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Reducing Alaska Seafood Cooperative Halibut Mortality

At its February 2014 meeting, the Council requested that each sector participating in Bering Sea fisheries develop a presentation describing measures that its members could adopt to further reduce halibut catch in those fisheries. At the June 2014 Council meeting in Nome, Alaska Seafood Cooperative (AKSC) representatives provided a written and verbal report that described reductions in halibut mortality by the cooperative, as well as measures used to achieve those reductions. The report also described possible future measures that could be used to reduce halibut mortality, including measures that might be implemented under existing rules and measures that could require revisions to regulations.

At its June 2014 meeting, the Council passed a motion requesting all BSAI 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 the 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." This report is the cooperative's response to that request. The report summarizes historical bycatch reductions by the cooperative, including descriptions of the various measures employed by the cooperative and the reductions achieved through those measures.

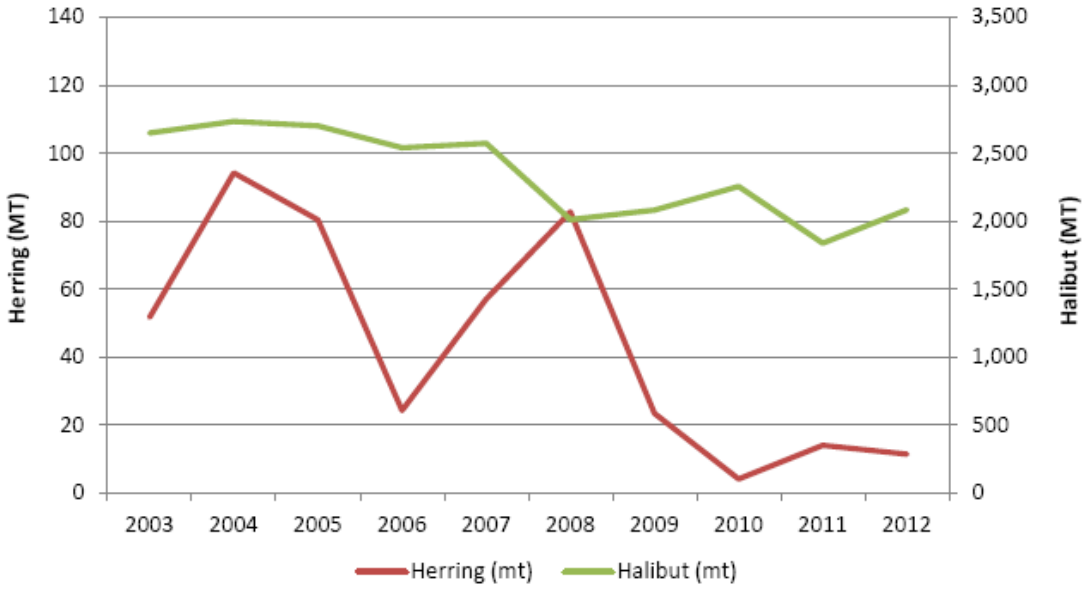
History of AKSC reductions in halibut bycatch.

AKSC has realized significant halibut mortality reductions since implementation of Amendment 80 in 2008. *See* 72 Fed. Reg. 52668. Under Amendment 80, target and halibut caps are allocated by the Fishery Management Plan and by regulations to cooperatives. Each vessel or company is allocated a share of the co-op's total allocation of each target and PSC species. This management structure has allowed AKSC to significantly reduce halibut bycatch in the years since Amendment 80 was passed.

Since each vessel is both responsible for and protected by its share of the co-op's target and PSC allocations, potential for lost fishing opportunities have decreased and vessels are able move among fisheries and areas to avoid halibut concentrations without sacrificing catch. Companies and captains have been able to spend time fine-tuning halibut avoidance devices such as halibut excluders, because they can increase catches through using less halibut. The decrease in competition has also removed barriers to communication across the fleet. Captains regularly exchange information concerning locations of halibut concentrations and conditions affecting halibut, as each can improve their own performance with improved information.

Figure 8 below shows how halibut catch dropped precipitously in 2008, coinciding with a reduction in available halibut quota and implementation of Amendment 80.

Figure 8. Herring and Halibut Bycatch by AM80 BSAI Fisheries, 2003–2012



Source: Figure developed by Northern Economics from CAS data provided by AKFIN (Fey, 2014).

While Amendment 80 achieved significant total bycatch reductions, including all PSC, captains are challenged by competing objectives, which, taken together, result in practical limitations on bycatch reduction efforts. Amendment 80 captains have a mandate to reduce all PSC (including halibut, Chinook, and three crab species), achieve high overall groundfish retention rates even when subject to regulatory discard requirements, ensure harvests of Amendment 80 target species allocations are maximized yet not exceeded, comply with area closures (regulatory, contractual, and voluntary), and ensure the safety of their crew. Meeting one or more of these objectives often compromises one's ability to achieve others.

Time/area closures and observer sampling procedures reduce operational flexibility and may result in higher halibut catch and mortality. Additionally, halibut catch rates near the end of the year tend to increase due to fishing conditions, but also, at times, due to incentives arising under a single annual cap.

AKSC actions to address halibut bycatch mortality in 2014 and results

In 2014, AKSC was successful in meeting the 10 percent voluntary reduction requested by the Council. The Council's stated intent was to mitigate declines in estimated total halibut harvestable surplus in the Area 4CDE management area, in order to lead to increased harvest opportunities for the directed halibut fishery.

In addition to a goal of incentivizing lower end of the year halibut PSC rates, in 2014 AKSC established targets for reducing:

1. Fourth quarter halibut PSC rates (October through December) by 10 percent from the previous five-year rolling average.
2. Overall halibut usage for the second half of the year (July through December) by 10 percent from the previous five-year rolling average.

The following table shows AKSC 4th quarter (October-December) halibut PSC rates (kg/mt groundfish) and groundfish harvests for the most recent five-year average, 90 percent targets for those rates, and 2014 rates and groundfish harvests. Note that AKSC measured itself against the most recent 5-year average (rather than the 3-year average discussed in its 2014 report) to provide consistency with the June 2014 Council request to reduce mortality for the remainder of the year. AKSC was significantly below its 4th quarter rate target, while harvesting more groundfish than the most recent five year average.

	Rate (kg/mt gf)	Groundfish (mt)
5 year average (09-13)	9.52	32,849
90% of 5 year average	8.57	N/A
2014 4th Quarter	**6.07**	**35,944**
Met Target of 90% of Average	Yes	N/A

The next table shows July through December AKSC halibut mortality targets based on 90 percent of AKSC's most recent five-year average, cumulative catch since July, and performance relative to targets. AKSC held its cumulative halibut mortality for July through December to 106 mt below the 90 percent target.

Month	7	8	9	10	11	12
2nd half target (90% of 5 yr Avg)	100	242	351	516	606	631
2014 2nd 1/2 Cumulative Catch	70	170	307	400	482	525
2014 2nd Half Performance	**30**	**72**	**43**	**116**	**124**	**106**
Met Target of 90% of Average	Yes	Yes	Yes	Yes	Yes	Yes

Tools for reduction of halibut bycatch mortality in 2015

AKSC continues to work toward the development and implementation of practicable measures to reduce halibut bycatch and halibut mortality. The measures described below are intended to continue the cooperative's history of successful bycatch reduction. AKSC members will use a variety of measures to reduce halibut mortality and have agreed to the attached 2015 Alaska Seafood Cooperative Halibut Bycatch Rules. A broad array of tools is useful for addressing the various circumstances confronted when fishing. These diverse constraints also complicate attempts to quantify reductions in halibut mortality with certainty. Despite these uncertainties,

cooperative members' experience in the development of these tools strongly suggests that halibut mortality will be substantially reduced.

Excluders

All of the vessels in the cooperative use halibut excluders. Excluders can be an effective tool for avoiding halibut, particularly when in fisheries where targeted fish are smaller than halibut. Cooperative members have used a variety of excluders in a number of different target fisheries, continually gaining information on their effectiveness, Vessels in the cooperative will continue to use and refine their use of excluders in the coming year.

The effectiveness of excluders varies with fishing conditions. Changes in sizes of target fish or halibut in an area will also change the excluder's effectiveness. Changing to an excluder with different sorting panel mesh size or grid size may address these circumstances. In times of high target catch with little halibut incidental catch, the use of an excluder can reduce target catch to a level that leads to more fishing with less target catch and an increase in halibut catches in comparison to fishing without an excluder. Cooperative member vessels have conducted a number of side-by-side tests of excluders that have verified the efficacy of currently used designs, particularly for excluding larger halibut (i.e., over 26 inch fish). While these tests instill confidence in the performance of the excluders used on vessels, the uncertainties concerning the distribution of size composition of stocks (both target and halibut) as well as the variety of fishing conditions pose a great challenge for specifically quantifying the mortality savings gained by excluder use. After all, an excluder's success is in the fish you cannot count.

Deck sorting

Under current regulations, halibut mortality in trawl fisheries is exacerbated by the relatively long time period that halibut remain out of the water on vessels prior to their release. Observer protocols require that all halibut be removed from the net and placed in a tank below deck to allow for observer sampling and weighing of catch, which occur in the factory. To reduce halibut mortality, efforts are underway via an Exempted Fishing Permit (EFP) that would authorize cooperative vessels to sort halibut on deck for expedited release to reduce mortality. Under the EFP, halibut released from the deck will be rigorously accounted for and viability testing will be conducted using IPHC-approved methods whenever deck sorting occurs.

Cooperative vessels have participated in two prior EFPs to deck sort halibut. In 2012, the most recent study which focused on a representative set of target flatfish fisheries for the Amendment 80 sector, the average mortality rate of halibut that were sorted for rapid discard was 57 percent compared to the normal discard mortality rate for those fisheries of approximately 80 percent. While the almost 25 percent reduction in bycatch mortality rate in this study is significant, the ability of the fleet to achieve overall reductions could exceed that achieved in 2012 under the EFP currently proposed by the AKSC. This larger reduction is possible because the 2012 EFP focused on sorting all halibut out of the codend on all deck sorted tows. Mortality rates of halibut increase substantially after a halibut has been out of the water for approximately 20 to 30 minutes. As a result, for tows where deck sorting took an extended period of time (i.e., over 30 minutes) little halibut mortality savings was realized. In the 2015 EFP we will concentrate deck sorting efforts on the first 20 minutes that the net is on deck. We will also focus effortson relatively large halibut. Based on the previous studies, this approach is expected to yield

substantially greater savings than a longer effort to return all halibut to the water from the deck. The current EFP application is also structured to allow captains to select when to use deck sorting. This is important because mandating it to occur on all hauls/targets/weather conditions was shown to be infeasible and counterproductive. The ability to select when to use deck sorting allows captains to use the tool when it can achieve savings and addresses the problem seen in 2012 where EFP participants effectively had to opt out of the EFP for the remainder of the year when they were unable to do deck sorting on all tows due to weather conditions or fishing plans that included target fisheries that are impractical for deck sorting.

While significant halibut mortality savings may be attained from our proposed 2015 deck sorting EFP, the availability of sea samplers will affect the magnitude of those savings. The 2015 EFP will require that participants have a qualified sea sampler on board for deck sorting to occur. Due to working hour limitations, an EFP vessel will need to have two sea samplers to deck sort around the clock. Alternatively, a vessel with a single sea sampler will have a 12-hour window each day for deck sorting.[1]

Companies that provide observers have cautioned us that the availability of qualified sea samplers (who have the same qualifications of NMFS-certified observers) will be low at times in 2015. Currently, these companies are struggling to field the number of observers needed (who must meet new increased training standards) during periods when major fisheries demand large numbers of observers. At times when major fisheries are not occurring, the availability of sea samplers is expected to be better. Facing this unknown and others given that the final details of the EFP are still under consideration, we cannot estimate with confidence the halibut mortality savings that we will obtain from deck sorting.

Attention to Haul Composition

Wheelhouse personnel closely attend to haul composition when emptying codends to avoid areas of high halibut incidental catch. Communications with deck and factory personnel concerning halibut incidental catch rates and size composition ensures that fishing crews are aware of their halibut incidental catch performance. In addition, closely attending to halibut rates and size composition is important to determining the effectiveness of operational tools (such as deck sorting and excluders). These observations are important to deciding when and what excluder to use, as well as refining fishing location and timing choices, and choosing when to deck sort. As with other aspects of halibut avoidance, these efforts are critical to achieving reduced mortality, but cannot be quantified.

Test tows

Smaller tow sizes, particularly when beginning to fish in an area, have allowed captains to avoid making tows with large mortality counts. The fleet will continue this practice in the coming years

[1] The draft EFP would allow for a single sea sampler to be taken on a vessel (in addition to the two regular observers required our vessels); however, the NMFS's observer program has commented that two sea samplers (in addition to the two observers) should be required for operating under the EFP. It is very unlikely that an adequate number of sea samplers will be available for the EFP, if this requirement is established.

to prevent unnecessarily high mortality tows, as well as for determining when deck sorting and excluder use are likely to yield halibut savings.

Communication
Good communication is one of the strongest tools for increasing halibut savings.

Real-time, on the grounds communication can ensure that all captains are aware of differences in halibut incidental catch rates across the fishing grounds and in the different target fisheries. Time of day, depth, and water temperature often effect bycatch rates, Communication concerning the influence of these factors on halibut rates also yields additional savings. Size distribution of incidental catches can also have a substantial effect on total mortality. Exchanging information on these various factors has been, and will continue to be, one of the most effective means of reducing halibut mortality.

Communication is also an effective means of improving operational tools, such as deck sorting and excluders. Captains and their crews can be expected to continue to experiment and refine their use of these operational tools.

A requirement for notification of entry to the Bering Sea and Aleutian Island fisheries will ensure that other cooperative fleet members are aware of a new vessel on the grounds to facilitate improved communication of prevailing halibut incidental catch rates to vessels at the start of a trip, when searching could yield disproportionately high halibut rates.

Fishery performance charts
The cooperative has commissioned Seastate, an independent fishery data processing company, to develop charts on a regular basis that display halibut incidental catch rates (including size composition) in the fisheries. These charts will show halibut incidental catch rates by target fishery for use by vessels in assessing potential halibut mortality reductions for choice of fishing location, as well as the potential for using deck sorting or excluders in different areas.

Night Towing
Halibut incidental catch rates in some fisheries are often observed to be higher during night fishing. Cooperative members give extra attention to halibut incidental catch rates, if fishing at night. As with other factors influencing fishing and halibut incidental catches, an absolute prohibition on night fishing could increase halibut mortality by preventing vessels from fishing at times of low halibut incidental catches. These vagaries also complicate any assessment of the impact of night towing on overall halibut mortality in the cooperative's fisheries.

Weekly meetings
In addition, to on grounds communications, cooperative members will meet weekly during the season (with captains calling in from the grounds) to review halibut mortality performance, particularly performance in the 4CDE accounting area and catch rates of O26 halibut. The cooperative will review prevailing halibut bycatch rates and overall performance to verify that the cooperative's goals are being achieved. The cooperative will review the success of the various bycatch avoidance strategies used by members (including deck sorting and excluders) and the effects of other strategies and factors on bycatch avoidance and rates. Deck sorting and

excluder use will be assessed to identify fisheries and time periods where gains are likely to be the greatest. During these meetings, the cooperative will also discuss the potential for the development of target halibut rates and measures needed to achieve those rates.

Summary

The cooperative has developed a variety of measures that have proven effective for reducing halibut in our target fisheries. Estimating potential savings from these measures is confounded by ever changing conditions in the fisheries and our persistent efforts to improve on these measures. Our experience tells us that the potential reductions from the measures we employ and our adaptation of those measures to changing circumstance could allow for substantial additional savings that cannot be forecasted at this time.

AKSC recognizes the importance of addressing halibut bycatch mortality and ensuring the sustainability of the BSAI halibut stock. We are committed to working with the Council to minimize halibut bycatch to the extent practicable, and to minimize the mortality of bycatch that cannot be avoided. Staff will be available during the February Council meeting to answer questions about our reductions in 2014 and measures planned for 2015.

Attachment: AKSC Halibut Bycatch Rules

Alaska Seafood Cooperative Halibut Bycatch Rules for 2015

In order reduce bycatch to allow for a substantial increase in the directed halibut fishery catch limit in Area 4CDE from the IPHC staff's preliminary blue line advice, the members of the Alaska Seafood Cooperative (AKSC) agree to the following terms:

Notice of entry to/exit from the BSAI fisheries -

Each vessel will notify both Seastate and the other fishery participants on entry to or exit from the Bering Sea and Aleutian Islands fisheries to facilitate communication.

On grounds communication among captains –

Captains will communicate on the grounds concerning halibut bycatch rates. On grounds communication provides the most up to date and complete information concerning halibut avoidance – includes discussions of:

1) prevailing bycatch rates and changes in those rates,
2) catch rates of O26 halibut (particularly in the 4CDE accounting area),
3) effectiveness of deck sorting in the different target fisheries under various conditions and bycatch levels,
4) effectiveness of excluders in the different target fisheries under various conditions and bycatch levels, and
5) any factor that may be relevant to bycatch rates and O26 bycatch rates, including the effects on halibut rates and O26 halibut rates of:
    a. time of day
    b. fishing depth
    c. water temperature
    d. areas of halibut concentrations
    e. excluder performance (including type and mesh size)
    f. effects of any gear modifications.

Test tows –

When appropriate, vessels will use smaller test tows to ensure that halibut rate is acceptable prior to fishing an area.

Attention to Haul Composition –

Wheelhouse personnel will give increased attention to haul composition by watching the bag dump and assessing the halibut bycatch rate and halibut O26 bycatch rate and to increase communication with deck crew concerning halibut bycatch (and halibut O26 bycatch) trends.

Excluder Use –

The use of excluders is encouraged. Since excluders may have limited benefits (and sometimes increase bycatch) in the high volume, low bycatch periods, vessels are also encouraged to share information concerning the effectiveness of excluders when fishing different areas and under different conditions.

Seastate Reporting –

Seastate is commissioned to develop bycatch charts on a regular basis that display the halibut bycatch rates (including O26 bycatch rates) in the fisheries. These charts will show halibut bycatch (including O26 bycatch) by target fishery.

Decksorting -

On approval of the cooperative's 2015 decksorting Exempted Fishing Permit, vessels are encouraged to use decksorting to reduce mortality of halibut (particularly O26 halibut in the 4CDE accounting area).

Night Towing –

Night towing is discouraged in fisheries with historically higher night halibut bycatch rates. Cooperative members are directed to give extra attention to halibut bycatch rates (and 4CDE O26 halibut bycatch) if fishing at night. If a vessel cannot achieve night fishing bycatch rates that are measurably similar to day fishing bycatch rates, the vessel is strongly encouraged to end night fishing.

Rate Standard —

As fishing progresses during the season, cooperative members will consider whether any halibut rate standards may be beneficial for achieving halibut bycatch reductions. Rate standards could be applied at the target fishery level to compel certain avoidance measures, if appropriate rate levels and monitoring requirements and effective response measures can be identified.

Weekly meetings – Cooperative members agree to meet weekly to discuss overall Bering Sea halibut PSC performance and 4CDE accounting area O26 halibut bycatch performance. Meetings will include discussions of:

1) Prevailing halibut bycatch rates and performance (and particularly 4CDE accounting area O26 rates and performance).
2) Success of the various bycatch avoidance strategies identified in this agreement and the effects of any other strategy or factor on bycatch avoidance and rates
3) Development of additional measures to reduce bycatch, including whether sufficient information exists to develop any new or additional bycatch avoidance requirements or practices to supplement those identified in this agreement
4) Possible performance standards and responses required for those vessels not meeting the standards.