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January 27, 2015

Mr. Dan Hull, Chairman
North Pacific Fishery Management Council
605 West 4th, Suite 306
Anchorage, Alaska 99501-2252

RE: Agenda Item C-5 Industry sector reports on BS Halibut bycatch

Dear Chairman Hull:

Thank you for the opportunity to provide a second report to the North Pacific Fishery Management Council (Council) on the actions by the Freezer Longline Coalition (FLC) to minimize BSAI halibut PSC mortality by the FLC members' fleet. The FLC recognizes the importance for Council to address halibut mortality and efforts to ensure the sustainability of the BSAI halibut stock. This report will provide the Council an update on halibut PSC bycatch information for the BSAI CP H&L fleet and the efforts the FLC is engaged in to minimize halibut mortality.

About FLC

The FLC represents the owners and operators of over 30 U.S.-flag vessels that participate in the freezer longline sector of the Pacific cod fishery in the Bering Sea and Aleutian Islands. FLC member vessels range in size from approximately 110 to 185 feet with a gross tonnage of approximately 140 to 1400 tons. The mission of the FLC is to promote public policy that facilitates the sustainable and orderly harvest of Pacific cod and other groundfish species. All members of the FLC who participate in the BSAI Pacific cod fisheries are also members of the Freezer Longline Conservation Cooperative (FLCC), a voluntary cooperative established in 2010.

The mission of the FLCC is to sustainably manage the quota allocated by the Council to the freezer longline sector of the BS and AI Pacific cod fisheries. FLCC and its members work collaboratively with NMFS to ensure the efficient and responsible harvest of the Pacific cod quota allocated to the sector, including maximizing optimum yield in the fishery and minimizing bycatch of other species. Since its establishment, FLCC has been a leader in efforts to reduce bycatch and promote more sustainable fishing practices in the BSAI.

Council motion at June 2014 meeting

The Council motion of June 2014 called for all BSAI fishing industry sectors to “undertake voluntary efforts to reduce halibut mortalities in the BSAI resulting from PSC use....by 10% from the current 5-year average levels through 2014-2015 fishing season. To evaluate progress in these efforts, the Council also requests industry to report back to the Council on measures that are being implemented and developed, and to the extent possible, the effectiveness of those measures in terms of absolute reductions in halibut mortalities.”

Halibut PSC mortality by FLC fleet in 2014

The FLC has met the Council charge of reducing halibut mortality in the 2014 fishing season (relative to the 2009-2013 average). The FLC has achieved more than a 10% reduction in both halibut mortality and mortality rate (source: NMFS CAS and FIS).

BSAI CP H&L	2009-2013 avg.	2014	Change (%)
Halibut Mortality, mt	514 mt ¹	395 mt ²	-23.2%
Mortality Rate (kg halibut mortality/mt groundfish)	4.31 kg/mt ³	2.88 kg/mt ⁴	-33.2%

The above table overestimates both actual halibut mortality and mortality rate as these calculations are based on the assumed discard mortality rate (DMR) in 2014 of 9% (for non-CDQ CP H&L) rather than the actual observed rate in 2014 of 7.9%. Using the actual DMR, the actual 2014 halibut mortality is further reduced to **347 mt** and the mortality rate declines to **2.53 kg/mt**. This is the mortality of less than one six pound halibut for every ton of groundfish.

In the NMFS In-season Management Report at the December NPFMC meeting, only three sectors achieved a -10% reduction in both halibut mortality and mortality rate in 2014 (relative to the 2009-2013 avg.). Two of those sectors are hook-and-line gear (CP H&L and CDQ H&L). In Table 3-10 (p. 49) of the NPFMC January 2015 analysis, in the aggregated sectors, only the CP hook-and-line sector achieved a -10% reduction in total mortality and mortality rate.

FLC actions to address halibut PSC mortality

The FLC and its members take seriously our responsibility to be stewards of the environment and the resources that inhabit the waters we fish. Our members are Alaskans and Washingtonians who have spent their careers living and working in Alaskan communities. We understand the reliance of Western Alaskan communities on the resources of the Bering Sea and share an interest in sustaining those resources for all of us to continue to harvest now and for future generations. As we noted in our initial report in June, FLC members have an extensive history of voluntary actions to minimize halibut PSC mortality by our fleet. Our FLCC membership agreement includes specific language on the management of PSC catch by members, including severe penalties for exceeding limits on PSC catch established by the

¹ NMFS BSAI Inseason Management Report, “2014 BSAI Reduction in Halibut Mortality”. December 2014

² NMFS Inseason CAS, December 31, 2014.

³ NPFMC Initial Review Draft “Revise BSAI Halibut PSC Caps”, Table 3-10, p. 49

⁴ Ibid.

cooperative. These are actions that were facilitated by our own efforts to proactively address PSC mortality by our fleet. Other actions taken by FLC to minimize halibut PSC mortality include:

- *Weekly reports on halibut PSC:* Janet Smoker/Fisheries Information Services (FIS) provides our fleet with two weekly reports, including information on halibut mortality by our boats and updates on discard mortality rates for each vessel. These reports help members to monitor halibut PSC trends and rates by season.
- *Catch data on Sea State:* Similarly, our members have access to regularly updated catch data produced on target and bycatch species, including halibut. This services provides members with extensive, near real-time data on their catch and enables them to map their recent activity.
- *Careful release practices:* FLC members train all crew on careful release of halibut. Crew are taught the best methods for handling all PSC species to enable them to return to the sea minimally affected by their encounter with our boats.
- *Annual meeting for crew officers:* FLC hosts an annual symposium for vessel officers and crew to give them an opportunity to hear reports about actions at the Council and other developments that may potentially affect their operations. We held our 2014 symposium in May, which featured a report on halibut DMR from Janet Smoker, as well as other presentations from current and former NMFS officials. These events help keep our officers and crew current on management and regulatory actions in the fishery as well as helping to inform other symposium participants about what's happening on the water.
- *100% observer coverage, plus scales:* The FLC collaborated with NMFS to institute 100% observer coverage on our entire fleet. Members were required to accept observer coverage on their vessels as a component of membership in the FLCC. More recently, our entire active fleet (except one vessel) added flow scales as a means of further monitoring our catch. Vessels without flow scales began carrying two observers until the scale was installed. The addition of scales required nearly \$100,000 of new equipment on each of the FLC vessels. The one vessel that does not currently have a flow scale maintains two observers on the vessel.
- *FLC Halibut Bycatch Committee:* In 2014, the FLC formed a Halibut Bycatch Committee for members to review halibut PSC catch data for our fleet and address any concerns that emerged related to our fishing practices. This committee was central to promoting additional discussion on halibut PSC reduction within our membership and to identify and encourage further efforts by members to carefully monitor and reduce their bycatch in 2014.

History of reductions by the FLC fleet

Actions by the FLC and our members have produced dramatic reductions in BSAI halibut mortality in the past 10 years, with significant reductions in total mortality, discard mortality rate (DMR), and encounter rate. From 1994 to 2014, in the BSAI non-CDQ CP H&L sector:

- Total halibut mortality has been reduced **-58%** (Figure 1).
- Actual DMR (discard mortality rate) has been reduced **-47%** (Figure 2).
- Encounter rate (kg halibut/mt groundfish) has been reduced **-41%** (Figure 5).

The following figures provide additional details on the freezer longline fleet’s successful efforts to minimize our impacts on the halibut resource in the BSAI.

Figure 1: Total Halibut Mortality

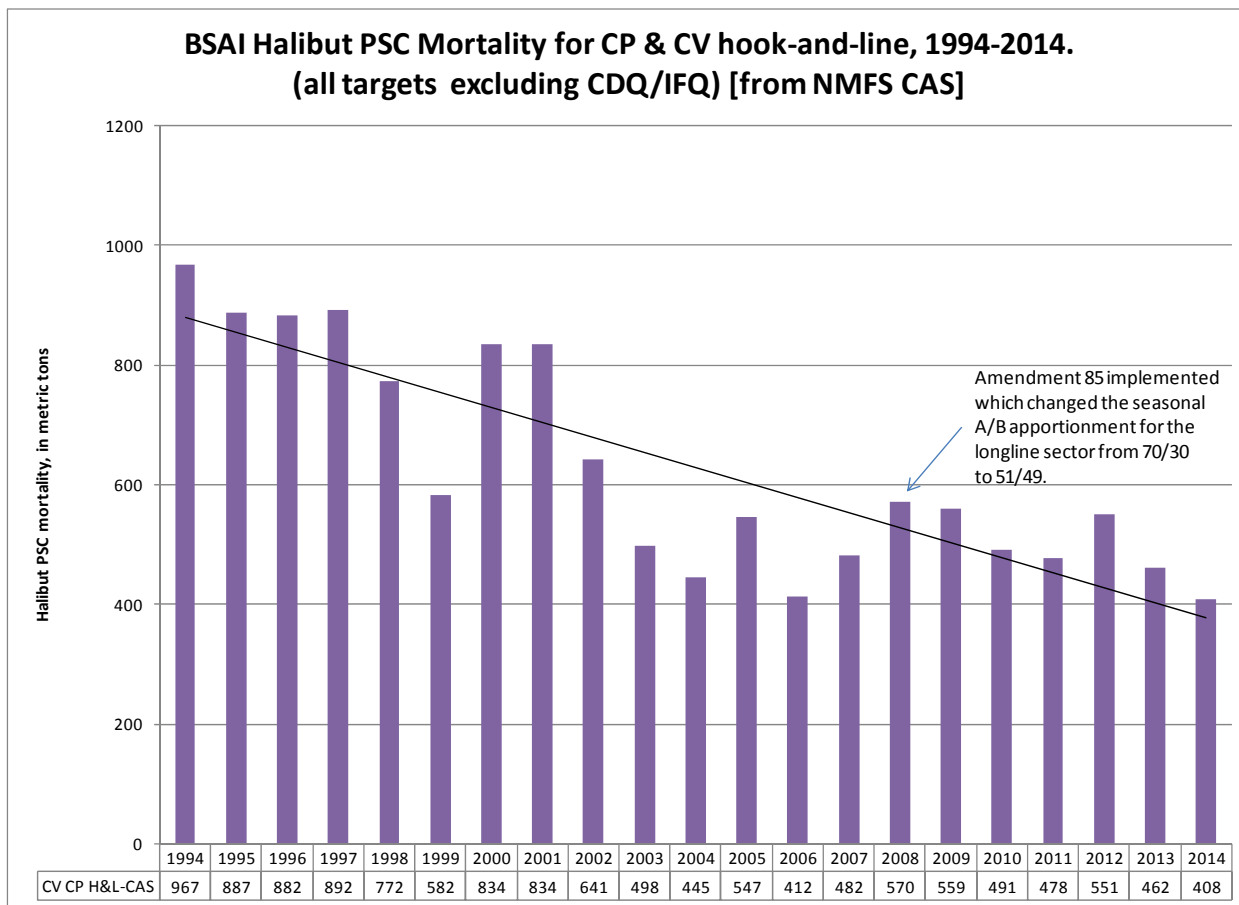


Figure 1 shows total halibut mortality from the combined BSAI non-CDQ CV and CP H&L sectors. Prior to 2002, CP and CV data were merged together, so for purposes of continuity in Figure 1, the CV and CP H&L data are merged together for all years. In 2014, halibut bycatch from the BSAI non-CDQ H&L sector was **11.7%** of the total halibut mortality of all BSAI groundfish sectors combined (trawl, non-trawl, and CDQ).

Total halibut mortality slightly increased after the implementation of Amendment 85 in 2008, in part due to the change in the seasonal apportionment of p-cod to the CP H&L sector (which mandated a higher proportion of fixed gear cod harvest in the B season when there is a higher halibut encounter rate).

Despite the change in seasonal apportionment cod harvest, the overall reduction in halibut PSC mortality in the BSAI non-CDQ H&L sector is **-58%** (1994 to 2014). In 2014, halibut PSC use in the CP H&L sector alone was reduced **-23%** from the previous five year average (2009-2013).

The mortality in Figure 1 is based on the assumed DMR (from the IPHC and adopted by the NPFMC during harvest specifications). The actual observed DMRs for BSAI hook-and-line gear are significantly lower than the assumed DMRs for 2002-2014. The actual mortality is over-estimated by more than 21% per year (2002-2014 avg.) by using the assumed DMR (Figure 3).

Figure 2: Discard Mortality Rate (DMR):

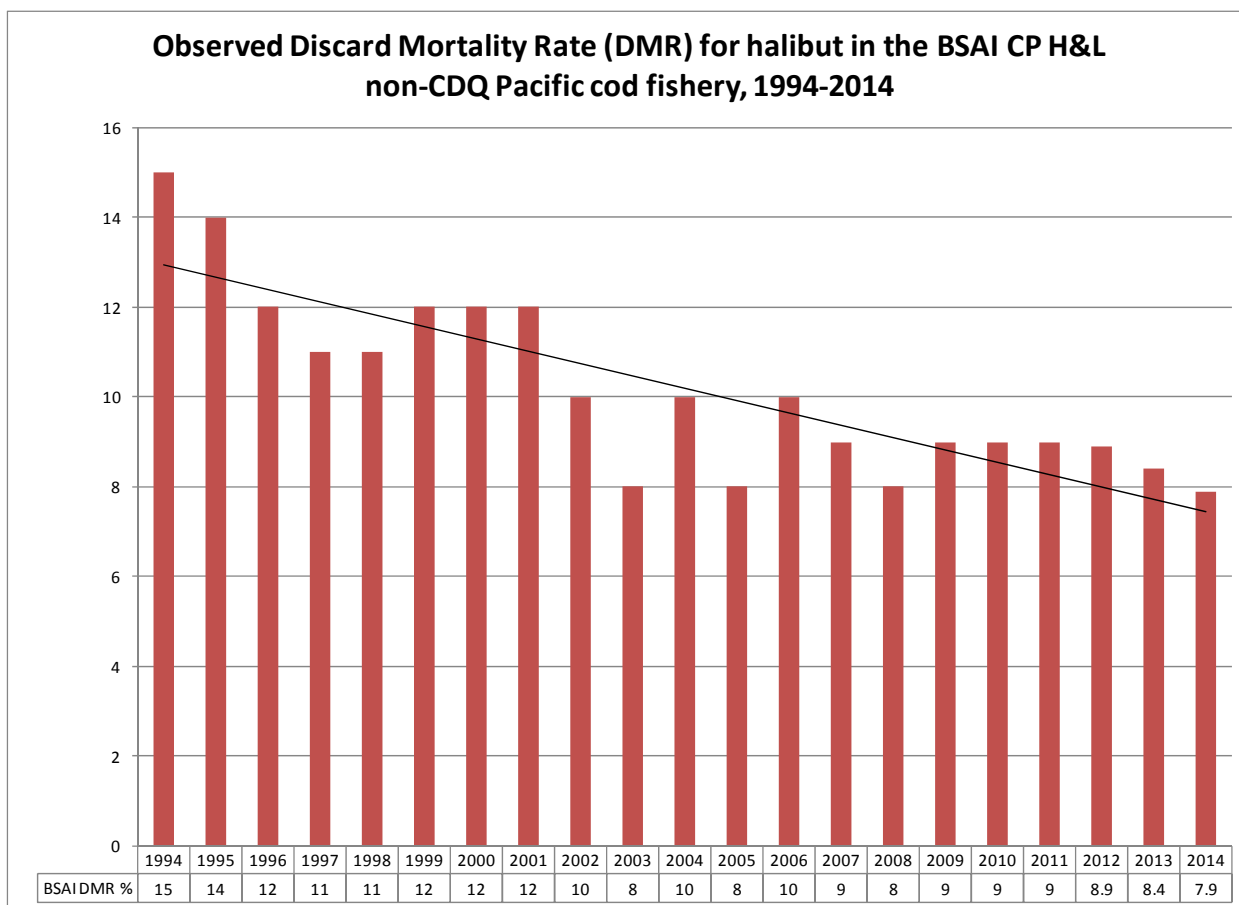


Figure 2 shows the actual observed DMR for the CP H&L sector. With improved handling of halibut, this sector has steadily reduced the actual observed DMR rate by **-47%** (1994 to 2014).

While large improvements in handling have been made, further incremental reductions in the DMR will become increasingly more difficult to achieve. A “perfect” score for hook-and-line gear in halibut viability is currently 3.5%.⁵ The observed DMR rates are subject to IPHC review and are used to calculate the assumed DMR (a ten moving average reviewed every three years).

Since 2002, the assumed rate has been higher than the actual observed rate. This is a result of a steadily declining observed rate in conjunction with the method to determine the assumed rate. For example, the current assumed DMR for the BSAI non-CDQ H&L p-cod fishery is 9% while the actual rate in 2014 was 7.9% (or 12% lower than the assumed rate). If the assumed DMR is higher than the actual observed DMR, then the use of the assumed rate over-estimates actual halibut mortality in a given year. For reference, the IPHC assumed DMR for the directed halibut fishery is 16%.

⁵ IPHC staff may be revising this estimate which will change all historic estimates of bycatch mortality in groundfish hook-and-line fisheries as well as changing the estimates of wastage in the directed halibut commercial and sport fisheries.

Figure 3: Assumed DMR versus Observed DMRs

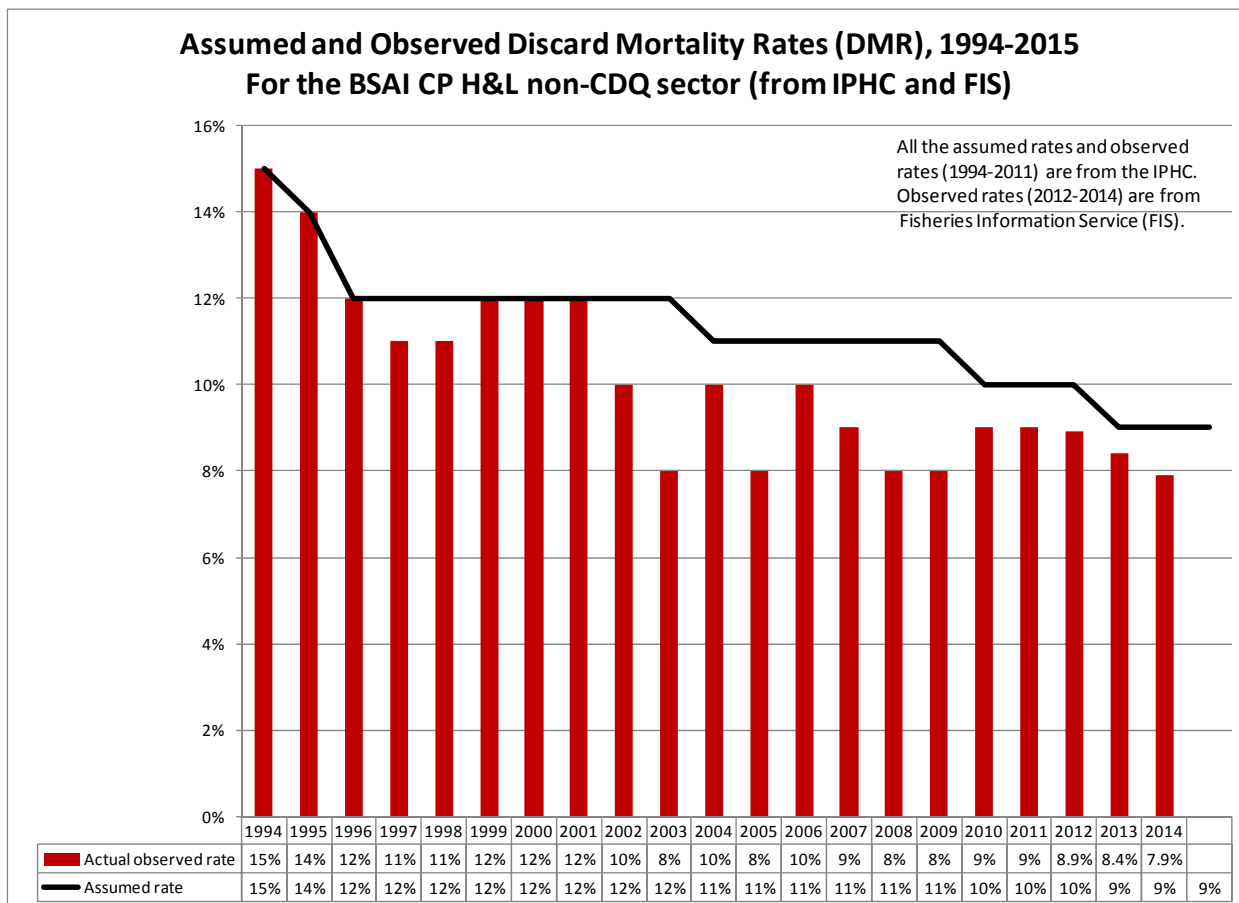


Figure 3 compares the assumed DMR rate with the actual observed rate. The use of the assumed DMR to calculate total mortality (instead of the lower observed actual rate) results in actual mortality for CP BSAI H&L sector being over-estimated.

Discard mortality rates are of significant importance in efforts in to reduce halibut bycatch mortality. The NPFMC analysis notes “...if the halibut discard mortality rate can be measurably reduced, the effect on the halibut FCEY and the long-term exploitable biomass is the same as a reduction in actual halibut PSC use of the same percentage.”⁶

The current method to calculate the assumed DMR does not result in the most timely or accurate representation of halibut mortality. As it stands now, if a sector significantly reduced its DMR in a year, the resulting reduction in halibut mortality in that year (from an actual observed DMR change below the assumed DMR rate) would not be included in the calculation for the FCEY to the directed halibut fishery in the following year.

⁶ P. 131, “Revise BSAI Halibut PSC Limits”, Initial Review Draft, January 19, 2015

Figure 4: Halibut Mortality from Assumed and Observed DMR

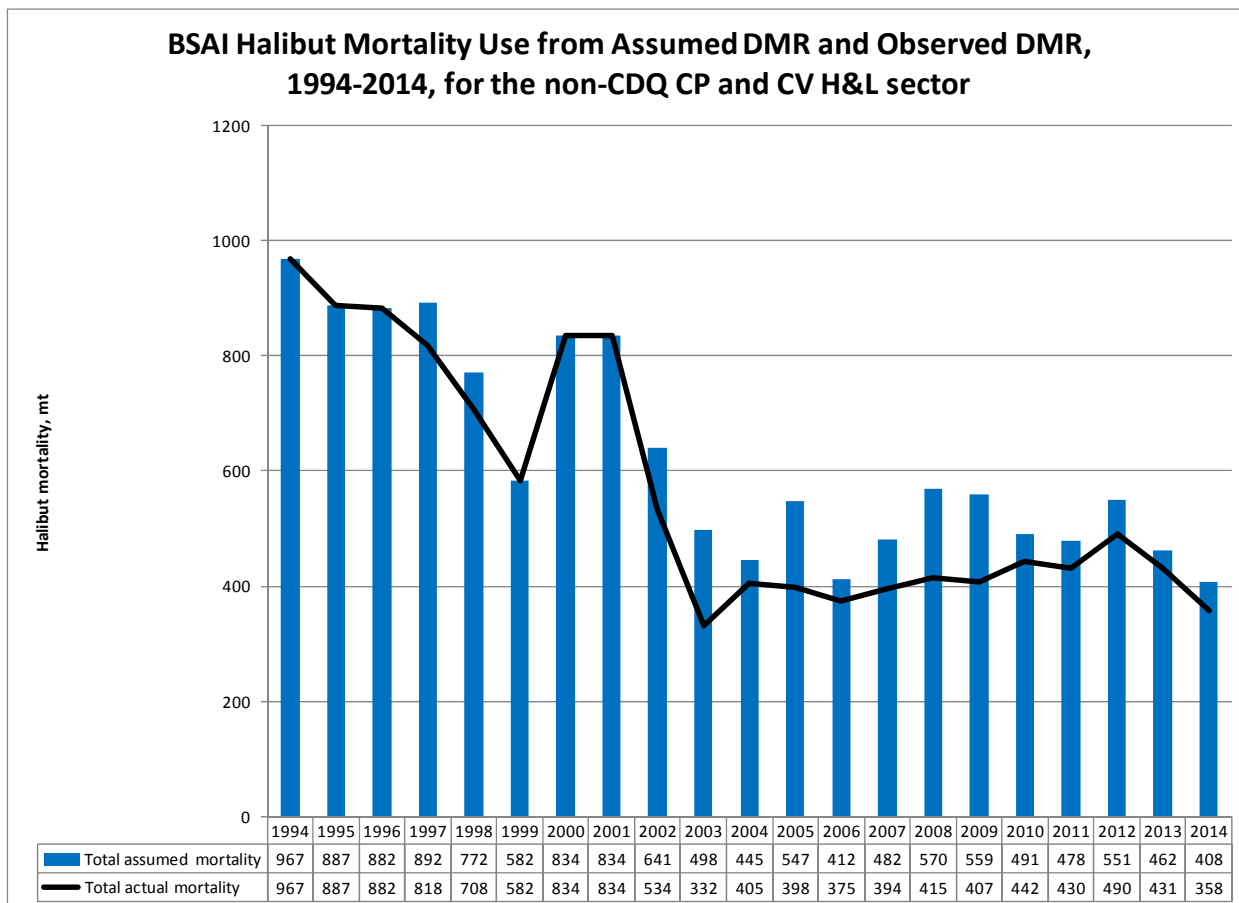
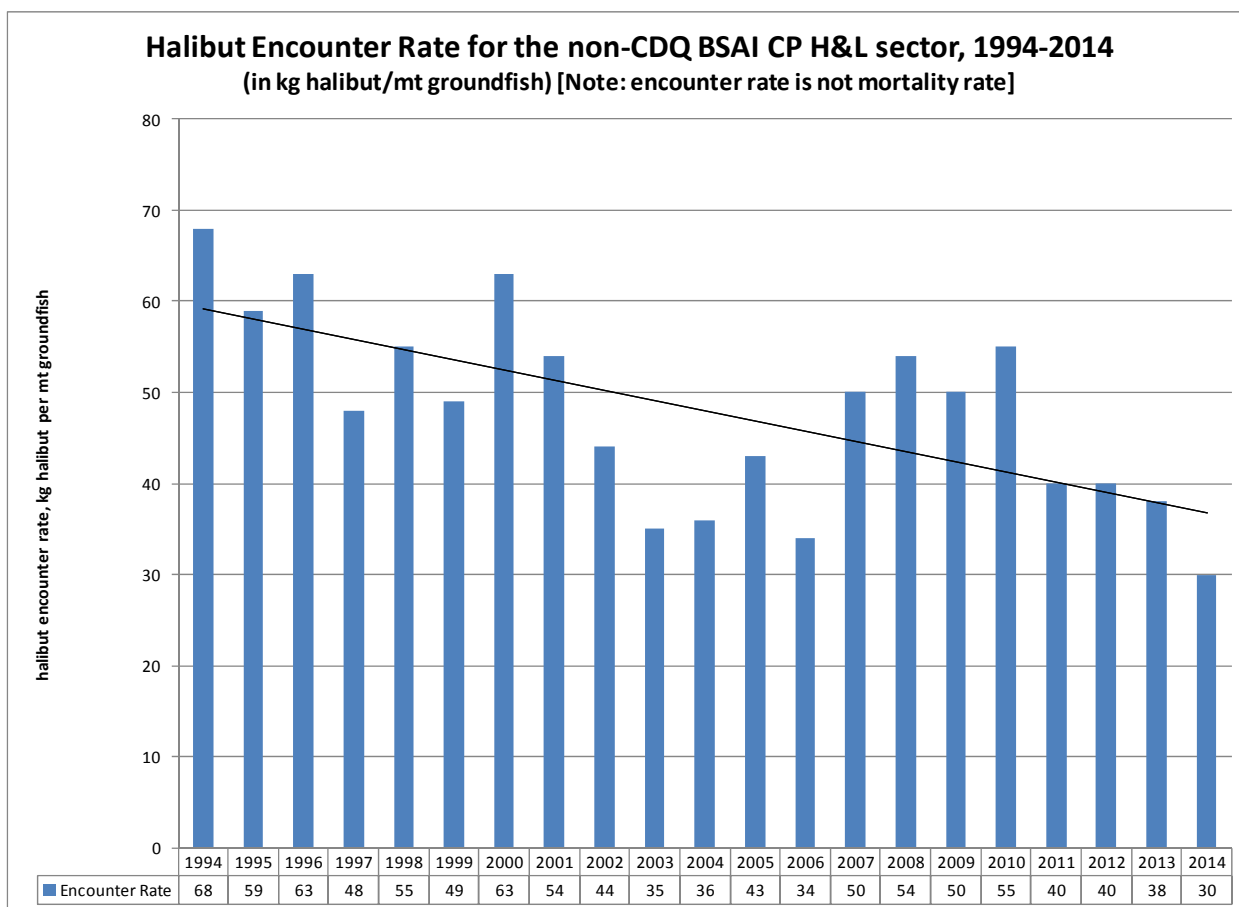


Figure 4 shows the difference between total halibut mortality calculated from the assumed and actual observed DMRs. From 2002-2014, the actual DMR was lower than the assumed DMR, so that actual mortality in the BSAI CP H&L sector was overestimated by +21% per year (or 87 mt per year).

As the CP H&L sector continues to reduce DMRs, the reductions may become incrementally smaller. It may be more appropriate and accurate to calculate assumed and actual DMRs to the tenth of a percent (rather than rounding up or down to nearest percent).

Figure 5: Halibut Encounter Rate



Encounter Rate: While the CP H&L sector has had success in reducing the DMRs, the sector has also had success in reducing the encounter rate. The encounter rate (kg halibut/mt groundfish) has been reduced **-41%** (from 1994-2014).

The encounter rate is kilograms of halibut encountered per metric ton of groundfish. To be clear, the encounter rate is not the mortality rate. Halibut mortality rate is kilograms of halibut mortality per metric ton of groundfish (encounter rate times DMR). Total halibut mortality is the result of multiplying the total encounter of kilograms of halibut by the DMR (% mortality).

While the encounter rate trend over time is downward, there is some variability in the encounter rate. In recent years, the rate is relatively stable (around 40 kg/mt) but was preceded by periods of higher and lower rates. The difference in yearly rates is due to the difference by month in halibut encounter rates and previous management strategies that resulted in the distribution of fishing effort into months with higher encounter rates.

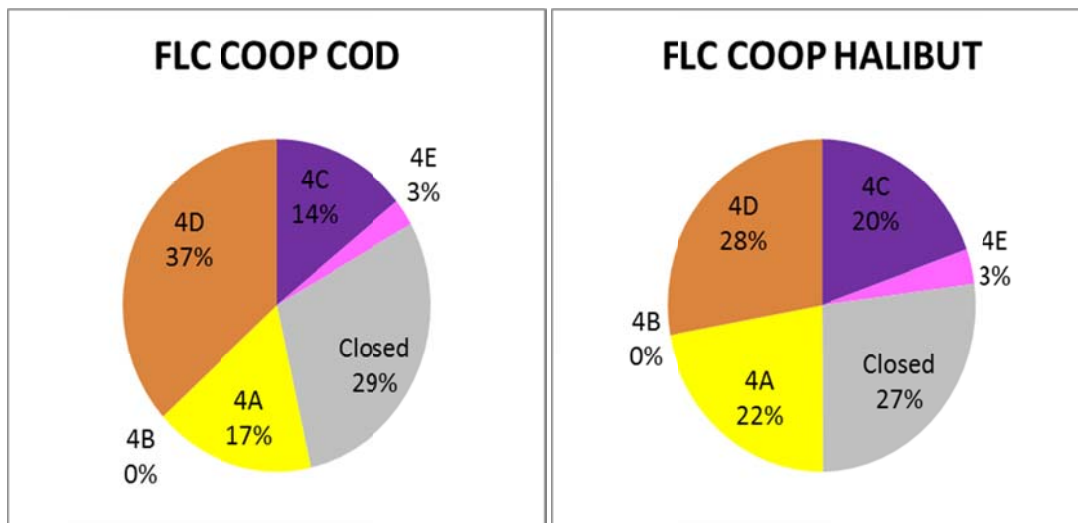
In 2008, Amendment 85 changed the A/B seasonal apportionment for fixed gear vessels >60' from 70%/30% to 51%/49%. This meant a larger proportion of harvest in the B season when the encounter rates for the CP H&L sector are the highest (September through December).

In 2010, with the implementation of coop management, the distribution of cod harvest is now more dispersed evenly throughout the year with an increased proportion of cod harvested in months with lower rates (within the limits of the 51/49 apportionment). Halibut encounter rates in the BSAI hook-and-line fisheries could be further reduced if the seasonal apportionment of p-cod was increased in the A season from the current 51/49.

Spatial distribution of FLC catch

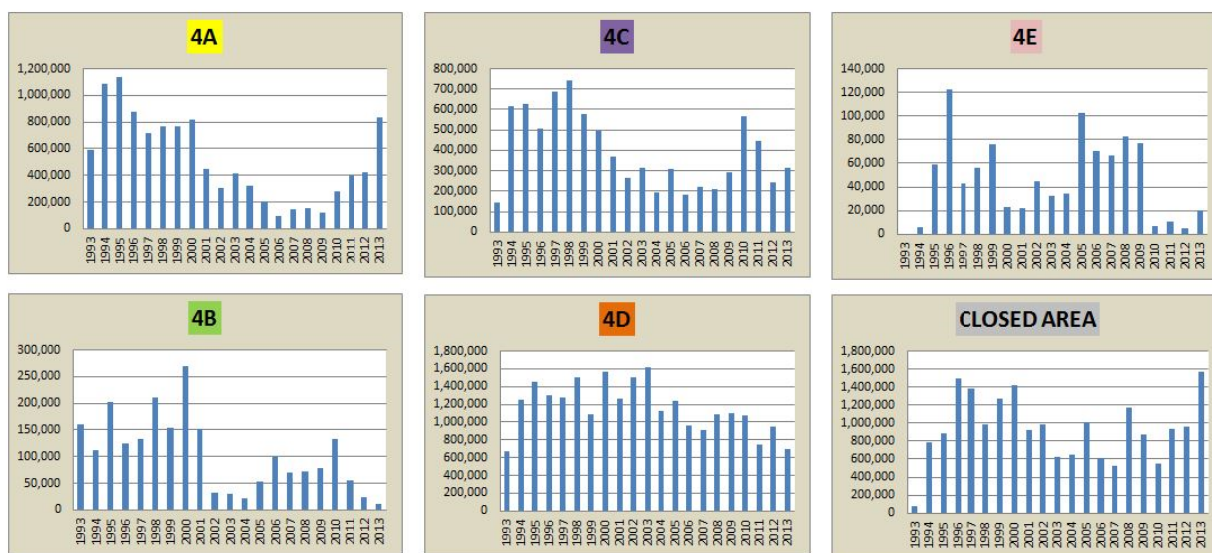
The CP H&L sector has a very broad distribution of groundfish catch and halibut bycatch without undue concentration in any one area (see NPFMC analysis, Figure 3-10, p. 52). In 2014, 54% of the cod harvest and 51% of the halibut bycatch occurred in Area 4CDE (FIS).

Figure 6: Spatial distribution of CP H&L halibut bycatch in 2014, by IPHC Areas (Source: FIS- Fisheries Information Services - from AFSC Observer Program spatial database).



In recent years, there has been a declining trend in halibut bycatch by the H&L sector in IPHC Areas 4C, 4D, 4E, and 4B. Correspondingly, there has been an increase in the H&L halibut bycatch in Area 4A and the Closed Area (Note: figures below are in kilograms of halibut encounters, not halibut mortality).

Figure 7: Halibut Encounters by H&L sector in IPHC Area 4 and Closed Area (1993-2013)



SOURCE: http://www.afsc.noaa.gov/FMA/spatial_data.htm

Additional considerations for Council review

Differences in bycatch estimates between NMFS and the IPHC

Similarly to differences noted between NMFS and the IPHC for total bycatch estimates in 2014, there are also differences in bycatch estimates for the BSAI hook-and-line sector. The IPHC estimate in 2014 for BSAI hook-and-line bycatch exceeds the NMFS estimate by 18%.⁷ Currently sablefish is exempt and not included in the NMFS bycatch estimate. However, even if the bycatch attributed to the BSAI sablefish fishery by the IPHC is incorporated into the NMFS bycatch estimate, the IPHC bycatch estimate for the combined BSAI hook-and-line sector in 2014 (CP, CV, CDQ, and sablefish IFQ) is still **+8%** higher than NMFS. The IPHC 2015 Blue Book attributes these differences to IPHC extrapolations forward from October 25, 2014.

Combining the previously discussed over-estimation of mortality due to the use of assumed DMRs, and the over-estimate of mortality by IPHC mid-season extrapolation, it appears that the IPHC may have over-estimated actual halibut mortality in the 2014 BSAI H&L fishery (CV and CP including CDQ and IFQ sablefish) by as much as **+19%** (or 88 mt or 145,481 net lbs).

Changes in DMR Methodology

The FLC was recently informed⁸ that the IPHC is beginning to review the methodology in assessing halibut viability in DMR determinations, specifically the assumption of a 3.5% DMR for a released halibut with no injuries. If this estimate is revised upward by the IPHC, and DMRs are then consequently increased, this will significantly change the total mortality by the BSAI CP H&L sector and change all the historic total bycatch mortality estimates for all gear.

This revision to the DMR would also change the mortality estimates for the directed halibut fishery. As a consequence of that revision, the FCEY in the directed fishery may also need to be further reduced (if the actual DMR is higher than was previously assumed). IPHC staff indicated that halibut abundance estimates would also likely be retroactively adjusted to reflect the change in the DMR in all longline fisheries. This DMR revision would have a direct impact on estimating halibut PSC mortality in the BSAI hook-and-line groundfish sectors. The potential IPHC revision could confound the ability to meaningfully revise the PSC cap for the CP H&L sector.

For example, if the assumption for mortality of a released halibut with no injuries is doubled from 3.5% to 7% (and there are no other changes to viability rates), the assumed rate of 9% DMR would increase to 12.5% (an increase of 39%). This would raise the estimate of halibut mortality in 2014 from the CP H&L sector also by 39% from 395 mt to 549 mt. All historic estimates of hook-and-line bycatch would have to be revised and recalculated. If the revised methodology is uniform, the CP H&L sector would still be showing a declining trend in bycatch mortality but the starting position on the x-axis would be as yet undetermined.

Similarly, the IPHC is currently revising the estimates for halibut bycatch mortality in crab pot fisheries in Alaska. So far, the IPHC is still working on revising the previous estimate (1986-2011) for Area 3 (formerly 181 mt/year) and Area 4 (formerly 181 mt/year) for halibut bycatch in crab pot fisheries. For 2014, the IPHC finished revising the estimate in 2C for halibut bycatch in crab pot fisheries and then subsequently revised and changed the historic bycatch estimates for 2C in 2004-2013 as well as total bycatch for all areas for the same years.

⁷ P. 327, 2014 IPHC RARA, Table 7 and p. 58, IPHC Bycatch Report (9/8/2014).

⁸ Personal communication with IPHC staff and FLC ED Chad See, 1/8/2015.

The IPHC review of DMR methodology and potential revision of historical bycatch estimates will make selection of an appropriate PSC cap level at this time problematic for the BSAI hook-and-line sectors. With the potential IPHC revisions to mortality as yet unknown, the analysis of the effect of potential cap levels on the longline sector will also be unknown.

What should be recognized is that the reductions that have been achieved by the FLC in reducing mortality, DMRs, and encounter rate in recent years have been driven less by the PSC cap but driven more by a genuine effort to fish in a responsible manner while minimizing bycatch to the extent practicable.

As already noted, the FLC has achieved significant reductions in mortality, DMRs, and encounter rates. These reductions were achieved during a time period in the Bering Sea when halibut total biomass has been increasing (Figure 8).

Figure 8: EBS Halibut Biomass and Abundance (from IPHC 2014 RARA)

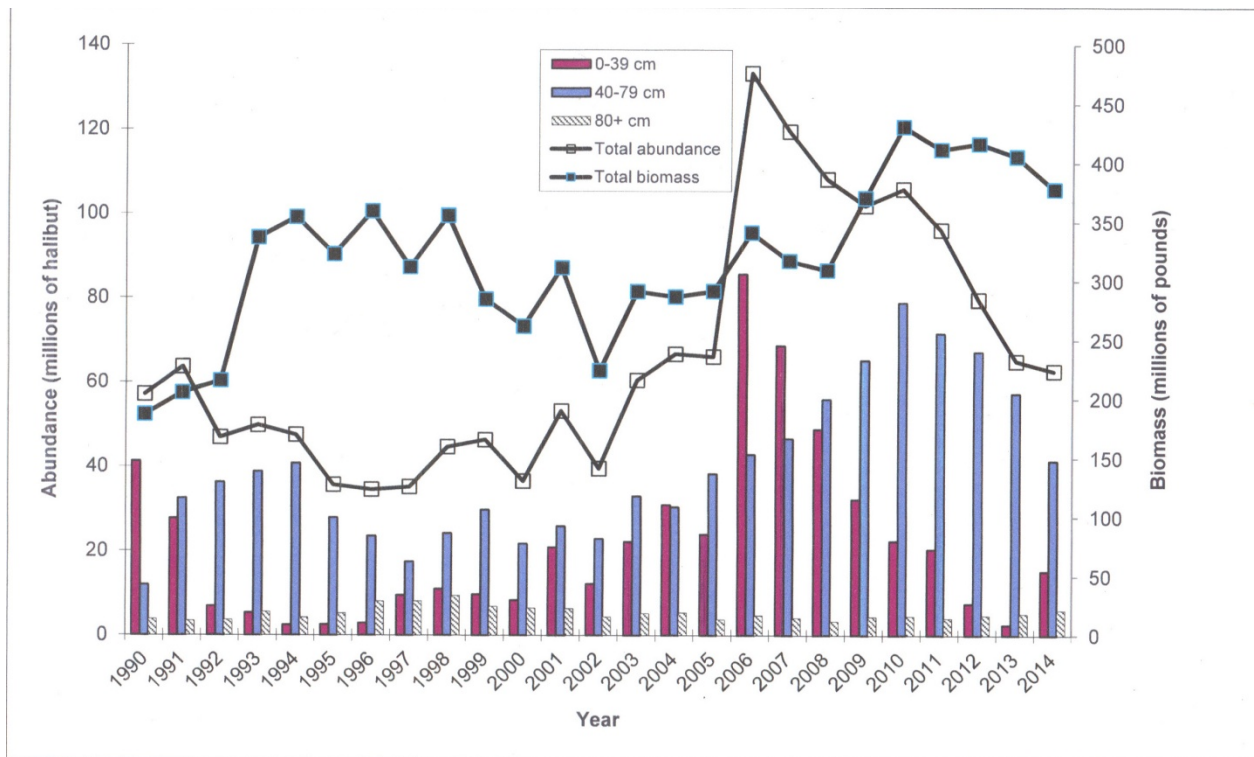


Figure 3. Estimated abundance of Pacific halibut by length category and total biomass as estimated by the NMFS Bering Sea trawl survey from 1990-2014, using swept-area estimates.

A commitment to continued stewardship by FLC

The actions by FLC to date to minimize our halibut mortality have produced significant, incremental reductions by the FLC fleet. This includes in the past year when, as noted, we reduced our fleet’s halibut mortality by over **23%** and our mortality rate by over **33%** relative to our most recent 5-year average. Our intent is to continue with these voluntary efforts in the next year to further our responsible stewardship of the resource.

That said, it should be noted that, realistically, there is a practical limit to how much further we can reduce our PSC. As a result of our long history of reductions over time, future incremental reductions in halibut mortality will become increasingly more difficult to achieve and the

increments will be of a decreasing magnitude. However, the FLC will continue to strive for further reductions on a voluntary basis and is prepared to consider alternative measures, as needed, to continue our responsible stewardship of the resource. This may include a halibut PSC incentive program, discussed in some length in our June report to Council, hot spot avoidance measures, and increased monitoring that could facilitate additional reductions. Such actions, on paper, each offer the potential for additional reductions, but must be weighed against the practical realities of implementing the measures across the fleet specifically the impact of the actions on the conservation of other target and bycatch species, and whether the actions will result in improved reductions relative to the measures now in place by the FLC fleet. These are considerations we continue to explore with our Halibut Bycatch Committee so we may be ready to take action, as needed.

Other actions

The FLC believes it is also important that Council begin to consider an action that would establish halibut PSC sector caps based upon and indexed to halibut biomass. This revision would appear to be a rational approach toward sharing the burden of conservation in years of low abundance while allowing sectors to jointly benefit from years where biomass numbers are strong and increasing. Implemented properly, and in context of potential changes to DMR under consideration by IPHC, this would seemingly provide benefits to all stakeholders, including western Alaskan communities that participate in and rely on operations by the FLC fleet as well as participants in the other sectors.

Thank you for your consideration of this important issue for the FLC. We look forward to talking with you further on these proposals. Please be in touch if you have any questions on this report or related matters. Thanks.

Sincerely,



Chad I. See
Executive Director
Freezer Longline Coalition



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