



Alaska Board of Fisheries

Anchorage, October 17, 2018. Proposals 12, 13, and 14.

Testimony: Gerry Merrigan, Petersburg Alaska

Conservation and allocation issues with Proposal 12, 13, 14

- **Gerry Merrigan:** Alaska resident since 1979. FLC technical advisor; NPRB (2005-present); NPFMC (2006-2009); Prowler Fisheries, Petersburg (2001-2010); PVOA director (1998-2001); Pacific Salmon Commission, AK Norther Panel (1992-1998). Halibut and troll (1984-present)
- **Freezer-Longline Coalition:** 28 active vessels with over 30 years of participation in p-cod fisheries: 85% dependent on BSAI p-cod; with CDQ ownership (14 vessels with an average of 57% CDQ ownership, range =33% to 100% ownership).
- **CDQ program:** Represents 65 villages with 29,000 residents in western AK.
- Proposals would increase the Dutch Harbor Subdistrict (DHS) GHL by **+25%, +56%, and +213%**.
- EBS p-cod ABC declined **-22%** last year and is expected to be reduced another **-25%** in 2019 for purposes of conservation – and expected to remain at low harvest levels for several years until recruitment improves.

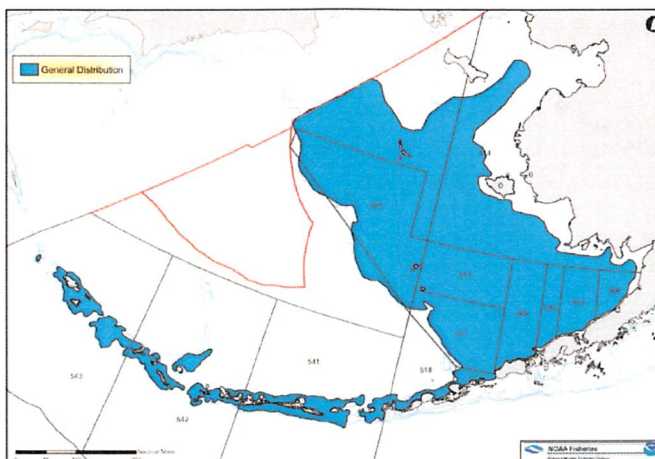
Conservation Issues with Proposals 12, 13, & 14

- Both EBS and GOA p-cod stocks are at historic low biomass levels.
- Warming seawater temperature is having a negative effect on recruitment as well as shifting biomass distribution northward.
- Increasing harvest pressure in the DHS GHL fishery in a concentrated time and area during spawning aggregation while stocks are at a low level will inhibit the rebuilding of p-cod stocks - and could result in a long term conservation issue.
- I cannot tell you with absolute certainty that an increase in GHL will cause a conservation concern – but given the major recent changes in BS p-cod – the biologic warning signs are there.
- Conversely, no one can tell you with any certainty that an increase in the GHL will not result in a conservation concern – particularly in the absence of supporting data. Currently in the DHS GHL fishery, there is no port sampling nor observer data nor a dedicated stock assessment and survey of p-cod inside 3 miles.
- Application of the precautionary principle places the burden of proof on the proposers ----that they need to show that any increase in the GHL will not be to the detriment of the resource.

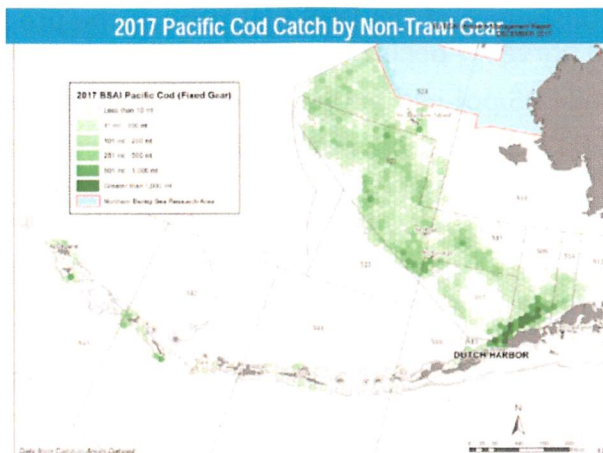
Concentration of harvest inside 3 miles in the EBS and Dutch Harbor Sub-district

- Prior to the establishment of the DHS GHL p-cod fishery, average catch (2006-2013) inside 3 miles of BSAI p-cod = **0.67% of BSAI ABC**
- 2014 DHS GHL = **3% of BSAI ABC** (or 5 times the historic catch level)
- 2016 DHS GHL = **6.4% of EBS ABC** (or 10 times the historic catch level)
- 2017 total removals inside 3 miles (GHL and parallel) = **10.45% of EBS ABC***
- **73%** of the DHS GHL Harvest is further concentrated around Unimak Island – which is approximately one-fourth the area of the DHS.
- In 1996, when the BOF established the GOA p-cod GHL fisheries, the GHL was based on the existing average parallel catch – to prevent localized depletion. Average catch (1994-1996) = 22.6% (where the GOA has a much higher proportion of cod fishing grounds within 3 miles than the EBS).
- *Source: NMFS Inseason management (in total removals).

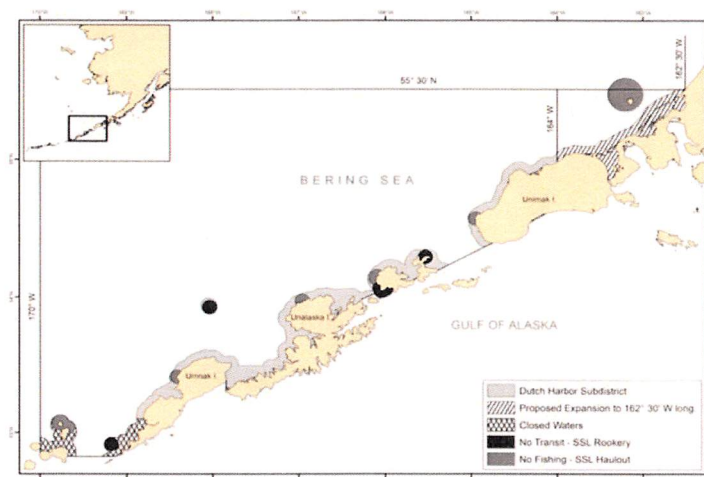
The area of the Dutch Harbor sub-district is less than 1% of the Bering Sea p-cod fishing grounds (but with 10% of the total p-cod harvest).



2017 Federal EBS p-cod non-trawl (H&L/pot) harvest distribution is dispersed over area and time (51% in "A" season and 49% in "B" season). DHS GHL fishery has no seasonal apportionment.



2017: 73% of DHS GHL harvest occurred in the waters of Unimak Island (one fourth of the DHS area). 8% of EBS p-cod harvest occurring in <0.25% of EBS p-cod grounds.

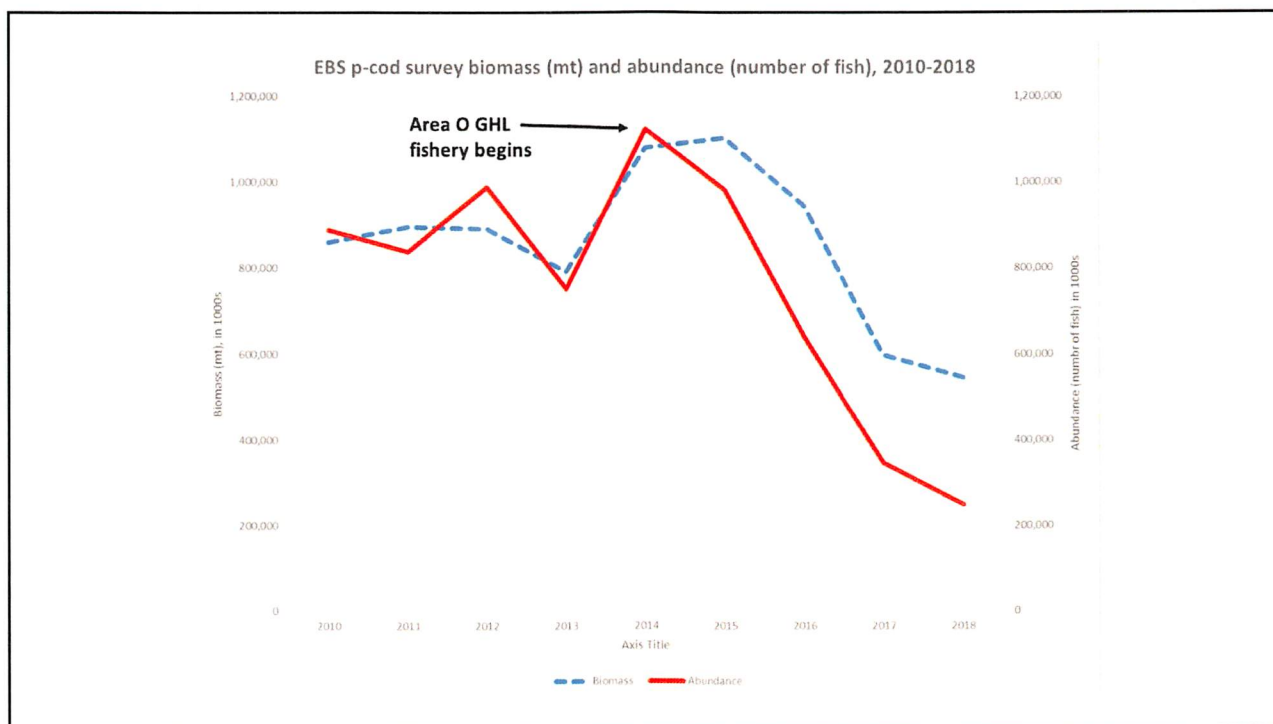


Proportion of all EBS pot cod harvest (federal and state) inside 3 miles is now 37%-47% - and catching smaller cod

- Prior to the establishment of the DHS GHL fishery, the proportion of the total EBS pot cod harvest - occurring inside 3 miles - was less than **<1%**.
- In 2014, **22%** of all EBS pot cod harvest occurred inside 3 miles.
- In both 2016 & 2017, **37%** of EBS pot cod harvest occurred inside 3 miles.
- In 2018 (as of 9/1), **47%** of all EBS pot cod harvest had occurred inside 3 miles (predominately <60' vessels).
- Preliminary report from a DH processor (1/24 thru 9/16/2018) indicates the **size of cod landed by <60' pot vessels (near shore) is smaller than those delivered by >60' pot vessels (more offshore)**. In fillet sizes (lbs)
 - <60' size composition: 41% <1; 51% 1-2; 8% >2. **Twice as many small cod.**
 - >60' size composition: 22% <1; 62% 1-2; 16% >2. **Twice as many large cod.**

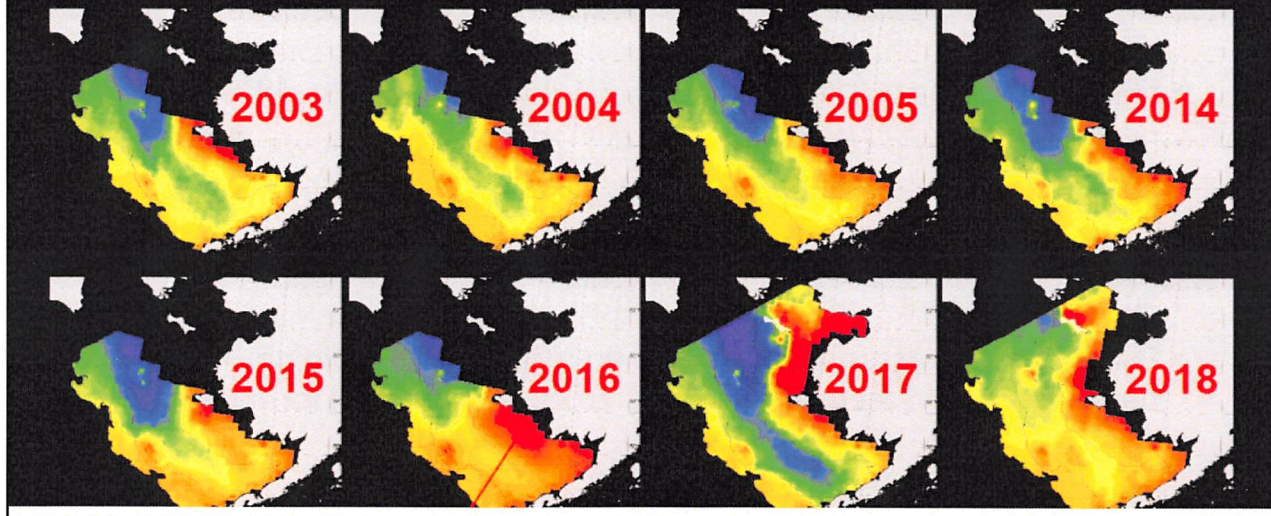
EBS p-cod Stock Status: Declining (and moving northward)

- None of the proposals nor letters calling for a GHL increase made any reference to EBS p-cod status:
- EBS trawl survey p-cod biomass (B), 2014 to 2018: down **-49%**.
- EBS trawl survey p-cod abundance (N), 2014 to 2018: down **-78%**.
- From 2017 to 2018, survey biomass of EBS p-cod went down **-21%**.
- From 2017 to 2018, survey abundance of EBS p-cod went down **-32%**.
- 2016 recruitment is at its lowest historical value (1977-2016).
- EBS p-cod biomass is shifting north (in response to warming temperature and feed distribution). 2018: No cold pool formation.



Bottom temperatures 2003-05 & 2014-18

Above average "warm" years



EBS p-cod recruitment (age 0 cod) is at an all time historic low (left) and has an inverse relationship with bottom temperature (right)

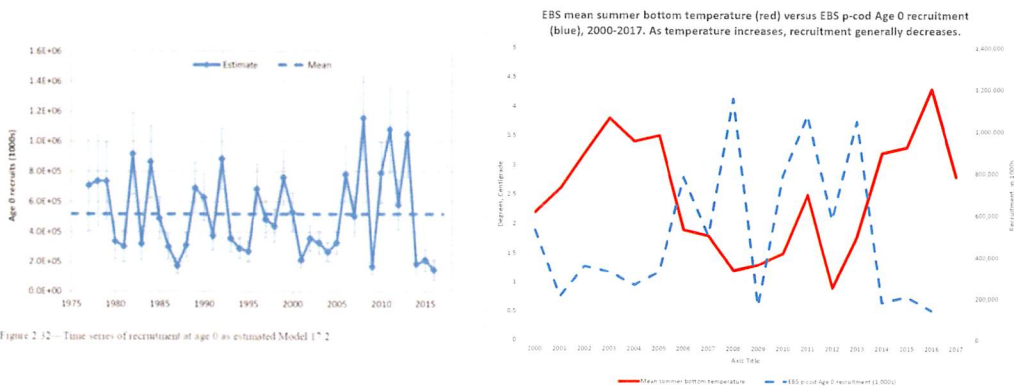
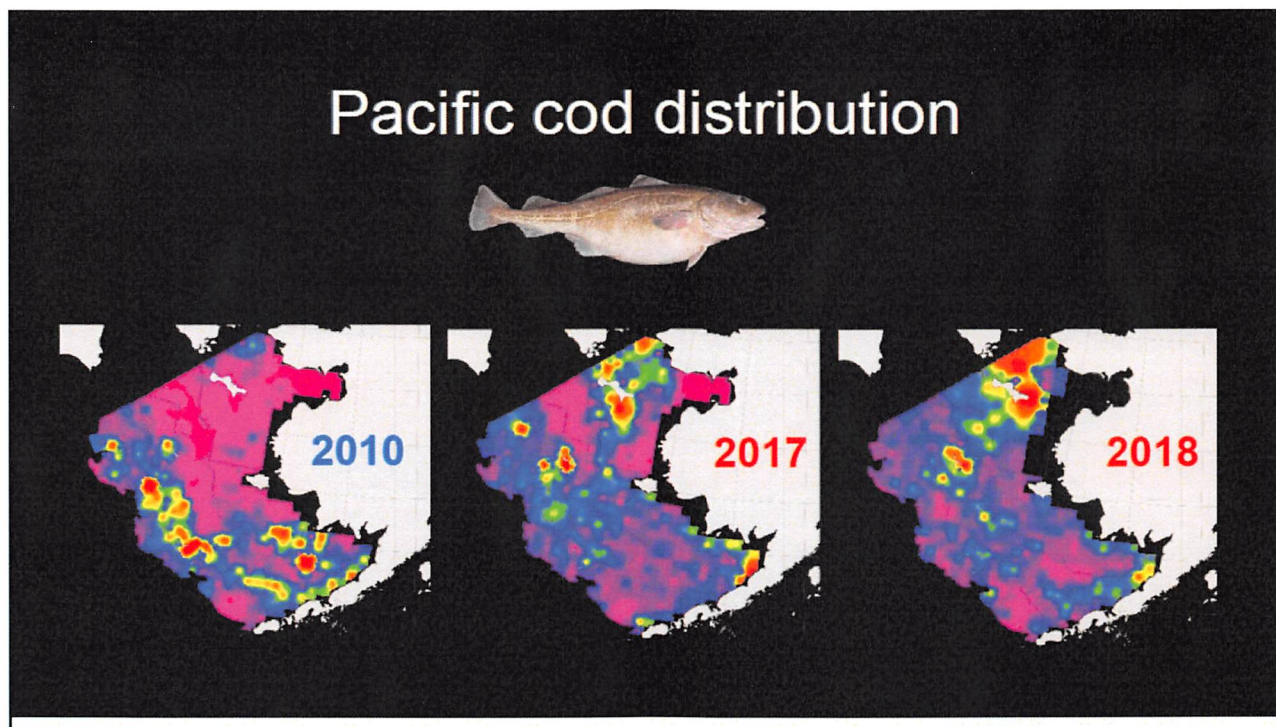


Figure 2.12 – Time series of recruitment at age 0 as estimated Model 17.2



Bering Sea P-cod survey biomass distribution

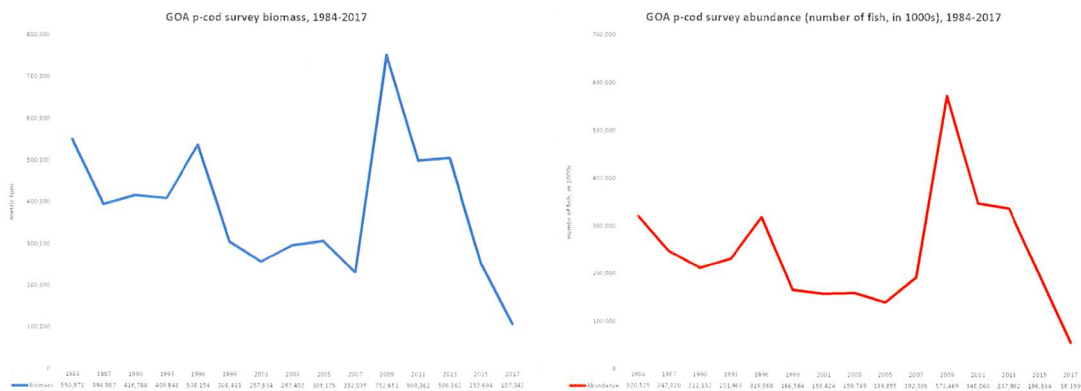
<u>Year</u> <u>cold/warm</u>	<u>% Southern EBS</u>	<u>% Northern EBS</u>
2010 – cold	97%	3%
2017- warm	68%	32%
2018 – warm	49%	51%

Spies 2018: Genetics of p-cod in NBS are the same EBS p-cod stocks (Pervenets; Pribilof; and Unimak) but with extended spawning/feeding migration with unknown implications.

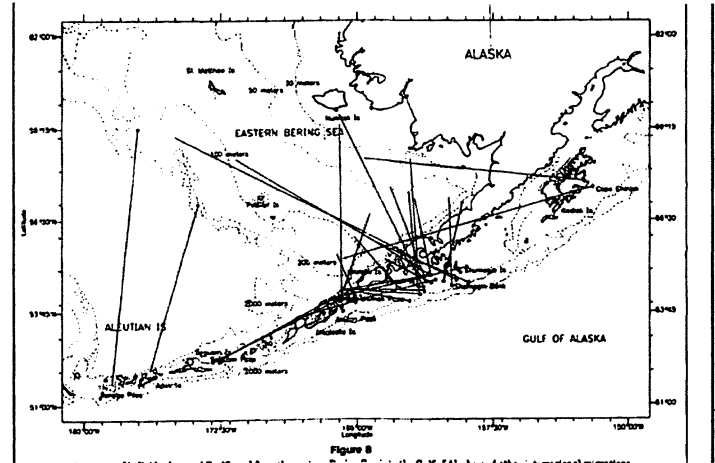
Movement observed may exceed typical summer feeding movements of Pacific cod.



GOA p-cod survey biomass and abundance have declined -80% since 2013 to historical low levels (due to “warm blob” event). DHS GHL fishery is immediately adjacent to WGOA (with cod movement between areas)



“Movement of individual tagged Pacific cod from the EBS into the GOA and other interregional migrations”. Shimada and Kimura 1997. ADFG: *“The GOA Pacific cod stock is managed independent of the BSAI stocks. The southern boundary of the DHS corresponds with the northern boundary of the WGOA management area. A higher GHJL may increase unintended harvest of GOA Pacific cod when fishing effort occurs near the boundary line.”*



Unimak Island/Pass: A concentrated spawning area for p-cod with considerable p-cod migration and movement.

- As a result of seasonal densities, it is possible to maintain CPUE in an area – at the same time stock biomass continues to decline. This is what occurred in the Canadian Atlantic cod fisheries.
- **Canada:** *“However, CPUE was hyper-stable with respect to density and not to biomass...high cod densities were interpreted as indicative of high abundance in the late 1980s.”*
- In 1989: *“our captains are convinced that northern cod are as plentiful as ever and our vessels have few problems catching their trip allotments throughout the year. Two years later, this fishery had collapsed.”* From Rose and Kulka, 1999: **“Hyper-aggregation of fish and fisheries: How CPUE increased as northern cod declined”.**
- **ADFG:** *“The current timing of the DHS season generally corresponds with Pacific cod spawn timing in the Bering Sea. The effects concentrating removals inside state-waters of the DHS on the overall productivity of the stock are unknown.”*

Summary:

- EBS and GOA p-cod stocks are at historic low levels.
- Anomalous conditions result in large uncertainty in EBS p-cod stock
- Warm water trend: 2018: no cold pool formation in EBS; poor recruitment
- Northernmost ever distribution of cod biomass;
- DHS GHL: Unknown effect of continued concentration of harvest inside 3 on spawning aggregation
- DHS GHL: Extent of interaction with GOA stocks (biomass down -80%)
- Recommend BOF consider no increases in GHL at this time
- Ask the BOF to consider the wisdom of increasing the GHL in order to extend the fishery 8-18 days for 32 vessels at the expense of 163 vessels that participated in the federal p-cod fishery as well as CDQ (29,000 people in 65 western Alaskan villages) – while stocks are declining and are at a historic low levels.

Aleut word for P-cod: *“fish that stops”*

“Pacific cod populations may be susceptible to fluctuations in oceanic regimes to the extent that they periodically disappear in significant numbers from the ecosystem, only to reappear in greater numbers at a later date.”

*“This condition has deep historical roots; **the ancient Aleut name for Pacific cod translates literally into “the fish that stops” because this species periodically disappears (Black, 1981), a situation that occurred, according to traditional Aleut knowledge, at least once in the mid-19th century, and again in approximately 1942.**”*

[From Maschner et al 2008, “A 4500-year time series of Pacific cod (*Gadus macrocephalus*) size and abundance: archaeology, oceanic regime shifts, and sustainable fisheries]