (512) Closure to Trawl Gear
- o Steller Sea Lion Protection Areas, Bering Sea Subarea - Groundfish, Pollock, Pacific Cod, and Atka Mackerel Closures (SSLPA, Bering Sea Subarea)
- o Alaska Maritime National Wildlife Refuge (AK Maritime NWR)
- o Nearshore Bristol Bay Trawl Closure
- o Catcher Vessel Operational Area (CVOA)