AGENDA C-1(a)
JUNE 2012

MEMORANDUM

TO: Council and AP Members

FROM: Chris Oliver
Executive Director

ESTIMATED TIME
20 HOURS
All C-1 items

DATE: May 29, 2012

SUBJECT: Halibut Bycatch

ACTION REQUIRED

(a) Review Halibut Bycatch Workshop Report

BACKGROUND

A workshop on halibut bycatch estimation, halibut growth and migration, and effects on harvest strategy was held in Seattle on April 24-25, 2012. The workshop also included discussions concerning general halibut ecology, including recent trends in exploitable biomass, spawning biomass, and size at age, and information concerning the causes and implications of declining size at age of halibut.

The workshop was attended by 92 people, with an additional 111 people participating via webcast. The first day was spent reviewing the state of knowledge on halibut ecology and bycatch issues through presentations, followed by questions from the panelists. Public testimony was provided on the morning of the second day with panelists' discussion and summary presented in the afternoon. See Item C-1(a) for a summary of the meeting and suggestions for future research.

NPFMC/IPHC Workshop on Halibut Bycatch Estimation, Halibut Growth and Migration, & Effects on Harvest Strategy

MEETING SUMMARY

APRIL 24-25, 2012

Facilitators: Dr. Jonathan Raab, Raab Associates, Ltd. and Stephanie Stern, CONCUR

The workshop was organized by the International Pacific Halibut Commission (Commission or IPHC) and the North Pacific Fishery Management Council (Council) to review the methodology and accuracy of the estimation of Pacific halibut bycatch in trawl/longline groundfish fisheries off Alaska, and the impacts of halibut bycatch on the halibut stock as a whole and by area, given the current understanding of halibut migration. The workshop also discussed general halibut ecology, including recent trends in exploitable biomass, spawning biomass, and size at age, and information concerning the causes and implications of declining size at age of halibut.

The two-day workshop was held in Seattle and was attended by 92 people with an additional 111 people participating via webcast (see Appendix 5 for full list of participants). The first day was spent reviewing the state of knowledge on halibut ecology and bycatch issues through 19 presentations followed by questions from the Panelists. Public testimony was provided on the morning of the second day with Panelists' discussion and summary presented in the afternoon. See Appendix 3 for a summary of ideas for future research that were raised during the workshop.

DAY 1: TUESDAY APRIL 24

Welcome: Dr. Jim Balsiger (National Marine Fisheries Service/North Pacific Fishery Management Council/International Pacific Halibut Commission) welcomed the panel and audience. He explained the purpose of the meeting, that there are more halibut in the ocean now than since Commission came into being, and that the current size limits coupled with reduced size at age of halibut were leading to a loss of commercial productivity. He thanked the Commission and Council staffs for their hard work to organize the workshop.

He also noted that while the Commission has been very successful, the Commission is revisiting its processes and ways of managing the halibut stock. The Commission hired CONCUR to conduct a Performance Review. Dr. Balsiger also explained that this meeting aimed to explore halibut ecology and the impact of management.

The remainder of the day comprised 19 presentations on halibut ecology, the impacts of halibut bycatch, and the management of halibut bycatch. See website for the presentation slides and audio recordings. See Appendix 1 for listing of the presentations plus any additional clarifications made by the presenters in response to questions from the Panel members.

DAY 2: WEDNESDAY, APRIL 25

Ms. Jane DiCosimo opened the day by noting that the Council has a decision pending in June 2012 to consider proposed reductions to limits on halibut bycatch in Gulf of Alaska trawl and hook-and-line groundfish fisheries, but that the scope of this workshop is broader and includes a review of the estimation methodology and impact of bycatch on the halibut stock. She noted that

the Council is also considering changes to bycatch management in the Bering Sea/Aleutian Islands in the near future.

The morning was then spent taking public comments from (non-Panel) attendees first on halibut ecology issues and then on halibut bycatch impacts and management. Nineteen people provided comments during the morning. Panel members were free to respond to the comments. For a summary of the public comments, and Panel responses, see Appendix 2.

During the afternoon Dr. Jonathan Raab facilitated a discussion among the Panelists on a pre-specified list of sub-topics and questions related to halibut ecology and halibut bycatch impacts and management, which were intended to initiate Panel discussions. Each sub-topic began with two panelists providing initial comments, followed by other panelists adding their views. Panelists used this opportunity to weave together not only their own expertise, but also their knowledge gained from the first-day presentations and the public comment from the morning. Dr. Raab, who facilitated the workshop, specifically asked the entire Panel whether they agreed with the observations and conclusions of the initial Panel commentators and whether they had differing or additional things to add. Below is a detailed summary of the Panel opening remarks and discussions.

Panel Discussion: Halibut Ecology

Size at Age – *How long has decline in halibut size (i.e., weight) at age been observed, and is it spatially isolated, or a coast-wide phenomenon? Has this been observed previously?*

Dr. John Neilson started the conversation with several observations, including that:

- The decline in size at age has been observed for about three decades and could be isolated or coastwide, though the assumption has been that it is a coastwide phenomenon, which he believes is accurate.
- The decline in size at age is apparent for all ages according to Dr. Hare's presentation yesterday, and is not particular to any specific age group.
- The time series is remarkably long, from 1926 to 2011, and no comparable period of declining weights at age have been noted, although comparable values were noted near the start of the series.
- There were episodic changes in size at age, which are not consistent with the gradual change that you would expect from changes in diet.
- Several speakers noted the potential for age determination to be an issue, given that the methods for age determination had changed, and the observation that changes in methods seemed concurrent with decreases in size at age.
- There seemed to be consensus that archived otoliths should be reexamined using the new break and bake technique; this is a priority for the IPHC and planning is underway.
- When size at age is plotted only for the years when a single method is used (i.e. from 2002 onward) a decline is still apparent.
- There may be more than one factor influencing our perception of changing halibut size at age.

Dr. Jim Ianelli followed up, agreeing with Dr. Neilson's summary and further noting that:

- From 1992 to 2002, the break and burn test method was gradually introduced and has been used exclusively since 2002.
- The beginning of the time series that is used in the assessment is 1996, the terminal age is taken as age 20, but once break and burn became the primary method, the terminal age moved to 25. It might require more evaluation to conclude that all age groups have changed their size at age.
- For future consideration by the Commission in considering CEY it should acknowledge difficulties in projected mean weights-at-age given past variability. What estimator of mean weight-at-age is used to determine next year's quotas?

Discussion on size at age included:

- Dr. Steven Hare responded to Dr. Ianelli's question, explaining that the current method uses the previous year's data, so it does not project a rate of decline into the analysis. He also noted Dr. Bill Clark's study showed that age 14 is where the big divergence begins between the two aging methods. He speculated that for ages 15 to 20 the magnitude of the decline is probably overstated.
- Dr. Hare also noted that any explanations for the decline in size at age must also explain the increase in size at age from the 1930s to 1950s.
- Dr. Gordon Kruse remarked on two graphs from yesterday; he noticed that trends indicate a decline since about 1960 for the younger ages and a decline since about 1970 for the older ages. When data during 1993-2011 are considered, size at age was relatively stable for ages 6-10 over 1993-2003 and then declined, whereas for the older ages, size at age generally declines steadily over 1993-2011. While there is overall decline, these subtle differences might give some insight on what is happening.
- Mr. Tom Jagielo agreed that it seems worth following up on these subtle points.
- Dr. Ianelli noted another area for investigation, the Bering Sea fishery data, where NMFS observers have measured more than 1.8 million halibut over the years, represents a wealth of annual length frequency measurements. These data, combined with NMFS survey-at-length data may help evaluate growth rates and relative year class strengths. He proposed also comparing data from the Gulf of Alaska and the Bering Sea to examine spatial differences.
- Dr. Steve Martell noticed empirical weights at age 6 are always 14 lbs for male halibut, but at age 7 is less than at age 14, implying that halibut are shrinking in weight, then increasing to 14 lbs again by age 16. He wondered how the fish lose weight during these ten years.
- Dr. Hare responded that this is an error in the code, the weights are determined with a bivariate smoother and because the fringes are quirky, they fixed the minimum weight at 14 lbs for an age-six male halibut, so that the smoother couldn't force the weight below that minimum; this minimum needs to be updated.
- Dr. Neilson inquired if there is a possibility to use conventional tagging data to compare to earlier time periods for older animals, to get an idea of growth rates independent of the otolith examination.
- Dr. Leaman responded that they haven't looked at this, but certainly could.

Causes of the Decline – *What are the contributing factors to the decline in size at age (e.g., expanded arrowtooth flounder biomass, changes in diet, spatial competition)? Are these natural phenomena or human-induced factors, and how well are these contributing factors understood? Can the decline in size at age be expected to continue?*

Dr. Gordon Kruse led the discussion with the following comments, first about natural phenomena:

- On density-dependence effects on growth, Clark and Hare (2002) wrote, "It appears that climate variability – both interdecadal and interannual – is responsible for most observed variation in Pacific halibut recruitment. The large changes in growth rates that occurred during the 20th Century appear to have been density-dependent responses to changes in stock size, with virtually no environmental influence."
- This implies that climate can have ecosystem effects with time lags; it seems that climate affects recruitment; strong/weak recruitment leads to increases/decreases in stock size, which then affects recruitment. He recommended that this analysis be updated to see if this finding still holds.
- In addition, are arrowtooth flounder causing an additional density dependent effect on growth? There are poor data in the 1920s on arrowtooth, but an update to Clark and Hare (2002) could evaluate the relative contributions of halibut stock size and/or arrowtooth flounder biomass on halibut growth rates.
- Further, inter-species competition may extend beyond arrowtooth flounder. A large increase in the biomass of other flatfishes (yellowfin sole, rock sole, flathead sole) occurred subsequent to the late 1970s regime shift. Could similarities in the timing and locations of larval and early juvenile stages, including their diets, have led to increased competition at early life history stages? Could reduced size at age be a manifestation of strong competition at very early life stages that cannot be subsequently made up?
- Diet data show a general trend for smaller/younger halibut to consume invertebrates (crabs, shrimps, and other crustaceans) and larger/older halibut to consume more fish. Dr. Kerim Aydin asked: "Do larger halibut have trouble finding adequate large prey." This remains an open question. Dr. Aydin showed a decline in the proportion of pollock in the diets of large halibut from the 1990s to the 2000s. Analyses of pollock prey per capita of large halibut may provide additional insights.
- Dr. Aydin's data also might suggest a reduced component of fish offal in large halibut. Offal was a relatively large component of the halibut diet in the Western Bering Sea. It is not clear that offal was distinguished in diet studies conducted by the IPHC. Dr. Kruse wondered if changes in fishing practices (e.g., full utilization) have reduced discards, at least in the Bering Sea. In Dr. Aydin's data, offal from the winter/spring pollock-cod fisheries may not be revealed in stomach samples collected in summer. So, groundfish stomachs may under-represent the historical importance of offal in the diets of halibut in the Eastern Bering Sea. He suggested a retrospective analysis that could investigate the potential role of discards in the decline in halibut size at age.
- Dr. Tim Loher proposed that size-selective mortality could also cause patterns in size at age. Type I mortality is higher mortality at smaller sizes, likely due to predation on early life stages. Type II mortality is higher mortality at larger sizes, due to fisheries owing to the nature of size limits and gear selectivity. However, this mechanism has yet to be

investigated. Studies have not been undertaken to formally evaluate this potential contributing mechanism.

Dr. Kruse made several comments about human-induced factors:

- There remains some possibility that the switch from surface to "break and bake" methods has led to an increase in estimated halibut age. He suggested that a re-evaluation of archived otoliths with contemporary methods would eliminate potential methodological impacts on the observed trends.
- The effects of fishing on size at age are speculative and more difficult to evaluate.
- The target harvest rate of ~20% roughly equates to $F_{35\%}$ that is the fishing mortality rate that reduces spawning stock biomass to 35% of the unfished level on average.
- For federal groundfish fisheries under the jurisdiction of the NPFMC, $F_{35\%}$ is used as a limit reference point (that defines overfishing) and $F_{40\%}$ is used as a target reference point.
- Also for a comparison, a 20% harvest rate is applied to fishery management in Alaskan herring, a species that lives to ~8 years old in the Gulf of Alaska and ~16 years old in the Eastern Bering Sea. As natural mortality rate decreases with increased longevity and appropriate fishing rate is tied to mortality, the current $F_{35\%}$ – type harvest strategy may not be sufficiently precautionary.
- An $F_{40\%}$ strategy would be more consistent with NPFMC procedures. The current retrospective pattern of the stock assessment model suggests that the current harvest policy may not be sufficiently precautionary.
- Apparent higher harvest rates, particularly in the eastern portions of the range, were higher than planned, which raises questions about fishing effects (e.g., localized depletion, other effects).
- Other effects are more speculative – do larger fish complete their counternatant migration sooner and are they subject to selectively higher harvest rates? Can this lead to fishing as a cause of evolution? Halibut have recovered from small size at age once before, which suggests a phenotypic (density-dependent) response. However, phenotypic plasticity is not necessary insurance against fishing as a cause of evolution.
- The probability is low that fishing has caused the current reduced sizes, however, the impact risk of being wrong on this is very high; he recommended that fishing as a cause of evolution should be a research priority so this potentially low chance, but high-risk, mechanism can be eliminated.
- For near-term expectations, to the extent that halibut density explains most of the variability in size at age and recent estimates of halibut recruitment are high (notwithstanding retrospective errors), it appears likely that the near-term expectation is for continued small size at age.
- If arrowtooth flounder also contribute to a density-dependent effect on halibut growth through prey competition, arrowtooth flounder abundance seems to be sustained at high levels. Thus, any negative effect of arrowtooth flounder biomass on halibut growth is expected to continue over at least the near term.

Mr. Tom Jagielo agreed with Dr. Kruse's analysis and added that:

- There might be some clues in onset timing of the phenomena, in growth slowing since the 1980s, he recommended that the could reexamine growth increments in the otolith time series and growth, in addition to size, at age.
- He also thought that density-dependence was the most likely driver of the decline.
- He recommended investigating density interaction with other species, especially those species with similar life phases.

Discussion on causes of size at age included:

- Dr. Robyn Forrest noted that there have been a number of hypotheses for the causes of the decline and it seemed that some of this has already been looked at by the IPHC and wondered when this work would be open for review. She also noted that there are several meetings coming up, including the Commission's Bycatch Working Group and Science Planning Workshop when it could be discussed.
- Dr. Leaman responded that there is a paper on the potential impacts of ageing methodology that will likely be available before the Commission's Interim meeting but that it is still undergoing internal review. The Science Planning Workshop is scheduled for May 8-9, 2012, following the performance review rollout, and meetings beyond that have not been scheduled.
- Dr. Leaman responded to Dr. Kruse's question and clarified that the western Pacific offal was distinguishable from fish remains.
- Ms. Tory O'Connell noted that the magnitude of removals has changed, particularly increasing in the Western areas where a lot of young fish are, which might affect growth or size at age.
- Dr. Leaman commented that we're seeing smaller halibut eating small pollock, which arrowtooth are also eating; this might lead to direct competition. This demonstrated overlap for this pollock size category was interesting when considering intra- vs. inter-species competition.
- Mr. Clark added that he was looking at the SAFE document for arrowtooth, which also shows some decrease in growth for arrowtooth. He recommended this for further research.
- Dr. Martell commented on Dr. Loher's presentation on Type II mortality; he noted that colleagues in Europe have looked at Atlantic cod, and it has a role in changes in size at age, especially with increasing mortality rates. As the fish recruit to the fisheries, we fish off the fast growing individuals. Given what we know about size in age, we could set up an equilibrium model with multiple growth-type groups to represent variation in growth and explore hard would the fishing mortality rate need to be to observe the changes in size at age that we see. Dr. Martell believes that the change in size cannot be fully explained by fishing.
- Dr. Leaman noted that we see two phases: a declining phase, but also a previously increasing phase, and mechanisms need to explain both aspects.
- Mr. Jagielo added that it is important to understand the biology of the fish, including density factors. There should be an explanation that holds for all time series of data. He also noted that we should look at spatial niches, and cited another study that looks at

possible spatial exclusion and population migration for rock sole, suggesting a similar type of study for halibut.

- Dr. Ianelli explained that the bottom trawl survey in the Gulf of Alaska for the whole time series is pretty flat for halibut biomass, and that there is three times the biomass of arrowtooth than halibut. He noted that, over time, the relative abundance between the species hasn't changed, though there could be competition, especially if there was a decrease in common prey.

Change in Minimum Size -- *What are the likely effects on ecology and halibut stocks if the commercial IFQ minimum size limit was changed from 32 inches to 26 inches*? (Note: This was not a pre-specified question but added at the request of a speaker during the public comments, and concurrence of the Panel.)

Dr. Steve Martell led the discussion with a quick summary of his presentation:

- Reducing the size limit would have a minor negative effect on landed value of the fishery because the smaller fish are assumed to have a lower price premium and therefore are less valuable per pound; however, there is a marked increase in efficiency in the catch rates of legal sized fish leading to lower operational costs and, fewer fish are discarded and wasted lowering the overall total mortality rate in the directed fishery.
- Current commercial selectivity barely catches the 26-32 inch halibut; currently the coastwide assessment model estimates that fish begin to recruit to the current gear around 29".
- Reducing the size limit would have a positive effect on the spawning stock biomass because of lower total mortality rates associated with the practice of hi-grading in the directed fishery.
- His joint-probability model includes the probability of catching a fish of a given size and keeping it, if it is greater than the minimum size limit. If the directed fishery were allowed to retain fish 26" or larger, the directed fishery would impose a lower mortality to land its quota. There are lower fuel costs and less wastage. The directed halibut longline fishery is currently throwing away $15 million in fish.
- Dr. Martell also suggested that managers find other ways to incentivize lower bycatch without giving the trawl fisherman a financial incentive, for example by allowing them to keep bycatch but with proceeds going to the IPHC to continue research.
- He summarized that lowering the size limit would improve the economic efficiency of the directed fishery, since there is no market for the smaller fish, fisherman would probably not change their fishing practices to catch smaller halibut, and spawning biomass would increase. Observer coverage or electronic monitoring is also a necessary to ensure compliance in efforts to lower wastage mortality rates.

Dr. Steven Hare contrasted Dr. Martell's analysis with the analysis that he and Dr. Valero completed, noting:

- A key difference was that Dr. Martell held selectivity constant, where he thinks that a change in the selectivity schedule would likely accompany a change to the minimum size limit.

- There is a potential beneficial effect on the female spawning biomass, but because the change in size limit would increase the total exploitable biomass, it would be hard to control total catch with a lower harvest rate.
- It might increase the number of halibut in the catch for a given removal since many are smaller fish. Dr. Hare concluded that there is not a clear-cut case for lowering the size limit once you get into the numbers, and that the benefits are modest.
- There should not be an expectation of an increased quota just because there would be an increase in exploitable biomass. There would be significant concerns about fishing selectivity.
- It would be interesting to try a different minimum size but not change the total allowable catch and see if there is a change in the commercial selectivity.

Discussion on this topic included:

- Ms. O'Connell thinks that selectivity will change, especially for smaller fish; she also wondered about downstream effects if the fishery starts catching smaller fish. She also mentioned that improvements to the directed IFQ fishery, while important, don't address bycatch reduction in other fisheries.
- Dr. Martell noted that corresponding to a decrease in size limit, it would also be necessary to calculate the appropriate target mortality rate to keep the target spawning biomass. He also pointed out that even if the size limit does not change, with declining size at age, the F_{35} reference points still need to be updated every year because halibut are growing slower and dying off faster than they are recruiting to the biomass. In a modeling exercise we may need to adjust mortality rates upward to get to the same depletion level.
- Dr. Martell suggested that the Commission should clarify its management objectives; if it is to keep the spawning biomass at B_{30}, this should be defined first, and then the harvest control rule can evolve around this.
- Dr. Ianelli pointed out that the management objectives are clear: to maintain a viable fishery. He noted that the three analyses on size limits seem to represent book-ends, with respect to selectivity assumptions and reality may likely fall somewhere in between. There may also be important spatial differences.

Future Research - *Suggestions for future research on halibut ecology?*

Note: These suggestions for future research are further summarized along with all the other research recommendations from the Workshop in Appendix 3.

Mr. Bob Clark opened the discussion with several comments:

- Looking at the time from the 1920s to 1980s when the size at age was increasing, there is an opportunity to learn about the mechanisms that lead to this; this may help us understand when and how populations of halibut responded in a positive way to help us see why we're seeing the current decline.
- Research should glean as much as possible from what was known about halibut ecology during the time period when size at age increased. For example, re-aging and calculating growth increments from otoliths (break and bake) from the time period of increasing size at age may help to understand when and how different sizes of halibut responded.

- Do we know anything about the relative abundance of the other flatfishes in the Gulf of Alaska during the 1950's from trawl surveys or commercial catches? What were the environmental conditions in the Gulf of Alaska during that time and what was the stock assessment telling us about halibut recruitments and the rate of fishing on halibut? Though this period is not as data rich, there is at least qualitative data about the kind of species that there were where should be considered.
- Can we say anything definitive about the possible shift in diet of halibut from the period of increased growth rate to the present (e.g., pollock abundance in the Gulf of Alaska then and now) and its effect on halibut growth?

Dr. Gordon Kruse listed the research approaches mentioned during the workshop so far:

- Methodological validation, a re-evaluation of archived otoliths with contemporary methods would eliminate potential methodological impacts on the observed trends. A sub-sampling approach may be an efficient means to quickly resolve this issue.
- Climate changes may alter timing of plankton bloom relative to larval period – affect larval growth and survival? Likewise, ocean temperatures may regulate physiology, affecting growth and survival. Research opportunity – examine growth increments on otoliths and compare to ocean conditions (mainly addresses second mechanism).
- Compare age-specific spatial distribution of potential halibut competitors – do they eat the same prey in the same areas? Is prey in limited supply?
- A detailed examination of spatial, temporal and age-specific patterns in size at age may help elucidate causal mechanisms. For instance, size at age was relatively stable for ages 6-10 over 1993-2003 and then declined. For the older ages, size at age generally declines steadily over 1993-2011. Are these changes associated with differences in diet among young/small and old/large halibut? Do such differences, when analyzed spatially, help elucidate ecological mechanisms behind the decline in size at age?
- Examine whether the decline in size at age has origins with competition during early life stages with other flatfishes (yellowfin sole, rock sole, flathead sole, arrowtooth, others).
- Changes in size at age for other species (e.g., GOA pollock, Pacific salmon) may offer insights into the mechanisms for reduced halibut size at age. Are there common ecological explanations (e.g., energy flow to pelagic vs. benthic) or biological explanations (e.g., stock density-dependent effects).
- Fishing as a cause of evolution – consider reaction-norm-based approach to disentangle evolutionary effects versus phenotypic plasticity. This approach was developed and applied to Atlantic cod. The method includes examination of growth and age and size at maturity. Density-dependence tends to lead to predictable changes in these growth and maturation. For instance, higher fish densities tend to lead to slower growth, which tends to delay maturation. When you find patterns that diverge from expectations owing to density-dependence, it may be indicative of an evolutionary genetic effect. Baseline genetic data could also be collected now against which future genetic samples could be compared.

Discussion on future research on halibut ecology included:

- Dr. Ianelli asked about the extent and status of maturity-at-age data.

- Dr. Hare responded that there was maturity data going back to the 1960s, tied to age, that shows that 50% are mature at 11 years, with little spatial variation. The mean length has dropped, so maturity is linked to age, not size.
- Dr. Leaman noted that age at first maturity is not well determined, though there have been some summer studies, but summer is not the best time to do studies on maturity since gonads are fully functional from September through February. He also noted that future diet research should be pursued.
- Dr. Hare added that there is an influence of climate on growth or size, which should be further studied; he mentioned one study (by Hagen and Quinn 1981) that demonstrated climate effect on early growth, but this issue hasn't been resolved and warrants further research.
- Dr. Ianelli also recommended investigating the use of length frequency data from the Bering Sea.

Accuracy of Halibut Bycatch Estimates – *How accurate are bycatch estimates (does it differ by region/jurisdiction), and how can the accuracy be improved upon? Can the accuracy be measured/reported?*

Dr. Bruce Leaman started the discussion with the following comments:

- There are two different regimes in the Gulf of Alaska and Bering Sea, respectively, with lower observer coverage in the Gulf.
- Alaskan fisheries that create bycatch mortality of halibut are distributed in the Bering Sea/Aleutian Islands and the Gulf of Alaska. The observer coverage, hence bycatch mortality estimation, in the Bering Sea/Aleutian Islands is reasonably (though not totally) comprehensive. However, the observer coverage in the Gulf of Alaska is inadequate for accurate estimation of halibut bycatch mortality.
- There are three major issues that may compromise the validity of halibut bycatch mortality estimates in the Gulf of Alaska groundfish fishery:
    - Non-random deployment of observers. Observer deployment is currently controlled by the vessel master and subject only to broad guidelines of necessary coverage for particular time intervals and fishery sector. This problem has been acknowledged by NMFS staff in publications and the workshop presentation by Mondragon and Cahalan, and creates both spatial and temporal biases in the data collection and subsequent estimation process (Benoit and Allard 2010, Faunce and Barbeaux 2011). Indeed, these sampling biases have been a dominant factor in the proposed restructuring of the NMFS Observer Program in Alaska.
    - Behavioral modifications of fishing activities by vessels/crews on observed vessels. NMFS, DFO, and harvesters have noted studies demonstrating that the presence of observers aboard vessels results in altered behavior and differences in fishing activities compared with similar characteristics for unobserved vessels. This form of modified behavior is also commonly reported *post facto* by harvesters, after mandatory 100% observer coverage programs have been instituted. Such alterations create non-representative data for observed vessels relative to unobserved vessels and have been analyzed by NMFS and DFO staffs,

as well as being reported in the workshop presentations by Ackerman and Turris and Caron (Faunce and Barbeaux 2011, Mawani 2009).

- Incomplete coverage of the fishing activity. The vessels that fall within the 60-125ft category have mandated 30% observer coverage (in each quarter of the year) and vessels in the growing < 60 ft category have zero coverage requirements. The estimation of total halibut bycatch mortality in the GOA therefore rests on the assumption that observations on observed vessels are representative of fishing activities and halibut bycatch estimates for unobserved vessels. There is ample evidence and analyses to deny the validity of this assumption. The biases in observer deployment and behavioral modifications noted above make it impossible to estimate the magnitude of bias embedded in current estimation procedures. The implementation of effective bycatch control measures in both IPHC Area 2B (Canada) and Area 2A (WA/OR/CA) have been a part of broader, comprehensive management programs which have stipulated mandatory 100% observer (or electronic monitoring) coverage on trawl vessels. These programs have not contemplated the form of incomplete coverage seen historically for the GOA groundfish fisheries. See Appendix 4 for References cited by Dr. Leaman.

Dr. Michelle Allen added a statistical perspective, noting that:

- Data issues, which need to be considered when deriving bycatch estimates are:
- **Multiple survey objectives**. When designing a survey, the survey objective should be clearly defined and quantifiable. If there are multiple objectives, a survey designed around one objective may not be adequate for another objective. After rationalizing the objectives to a core set, correlation analysis of the objectives is recommended. Significant positive correlation between multiple objectives generally results in a survey design adequate for the multiple objectives. When objectives are negatively correlated then generally a survey designed around one objective will not be adequate for another objective.
- **Underlying distribution of the data**. Marine fisheries data are typically non-normal and are usually positively skewed. Sample estimators are based on the assumption of normality. When data are not normally distributed this will inflate the variance estimator. A crude rule of thumb (Cochran, 1960) when assessing how large the sample should be for use of the normal approximation when deriving the variance estimator is $25G_1^2$, where G1 is an estimate of the population skewness (kurtosis). If the data are skewed the assumption of normality can be improved by analyzing the extreme values separately, that is post-stratify. Bycatch could be post-stratified into low and high bycatch.
- **Stratification**. Efficient stratification will group together similar units within a strata and maximize the mean difference between strata and will generally improve the precision of the estimator relative to simple random sampling the entire population. Deriving optimal sampling levels based on data from a previous survey, can be achieved by either fixing the cost/resource or fixing the precision. Comparison of the two approaches can show based on a fixed resource the level of precision that is realistically achievable, and then if wishing to achieve a target precision the level of resources required to meet the target

precision. A useful rule of thumb to note is when halving the precision the sample size will increase four-fold.

- **The use of auxiliary information**. If auxiliary or supplementary information, that is information which is easily accessible, cheap to measure and is available for the entire population, is significantly correlated with the variable of interest that the survey is attempting to estimate, where the variable of interest is difficult or expensive to measure, and is not available for the entire information then the supplementary information can be used to estimate the variable of interest for the population. The ratio and regression estimators are examples of estimators that use supplementary information. The ratio estimator is a special case of the regression estimator. If the intercept of the linear relationship between the variable of interest and the supplementary information is significantly different from zero then in theory the regression estimator will out-perform the ratio estimator (Cochran, 1960; Sukhatme and Sukhatme, 1970; Allen et al., 2001).
- **Multistage sampling design**. When sampling bycatch taking account of the hierarchical nature or levels when sampling can potentially improve precision, while informing at what level resources should be targeted when sampling. There are 6 nested levels when sampling bycatch – vessel, trip, haul, box if trawler or line if set, length and age – that can be completely enumerated or sampled. Decreasing variance components, when moving from one level to the next, would indicate that it would be more efficient to sample fewer sub-units and more units than vice versa (Cochran, 1960; Sukhatme and Sukhatme, 1970). When assessing the level of precision it is possible to achieve based on historic data, by apportioning out the variance over the levels, would be informative for those vessels that do not have 100% coverage at trip level.

Discussion on the accuracy of bycatch estimates included:

- Dr. Leaman questioned what the goal is for observer coverage and if we can achieve it with partial coverage.
- Dr. Ianelli noted that there is a distinction between sampling bias (e.g., from an estimator) as Dr. Allen discussed, and bias due to observer-effects (i.e., operations intentionally differing on observed vs. non-observed vessels).
- Dr. Allen explained that it isn't possible to quantify the observer effect, since it is not consistent from trip to trip, and that bootstrapping would just assess whether the estimator is biased, not quantify the observer bias.
- Dr. Leaman suggested that they take guidance from other geographic areas that use 100% observer coverage to deal with the issue of observer bias.
- Dr. Martell agreed that 100% observer coverage was a good way to improve accuracy.
- Dr. Neilson suggested that a gap analysis might be helpful to understand what data is missing since some fisheries are well covered, but some smaller fisheries have issues around bycatch that we don't understand.

Biological Impacts and Migration –*How well are biological impacts quantified, and how well are the effects of migration on biological impacts understood and quantified? Is coast-wide data and analysis sufficient or is a finer spatial scale possible? How reliable or accurate would a finer scale be?*

Mr. Bob Clark addressed each question for discussion:

- How well are biological impacts of bycatch quantified? Assuming our knowledge of the magnitude of bycatch is accurate we have a basic understanding and can reasonably quantify the direct and indirect impacts of bycatch on exploitable biomass and spawning potential of the halibut stock, as well as the effects on yields in directed fisheries. We know very well that in general the direct and immediate effect of O26 bycatch on directed fishery yields will be approximately 1 to 1. Although more assumptions are needed to assess the impacts of U26 bycatch, our current understanding of the delayed and prolonged effect on spawning biomass is consistent with what we know about the population dynamics of halibut and will occur in an approximately 2 to 1 ratio of pounds of spawning biomass accrued per pound of bycatch reduction.
- How well are the effects of migration on biological impacts of bycatch understood and quantified? Although there is generally less known quantitatively about halibut migration, we have come to understand that conceptually there is a general west to east migration of halibut that continues as the fish age past the age of recruitment. This migration would tend to redistribute the effects of bycatch from the area where much of the bycatch takes place in Areas 3 and 4, eastward. The quantitative extent of this biomass redistribution and how it might change over time and vary with where and on what ages/sizes of the population are bycaught is much less well understood and will require more analysis and research.
- Is coast-wide data and analysis of migration sufficient or is a finer spatial scale possible? How accurate would a finer scale analysis be? It is unclear whether a finer spatial scale analysis of the current migration data (PIT and external mark data primarily), if it were possible, would result in a better understanding of the effect of bycatch on the halibut stock. These types of mark-recapture data require fairly large sample sizes to provide estimates of migratory rate that could be used to inform the stock assessment model. That said, if possible, we should be looking more closely (spatially and temporally) at the current migration data to determine if size, sex, age, and/or growth rates influence the propensity to migrate and if the annual migration rates are density dependent.

Dr. Robyn Forrest added to the discussion with the following comments:

- How well biological impacts are quantified will largely depend upon assumptions in the model used for analysis, and we need to examine the effects of structural assumptions in models and the halibut stock assessment.
- With respect to migration, we might expect selectivity at length to be different in different areas, so the coastwide analysis might not be sufficient. Yet adding migration to an assessment adds a lot of complexity and additional parameters, which adds uncertainty. We may be able to take a hybrid approach, using different selectivity values in different areas, treating each area as a different fishery.
- Other assumptions that lead to an understanding of the impacts of bycatch include how we treat natural mortality, the variance used in estimates of length at age, and how we model selectivity (whether it's length-based or age-based). How we treat selectivity can affect our understanding of the population size.
- There is a peer review of the stock assessment coming up, so that will be an opportunity to review these assumptions.

- Dr Forrest noted concerns about the veracity of continued model predictions of large, increasing age 8+ total biomass, and the severe retrospective bias in these estimates, which predict a substantial increase in biomass. She questioned the degree that the predictions of large incoming biomass may be the result of model assumptions.

Discussion on the biological impacts included:

- Dr. Allen suggested that before committing to a finer scale, optimal sampling levels to support finer scale spatial data collection should be investigated, particularly to support 30% observer coverage. It is advisable not to have missing cells in a stratification.
- Dr. Leaman noted that the idea of size, sex, temporal change, growth and migration rates, and that a spatially explicit model would be an improvement over a coastwide model, especially with the migration issues that are arising. But when we look at the probability of movement, it comes out of the PIT tag data. We haven't looked at this by sex. One question he noted was what the residence period is for fish at different age and are they influenced by length at age; we don't know the answer now. It would be great if the data matrix was ten times the size, but the matrix gets sparse when looking at more variables although we haven't fully mined the data that they have from the PIT tags.
- Mr. Jagelio commented that on the issue of finer spatial scale, looking at the Bering Sea data, there seems to be an opportunity to look at it on a finer scale, especially in Area 4. It appears that there is some heterogeneity there, and suggests that this breakout should be considered, this seems to be workable with the existing data.
- Dr. Martell noted that the current coastwide assessment model represents the dispersal mechanism as a diagonal vector of 1s, with no movement. Can data from tagging be used to implement a dispersal kernel and account for migration in the model?
- Mr. Clark added a question, asking if migration models are being incorporated into management strategy evaluations? The answer was yes.
- Dr. Allen asked if raising factors is an issue for bycatch estimation. She noted that in the Northern Irish fishery, raising factors are based on the catch composition, the gear type used, and how the observer works, so they don't enumerate everything. But if the observer doesn't get it right, that is then compounded as data is expanded from haul to trip.
- Dr. Leaman asked if the species composition is aggregated over hauls? The answer was that they are not aggregated.
- Ms. O'Connell referred to Dr. Hare's Figure 21, which shows that one pound of under 26" bycatch has a bigger impact on biomass, up to five pounds depending on the area; she noted that she didn't want this point to get lost.
- Dr. Forrest responded to a comment from the floor that this could well be both a conservation issue and allocation issue, and that it also depends on how well we've estimated the amount of bycatch; if we've underestimated the bycatch, it could be more of a conservation issue.
- Dr. Martell followed up that if the bycatch isn't reported, then it really is a conservation issue.

Fishing Practices – *What changes in fishing practices have been made to reduce bycatch and how effective have they been?*

Ms. Jane DiCosimo started the discussion with several comments:

- Presentations from the different management agencies that have employed a variety of programs that uniquely fit their fisheries show a range of programs, including individual transferrable quota programs and cooperatives.
- Of fifteen US catch share programs, six are in the North Pacific and two are in the Pacific. Canada has one integrated program for its BC fisheries.
- The groundfish fisheries presentations included several examples of changes to fishing practices:
    - Regulatory limitations: closed area, seasonal and area apportionments of bycatch caps and result in mandated changes to fleet behavior (particularly when the fishery is closed as a result of hitting those caps). Careful release is required to minimize harm to released halibut.
    - Rationalization programs allocate catch shares of various types to individuals and allow for slower fishing and selective time and area decisions for fleet deployment. In the BSAI Amendment 80 program this was in order to meet increased retention/utilization requirements that were implemented under another Council management action.
    - John Gauvin presented on fish excluder devices that were tested under exempted fishing permits and slower, shorter fishing tows
    - Julie Bonney summarized the central GOA rockfish program and her concerns about paying a tax under reduced halibut bycatch apportionments, and subsequent reductions for any seasonal apportionment of halibut bycatch that is rolled over. She spoke about the effect such disincentives would create in that sector.
    - Kenny Down described the voluntary Bering Sea & Aleutian Islands Pacific Cod Hook & Line Cooperative, in which the freezer longline cod fleet began fishing as a voluntary cooperative in August 2010.
    - Sea State, Inc which allows the fleet to rapidly respond (both individually and collectively) to high bycatch rates by using real-time date from NMFS at-sea observers to stay under aggregate bycatch caps which close the fishery when a certain amount of bycatch occurs. Individual bycatch rate regulations attempt to create individual incentives for companies to minimize their bycatch by assessing violations when rates are above prescribed levels.
- Two presentations by Barry Ackerman and Chantelle Caron of DFO described two rationalized BC fisheries that have achieved great success in reducing halibut discards. Sarah Williams from the NMFS NWRO summarized the newest ITQ program for North West groundfish.
- These programs have resulted in:
    - 31% of cap in BC
    - 75% of cap under Amendment 80
    - 20% of cap in North West
- Across the range of halibut management areas (Area 2A, 2B, 2C/3, and Area 4), a variety of what we term "rationalization" or share-based catch limit systems have been developed from the top down (implemented by the government(s)) and bottom up (from

fishery stakeholders). Other programs have been framed together from both the government in consultation with stakeholders.

- Those programs have included a complementary component that placed lower caps on halibut bycatch, while awarding shares of the target groundfish fisheries.
- In many instances reduction goals were achieved more rapidly than expected when the fleet was provided with the management tools that defined the universe of participants and allowed them to develop strategies to achieve management goals.
- In Alaska halibut function as the grease in the wheel of harvesting approximately 2 million mt of groundfish target species in the North Pacific, which account for approximately $2 Billion in first wholesale value.
- US management is mandated to balance national standards: 1) to harvest optimal yield (as much as possible) of groundfish allocations with 2) to reduce bycatch.
- Comprehensive rationalization programs have been attempted for the GOA in the past and have encountered legal and management hurdles that were insurmountable.
- However managers on the Pacific coast have met with more success in creating and implementing rationalization programs that have identified smaller universes of participants and defined specific management objectives to address target and bycatch fishery issues that resulted in a number of distinct programs.

Dr. John Neilson added to the discussion with the following comments:

- We heard concerns that under current fishing practices, halibut are held for long periods of time before being released in some areas that Amendment 80 fleet operate due to regulatory requirements to allow those halibut to be sampled.
- He suggested that sampling of halibut take place on the deck rather than in the factory for the Amendment 80 fleet, which would decrease handling time, leading to substantial potential benefits particularly in the Gulf of Alaska. We understand that this measure will be piloted in the near future.
- Utility of individual bycatch caps was discussed, and appeared to be favorably viewed by fishery participants.
- We heard about many improvements, but there is still some way to go for other fleets.
- Such changes in their operations have resulted in significant declines in estimated discard mortality rates.
- However, it seems that an important deficiency remains the overall accounting of discard mortality. For example, Williams (2011) notes, "Observer coverage in the Gulf of Alaska groundfish fisheries remained at lower than necessary levels, continuing to raise questions about the accuracy of the estimates for that area."
- It is also a good idea to think about where there is not enough coverage. There are plans in place to augment observer coverage in important ways, but perhaps a "gap analysis" might also a good idea as a speaker this morning mentioned.

Discussion on fishing practices included:

- Ms. O'Connell added that careful release, i.e., rolling the fish off the hook on the waterside of the boat, was promising and that the Freezer Longline Association saw a decrease in mortality rate from 19 to 9%.

Management Programs/Approaches– *What management programs/approaches to reduce bycatch have been effective, and what have we learned from less successful efforts? What alternative or additional management programs/approaches could be considered for overcoming on-going halibut bycatch challenges (e.g., lowering the commercial size limit, set maximum size limits for sport charter harvests)?*

Ms. Tory O'Connell led discussion with the following comments:

- National Standard 8 requires reduction of bycatch and the terms of the IPHC agreement for both countries are to reduce bycatch in pounds, not just the rate, so we are looking at management programs and approaches that address this.
- All presentations show that halibut bycatch is reduced with individual vessel responsibility.
- Rates from the 2009 bycatch workshop are as follows:
    - British Columbia went from 40 lbs/metric ton in 1991 to 4.5 lbs/mt in 2008
    - Gulf of Alaska went from 1.95 lbs/mt in 1985 to 22 lbs/mt in 2008
    - Bering Sea went from 2.1 lb/mt in 1985 to 3.4 lb/mt in 2008
    - Couldn't get the rate for the North West

- In terms of the mandate from the convention, management action needs to reduce catch not just reduce rates (rates more similar to bag limits, only they do not reduce catch).
- Bycatch reduction management measures can decrease encounters, decrease retention and increase survival; they are most successful when they draw on knowledge of participants and have appropriate incentives, deterrents, and monitoring.
- The British Columbia program has worked to reduce their bycatch both in rate and absolute poundage by using 100% observer coverage in the BC trawl fishery with the allowance of a 4% maximum cap (8% annually, which allowed flexibility). Fishermen had to stop fishing once they reach their cap. All trawl caught halibut have to be released and they are generally in the water in 16 minutes. There overall mortality rate is on discards is significantly lower than Alaskan rates.
- Successful bycatch reduction occurs because fishermen have altered practices and redirected effort to species where bycatch of halibut is less, tow times have been shortened and they use short exploratory tows to identify catch composition. This has allowed trawl fleet a year round fishery and on average only 30% of halibut cap has been taken.
- In Hook and Line and Pot fisheries they hold Individual Fleet Quota for all fish (target and bycatch), and allow individual responsibility quotas to be traded. These bycatch are limited to prevent targeting by non-directed fishermen. They use electronic monitoring and a 10% audit rate to ensure compliance.
- In the Northwest, they have used individual trawl quotas and 100% observer coverage to achieve an 87% reduction compared to 2009 bycatch estimates. The cap represents 50% reduction. There is not much room for acquiring other IVQs, so it's not a market system, but there is a strong incentive to keep within cap.
- In Alaska, we heard that Amendment 80 vessels (with 200% observer coverage) were able to reduce their halibut bycatch 40% even when increasing retention of species and a 15% increase in target catch. They changed fishing patterns including using shorter tow lengths. Their bycatch is down to 13lbs halibut/mt groundfish.

- The rockfish program has also reduced their use of halibut by 80-90 mt. They were given 87% of their recent use, and 55% of the halibut saved can be rolled into the fall flatfish fishery. Their use is between 5 and 10 lbs of halibut/mt rockfish. Whether these fishing practices continue will depend on the incentives in place.
- What alternative or additional management programs/approaches could be considered for overcoming on-going halibut bycatch challenges?
    - Careful release (rolling the hook out of the mouth using a gaff outside the vessel) reduces release mortality 9 times more than if using hook strippers.
    - Depth release and halibut excluders and other gear configurations.
    - We heard the freezer longline fishery can reduce release mortality of halibut by slowing down their hauls and practicing careful release by carefully releasing halibut at the water line. They have reduced discard mortality rate from 19% to 9%– and can reduce further under coop fisheries (or 100 percent observers).
    - We heard that the trawl fishery has a potential of reducing release mortality nearly 40% by the practice of deck release of halibut with the goal to greatly reduce handling time instead of the current situation where the halibut have to go to a holding tank. This may be more effective in the Gulf than Bering Sea but the experiment has occurred in high bycatch areas in the Bering Sea so effects might be even greater in Gulf of Alaska.
- The most vulnerable portion of the stock, and the portion that is the most unknown, is U26.
- Increasing observer coverage (including electronic monitoring system) has been shown to decrease halibut bycatch and decrease release mortalities. What level is needed to estimate discard mortality and size selectivity may need a different level of monitoring groundfish catch accounting?
- The proposal of a floating cap that rises and falls with halibut is problematic at this time as to how/when it would be assigned (to Ebio or age 8+ fish). It does not address the potential increased impact on U26 halibut, the most uncertain and vulnerable portion of the stock. It also does not address the halibut convention agreement to reduce bycatch poundage (not just the rate).
- Time/area closures weren't discussed very much, but this can be by management or by voluntary. Fleets are good at avoiding bycatch when the target species is valuable or the incentives to reduce bycatch are strong (either punitive or positive).

Dr. Michelle Allen adding the following comments:

- In order to boost sampling levels, Northern Ireland uses fisher self-sampling for vessels under 10m. This approach could be used in conjunction with sampling with partial replacement. Sampling with partial replacement, within the bycatch context, would involve monitoring a core set of vessels on either all or some sampling occasions supplemented by those vessels not part of the core vessels on each sampling occasion, which would permit estimation of bycatch and also change over time.
- Usually the proportion of units to resample on future occasions is related to the correlation between sampling occasions. The number to resample decreases over time but will not fall below half of the number of units sampled on the first occasion. For bycatch the core set of vessels could be constant for each sampling occasion, which

would introduce some bias as sampling would no longer be random, but would establish strong working relationships with stakeholders.

- The sampling with partial replacement estimator is an extension of the regression estimator. The auxiliary information used would be bycatch on a previous occasion, where a previous occasion could be defined to be the previous quarter or the same quarter of the previous year. For sampling with partial replacement to give gains in precision there needs to exist significant correlation between sampling occasions of vessels' bycatch. The ratio and regression estimators use information based on a snapshot of the data, whereas the sampling with partial replacement estimator can be used for a time-series, such as bycatch. If significant correlation exists between sampling occasions, given the expense, difficulty and hazardous nature of gathering bycatch data, it is wasteful not to use historical data.
- The drawback of using bycatch as an auxiliary variable is that it is not known for the entire fleet. Hence, it is not possible to use bycatch as a raising factor when estimating for the entire fleet.
- Sampling with partial replacement has been successfully and extensively used within forestry (for example, Cunia, 1962; Cunia and Chevrou, 1969; Newton et al., 1974; Omule, 1982; Omule, 1984; Scott, 1984; Scott and Köhl, 1993; Scott and Köhl, 1994; Köhl et al., 1994). It can be combined with other sampling approaches such as multistage sampling where some or all of the levels are repeatedly sampled (for example, Tikkiwal, 1964; Singh, 1968; Singh and Kathuria, 1969; Kathuria and Singh 1971(a) and 1971(b); Kathuria, 1975; Chakrabarty and Rana, 1974 and 1977; Rana and Charkrabarty, 1976).
- William Warren (1993 and 1994) explored the use of sampling with partial replacement for marine fishery groundfish survey data. The variable of interest was an abundance index, which was log-transformed prior to analysis. The underlying distribution of the index was not stated but log-transforming data prior to analysis would indicate that the data were non-normal and skewed. While not discussed in the papers (Warren 1993 and 1994) it was assumed that the non-normality of the data was addressed, as it would inflate the variance estimator. Warren (1993 and 1994) advised restricting the number of sampling occasions to two for fishery surveys, as sudden shifts in the abundance or introduction of management practices would affect the estimator. See Appendix 4 for References cited by Dr. Allen.

Discussion on management approaches included:

- Dr. Leaman noted that successful programs draw on expertise of participants. If we define the management objectives and then tap into expertise within the fishing community, the harvesters can control using many tools that they have control over (including behavioral changes, knowledge of ground, gear changes). Sometimes we spend too much time defining how to achieve goals, rather just focusing on the results.
- Dr. Forrest noted that many tools have led to bycatch reduction particularly in the Bering Sea and British Columbia, and that a good outcome of this workshop would be a summary of the tools and incentives that have been successfully applied to reduce or avoid bycatch. This could feed into the gap analysis; it would be useful to know the degree to which these programs are operating and not, including the number of boats in the various programs.

- Ms. DiCosimo responded that there was a recent publication by Dr. Mark Fina (*Fisheries*, 2011, Vol 36) that is a relatively straightforward comparison of different catch share programs in the US, which might be informative. Ms. DiCosimo organized a symposium at last August's American Fisheries Society Annual Meeting that included presentations for each catch share programs and can share those presentations.
- Ms. DiCosimo also noted that in January 2010 the Commissioners formed a Halibut Bycatch Work Group II. An IPHC technical report is posted on the Commission website. The group was tasked with three objectives: 1) review progress on reducing bycatch mortality, 2) review the objectives identified by the first working group, and 3) examine how best to incorporate bycatch into assessment and management. The report is pretty comprehensive for each region and is a helpful compendium of information.
- Dr. Allen noted that a talk yesterday mentioned comparing electronic monitoring with the vessel log, which seems to be an agreement analysis (where two different methods are trying to quantify the catch). Electronic monitoring is used to verify fishers' reported catch. Under the current method of verifying fishers' reported catch, if a fisher's reported catch is not within 10% of the electronic monitoring results the fisher's reported catch is not accepted. It is replaced by the electronic monitoring results. Using this current method of verifying fishers' reported catch, it was suggested that the electronic monitoring was being considered as a gold standard or reference. The agreement between the two independent methods (electronic monitoring versus fisher) for measuring the haul could be assessed using Lin's concordance correlation coefficient (1989 and 2000), that is the reproducibility between the two independent methods is assessed. Lin's concordance correlation coefficient requires a minimum of 10 data points and can be used for non-normal data, for example count data. Lin's concordance correlation coefficient can assess reproducibility between more than 2 methods (Barnhart et al., 2002 and 2007). Agreement analysis should be supported by appropriate graphics. It was recommended that scatter plots of paired data are displayed along with the line of perfect agreement (45° line through the origin) and Bland-Altman plots (Bland and Altman, 1986, 1995, 1999 and 2007; Krouwer, 2007). When reproducibility between two methods are being assessed and one of the methods is considered a gold standard then the interpretation of the results differ than when neither of the methods are a gold standard. When using reference data the assessment is to determine if it is possible to replace the reference or gold standard method with another method. When neither of the methods can be considered as a reference then the assessment determines how interchangeable are the results--- that is do two methods give similar results. Agreement analysis has been extensively researched within medical statistics, for example Carstensen (2010).

Future Research - *Suggestions for future research on the impacts and management of halibut bycatch?*

Note: These suggestions for future research are further summarized along with all the other research recommendations from the Workshop in Appendix 3.

Dr. Steve Martell opened the discussion with several points about how to do as much as possible to eliminate bycatch and waste, including:

- The need to identify the single most critical issue impacting bycatch, noting that the current system assumes that the amount of bycatch is known and discounts the CEY using several assumptions about wastage and mortality rates.
- Another critical issue is to evaluate and improve the structural assumptions in the model regarding size selectivity vs. age selectivity because few fisheries have a constant selectivity. These structural assumptions, especially selectivity, are key assumptions, particularly when using a constant selectivity assumption for all of the management regions in the coast wide assessment.
- One way to get better estimates of wastage and discards is to put more observers on boats, to get a better count on wastage (nothing short of 100% observer coverage or electronic monitoring is essential).
- The idea of removing the U26 and the impacts on spawning biomass is based on critical assumptions of mortality rates and constant growth; it could be worse if growth rates continue to decline. If there were a size-dependent natural mortality rate, then you would expect to see some compensation in the spawning biomass loss ratio. Further research on the impacts of changes in size-at-age on fishery management reference points is necessary and fairly straight forward to conduct.
- We should do our best to eliminate bycatch and wastage and develop economic incentives within the fishery to foster better stewardship of the resource.

Dr. Robyn Forrest added the following list of research recommendations, some of which had come up over the course of the workshop:

- An examination of the structural assumptions of the stock assessment model (particularly with respect to fishery selectivity) and of the analyses presented at the meeting.
- Continuation of bycatch monitoring and discard mortality rate reduction programs, and identifying clear objectives for these programs.
- Continuation of research and reporting of successful co-operative programs and successful incentives for reduction of bycatch.
- Systematic research into retrospective bias in stock assessment model.
- Conducting an adaptive management experimental fishery to look at the effects of reducing the size limit on fishing behavior.
- Extending analyses on the impacts of bycatch and reduction in size limit to include migration.
- Revisiting the halibut Harvest Policy, given large changes in size at age and understanding of halibut ecology.
- Supporting the IPHC's Management Strategy Evaluation efforts and recommending the approach be used to analyze performance of alternative management procedures in the face of large uncertainty in the causes of apparent declines in size at age and under alternative assumptions about selectivity (e.g., length-based vs. age-based).

Discussion of the need for future research included:

- Dr. Ianelli noted that in the Gulf of Alaska, the Council has a PSC limit that could vary with abundance, and suggested that this type of floating cap instead of a hard cap should be considered in the management program.

- Dr. Hare noted that the result from his analysis on impact of female spawning biomass was conditional, and just looked at 2008 and across all fisheries for U26, and agreed with Dr. Martell and Dr. Forrest that further research is needed.
- Dr. Hare also suggested that US managers consider individual bycatch caps to reduce halibut bycatch.
- Dr. Kruse recommended that the annual stock assessment should consider incorporating halibut catch and size data from the NMFS annual/biannual trawl survey. Trawl survey data provide another wealth of information on the status and geographic distribution of halibut stocks. Owing to mesh size, the NMFS surveys may also help inform the retrospective bias in the estimates of recent recruitments.
- Dr. Martell agreed, mentioning a need to create a universal assessment that incorporates everything into the annual stock assessment, including data on the spatial nature of fishery. He noted that developing ways to be more efficient must start from the fishing industry.
- Dr. Allen stated that model-based estimators developed within the Bayesian framework were not discussed. The workshop focused on design-based estimators. Examples of model-based estimators can be found within Hirst et al. (2004), Millar and Fryer (2006), and Millar and Hirst (2007).
- Dr. Ianelli suggested building better incentives for fisherman to reduce bycatch, including fee-based approaches.
- Dr. Leaman noted that the Commission is looking for a more structured process to develop their research agenda and explained that there used to be a 5-year plan, but it was discontinued because there was a lot of coherence of views on necessary research. The Commission is looking to resurrect this planning and would welcome input from the Council.
- Dr. Ianelli noted that the present analysis on the impact of bycatch on the halibut stock used limited data (from 2008) and made a number of assumptions and should not be construed as general result. Further analysis on this topic is needed and it was noted that there would be variability in the downstream effects of bycatch on halibut stocks. [Dr. Leaman later clarified that the analysis used 2010 bycatch amounts but the fraction of U26 and O26 was based on 2008 length frequency data, which were the data available at the time.]

Closing Remarks: **Dr. Jim Balsiger** thanked everyone for presenting and participating. One thing that struck him was Dr. Leaman's observation that they were focusing on the decline in size rather than dramatic increase in size after 1920s. He recognized the long list of ongoing management actions that had been mentioned, which speaks tremendously to the effect that the fishing industry can have when they have the right tools. Dr. Balsiger was optimistic that there was substantial industry support through participation in the workshop, both as Panelists, presenters, and participants. He noted the number of Council members and Commission members in attendance. He also liked the idea of a pilot project to experimentally reduce minimum size in some areas to observe changes in fishing behavior, and conduct a real world experiment. Dr. Balsiger noted upcoming meetings in the next few months, and thanked Ms. DiCosimo, Mr. Williams, Mr. Oliver, and Dr. Leaman for arranging the meeting.

Appendix 1: Day 1 Presentations

Following are the list of presentations from Day 1, plus any additional clarifications in response to questions from the Panel members. See website for the presentation slides and audio recordings.

Presentations: Halibut Ecology

- **Dr. Steven R. Hare** (IPHC) gave a presentation titled "*Recent trends in removals, exploitable biomass, female spawning biomass, and size-at-age.*" There were no questions.
- **Dr. Bruce M. Leaman** (IPHC) gave a presentation titled "*Review of IPHC halibut diet studies.*" There were no questions.
- **Dr. Kerim Aydin** (NMFS AFSC) gave a presentation titled "*Halibut in an ecosystem context: groundfish diet collections and food web modeling.*" In response to questions, Dr. Aydin noted that:
    - There was a backlog in data processing, which just caught up to the 2007 and 2009 surveys, and that most information presented was from survey data; only pollock, cod and arrowtooth have additional observer data.
    - There is now large sample of grenadiers, which eat other grenadiers and squid, and create an isolated food web.
    - There has not been research on how much energy content different species provide that has been specific to halibut, but there have been several general studies, including a baseline study comparing pollock to other fish, and that there is ongoing work in the Gulf of Alaska to look at variation in energy content of pollock.
    - In the Bering Sea, there is a lot of variation in winter and fall conditions, which might impact energy content. For arrowtooth, there have been several diet studies, which show that these fish have a primarily benthic diet; they tend to eat a lot of shrimp when they are small and then switch to pollock as they grow.
    - There was a suggestion for an additional study to look at differences for larger halibut by area, breaking down the Gulf survey by region.
- **Dr. Tim L. Loher** (IPHC) presented "*Size-at-age and growth and of Pacific halibut: Process and Mechanisms.*" Following Dr. Loher's presentation there were suggestions from other panelists to:
    - Re-test archived otoliths with the current break-and-bake method, which might smooth the change in size at age, and to look at additional data associated with the otoliths (e.g. stomach content, location) to look for more specific trends.
    - Calculate the fishing mortality rate that is required to get to the Type II mortality that is seen. It was discussed that current fishing mortality rates are within realm of reasonable, around 70-75%, and that current harvest rates are below what has been historically seen in the fishery.

- **Mr. Tom Jagielo** (TJC) presented "*Synopsis of theoretical and empirical evidence concerning the causes of halibut slow growth and potential differences in natural mortality by sex.*" Following Mr. Jagielo's presentation in response to questions he clarified that:
    - There is nothing directly in the literature on the exploitation rate for a long-lived fish, since halibut live longer than silversides and cod, but there is some research on selectivity patterns in commercial fisheries and mortality rates, which concluded that fishing does not cause size evolution.
    - The slide on intra-specific competition did not contain updated data.

Presentations: Impacts of Halibut Bycatch

- **Ms. Jennifer Cahalan** (PSFMC) and **Ms. Jennifer Mondragon** (NMFS Alaska Region) presented *"Catch estimation in the Alaskan groundfish fishery."* In response to questions, Ms. Cahalan and Ms. Mondragon clarified that:
    - Currently, vessels choose when to take observers, however the deployment plan is currently being reworked and this will change.
    - There are estimates for state waters, but there isn't much observer data, and that for small boats (with no observers) they estimate removals based on data from larger sized vessels.
    - Data normality varies by species and how prevalent they are (with rare species showing non-normal distributions). Dr. Allen asked about the intercept used in the ratio estimator. It was clarified that the estimator assumes a zero intercept and linear relationship.
    - Dr. Ianelli noted that more than the required 30% of vessels are covered, up to 50%, because of logistics of taking observer on trips.
- **Dr. Steven R. Hare** (IPHC) presented *"Accounting for bycatch and wastage mortality in the IPHC harvest policy."* In response to questions following his presentation, Dr. Hare confirmed that:
    - A harvest rate of 20% translated into an F_{35} to F_{37} fishing rate.
    - He was not aware of any more recent data for discard mortality rates for commercial fisheries where halibut is bycatch, and noted that the rates vary by fishery type, but that the rates have been pretty static.
- **Dr. Steven R. Hare** (IPHC) presented "*Potential yield and female spawning biomass gains from reduced bycatch levels.*" There were no questions.
- **Dr. Steve Martell** (UBC) presented *"Impacts of halibut bycatch and wastage on halibut coastwide yield and spawning biomass."* Following Dr. Martell's presentation there were comments to clarify that:
    - The Gulf of Alaska area referenced in his paper includes Area 3A and 3B, and excludes Area 2C because trawling is prohibited.

- The analysis Dr. Hare presented took into account the impact of U32 bycatch on spawning biomass, rather than assigning it all directly to the fishery, whereas Dr. Martell's analysis did not make this distinction between size groups.

- **Dr. Juan Valero** (IPHC) presented "*Current understanding of Pacific halibut migration patterns.*" Comments following Dr. Valero's presentation included that:
  - Light-based location and movements of fish with PAT tags can be difficult to estimate at high latitudes, but this could be improved by integrating depth, temperature and geomagnetic information.
  - There is age information for around two thirds of recovered tags that could be incorporated into the model to estimate migration rates by age. Although migration rate estimates are not currently being used in the halibut stock assessment, migration rates are being used for harvest strategy work that includes spatially-structured models with migration..
- **Mr. Tom Jagielo** (TJC) presented "*Current understanding of halibut migration.*" Following Mr. Jagielo's presentation, there was some discussion of the relative movement into the Gulf of Alaska and the Bering Sea:
  - To examine this type of migration closely would require accurate estimated scanning rates for each area, and a few factors would have to be dealt with, including vessels with pooled landings, fish that migrate to Russia, and those caught on board vessels without scanning equipment, in order not to bias mortality rate estimates.

Presentations: Management of Halibut Bycatch

- **Mr. John Gauvin** (Groundfish Forum), **Ms. Julie Bonney** (Alaska Groundfish Data Bank), and **Mr. Kenny Down** (Freezer Longline Conservation Cooperative) presented, "*Management programs and industry initiatives to reduce halibut mortality rates and amounts in North Pacific groundfish fisheries.*" Following these presentations, there were clarifications made about these programs:
  - Mr. Down noted that his cooperative has 28 active vessels, which might be up to 30 in 2012 in Bering Sea, and 6-8 in Gulf of Alaska. Mr. Gauvin said that there are 24 trawl vessels under Amendment 80, with 17 of these that are active.
  - Allocation of bycatch is done by company, then from each company to their vessels since most companies have multiple vessels. Mr. Down noted that there is a single voluntary fishery cooperative for Pacific cod, which divides up cod catch and corresponding halibut bycatch shares.
  - In response to a question about the drop in bycatch between 2004 and 2006, Ms. Bonney noted that there was a reduction in 2006.
- **Mr. John Gauvin** (Groundfish Forum) and **Mr. Kenny Down** (Freezer Longline Conservation Cooperative) presented, "*Amendment 80: Rationalization of the non-pollock trawl catcher-processors in the Bering Sea/Aleutian Islands.*" The presenters clarified that:

- Mr. Down explained that lower rates are due to strict regulations; all fish have to be carefully released, halibut never come onto the boat, but are all released outside the boat. He noted that in a "race-for-fish" fisherman speed haul even if they see a lot of halibut bycatch, whereas this doesn't happen when there is a cooperative in place.
- Mr. Gauvin explained that before Amendment 80, some halibut would get back into the water right away, but others would be onboard 6-8 hours and were not good shape when discarded. Now, they are trying to release all halibut in less than 20 minutes. In 2009, the average was about 26 minutes, but with the cooperative, they might be able to restructure work to more frequent but shorter hauls.
- Mr. Gauvin noted that the time halibut spend in the tank drives the mortality rate and that generally the style of fishing has changed since Amendment 80, from loading up to catch as many as possible, to trying to optimize the quality of target fish.

- **Dr. Juan Valero** (IPHC) presented *"Re-evaluating the minimum size limit in the Pacific Halibut commercial fishery."* After the presentation, Dr. Valero added:
  - When asked if selectivity was a function of length and Dr. Valero clarified that there was an assumption that selectivity changed overtime with changes in size at age.
- **Dr. Steve Martell** (UBC) presented "*Effects of reduced minimum-size limits on halibut biomass, yield, and wastage."* After presenting, Dr. Martell clarified:
  - There is an increase in spawning biomass because of the lower mortality rate due to less wastage in the directed fishery.
  - When fish grow slowly, an individual fish might be caught several times before it reaches the minimum size, and with a non-zero discard mortality rate, this increases the overall total mortality rate.
  - In a model where arrowtooth, not halibut, is the source of density, the result would be generally the same as the model with the density dependent growth scenario..
- **Mr. Martin Loefflad** (NMFS AFSC) presented "*Planned Changes in the Alaskan Observer Program.*" After the presentation, Mr. Loefflad clarified that:
  - For boats less than 40' fleet, there are challenges to putting extra people onboard, and that they are looking into electronic monitoring possibilities. Dr. Allen noted that in Northern Ireland self-sampling is used, where fishermen bring samples of hauls back to port.
- **Ms. Sarah Williams** (NMFS Northwest Region) presented, "*Halibut individual bycatch quota (IBQ) in the Northwest Trawl Catch Shares Program.*" There were no questions.
- **Mr. Barry Ackerman** (Fisheries and Oceans Canada) presented "*Management and monitoring of Pacific halibut bycatch in B.C.'s trawl commercial groundfish fishery.*" After presenting, Mr. Ackerman noted that:
  - The Canadian trawl industry is limited entry and includes 142 licenses, about 50 of which are active.
  - After the fishery had been closed, they decided to reopen it in February 1996 and had about 3 months to create the program.

- The 100% observer coverage was not initially well received, but because the fishery had overshot quota by so much, it was felt to be necessary.
- The program costs about $3 million, of which the government pays about $900,000 to cover management costs, while the fishermen pay for observers.
- The fishermen's behavior changed with observers and the quota, including that fishermen now often do an exploratory trawl to see what bycatch comes up, and that they keep the time on deck very low, 16 minutes on average.

- **Ms. Chantelle Caron** (Fisheries and Oceans Canada) presented *"Management and monitoring of Pacific halibut bycatch in the Hook & Line/Trap commercial groundfish fishery in British Columbia."* In response to questions, Ms. Caron noted that:
  - The logbook audit score depends on the amount of fish observed on a percentage basis.
  - The logbook is taken as the official record if the fisherman passes the audit (testing 10% of the sets against the electronic monitoring). They use electronic monitoring for the entire official record if they fail.
  - Currently, only about 20-30 trips out of a few thousand trips require full electronic monitoring.

Appendix 2: Participant Feedback (Public Comment)

During the morning of Day 2, Dr. Jonathan Raab facilitated a discussion whereby workshop attendees provided their views first on halibut ecology and then on impacts and management of halibut bycatch. Panel members provided feedback to attendees, where appropriate.

Participant Feedback/ Panel Responses: Halibut Ecology

James Whitethorn (West Brothers Group) directed a question to Dr. Hare about the cause of decline in Area 2C. He explained that a flaw that he sees in the assessment model is that there are more square miles of area, which results in extra biomass, which mean extra apportionment in some areas. He noted that Area 2C decreased in biomass in the past four years because the area is smaller than other areas. Mr. Whitethorn suggested returning to a closed area model (used prior to 2007) and look at historical averages as a baseline, and that fish should not be apportioned until the old model is run parallel to the current model.

- Dr. Leaman responded that the Commission would be reviewing the model later this summer.
- Dr. Hare responded that the Commission switched from the closed area model to coastwide because the closed area method was overestimating the biomass, and harvest rates were well in excess of anything sustainable, although harvest rates might still be too high in the west.
- Mr. Whitethorn noted that last year they could have had a higher harvest rate, closer to historical rates, which would still have been sustainable.

Bob Alverson (Fishing Vessel Owner's Association) made several comments, noting that the size limit for halibut was increased in 1974 to 32 inches and at that time there was not a Pacific cod fishery. He asked about the risks of considering a size reduction in isolation of other competing species populations (such as cod and arrowtooth flounder).

- Dr. Leaman responded that there is always concern about unintended consequences, changes in species composition are difficult to predict, and that the Commission aims to take a precautionary approach.
- There was some discussion about the potential reduction in U26 bycatch and what the contribution of U26 halibut is to the fishery.

Julie Bonney (Alaska Groundfish Data Bank) spoke about halibut ecology, size and age and possible management strategies, including changing the minimum size and its impact on the halibut population. She posed the question: what should we test to see if there is a population response? Ms. Bonny suggested that the Commission look at the management of the fisheries, hypothesize about potential change and test these hypotheses.

- Mr. Jagielo suggested that this idea is in line with using an adaptive management strategy to test hypothesis through in-field management and research.

- Ms. O'Connell noted that the restructured observer program will start in 2013 and is expected to provide more data, including the size distribution of discarded halibut in the directed fishery.
- Ms. Bonney responded that within the directed fishery, there are several assumptions that need to be confirmed, including the size selectivity of the fishery, the discard percentage, but you do have a good idea about the growth parameters. Ms. Bonney suggested that if the issue is competition among smaller halibut that fishing more of these fish (with a lower minimum size limit) could reduce competition and change the size composition of the stock.
- Dr. Ianelli noted that Ms. Bonney was identifying density-dependent growth response, which is one of the hypotheses that should be looked at again.

Heather McCarty (McCarty Associates) explained that she works with fishermen in the Gulf and the Bering Sea. Ms. McCarty recommended that management programs and approaches, which were not explicitly included in the morning's list of topics, should be considered and recommended that there be a panel lead for management as a topic in the afternoon session.

- Mr. Jagielo agreed and Dr. Martell noted that both size of age and ecology have important implications for management.

Chris Oliver (NPFMC) discussed the change in size at age, noting that this is a remarkable change that doesn't seem to happen in nature. He suggested looking at other fish species to see if there is anything akin to this order of magnitude change in size at age. He pointed out that slow growth and reduced size at age are not necessarily the same thing; that fish could grow quickly and stop, getting stuck at a small size at mature age.

- Dr. Neilson said this has been observed in haddock with time series starting in 1963, but that he is not sure if the scale of the change is the same as for halibut, and agreed that it would be interesting to look into this.
- Dr. Kruse noted that there have been changes in body-size for salmon and pollock in the Gulf of Alaska; age 10 pollock have doubled in size since 1982. He wondered if there is a common mechanism here, changes in energy flows or density-dependence, that would help explain the root mechanism for the changes in size at age for halibut.

Leonard Herzog (Area 4 Fisherman) explained that one of the big ecological changes is that most of the halibut biomass is now in the Bering Sea, and that a full third of the entire stock is now in Area 4CDE. He suggested looking specifically at what is happening in Area 4CDE separately from a coastal look at size-at-age. Mr. Herzog suggested that there is not the same handling issue for halibut that are 26 to 32 inches that you find in the Gulf. Since the smaller stock is robust, perhaps there is something going on in the northern areas of the Bering Sea that isn't happening in the Gulf and is concerned that this will lead to an increase in bycatch in the future.

- Dr. Ianelli asked Mr. Herzog to clarify whether fishermen are using larger hooks to avoid smaller fish in his area?

- Mr. Herzog responded that if they don't change their fishing practices, they won't handle smaller fish (26-32"), so the change in minimum size is moot in the Bering Sea. Because of this, Mr. Herzog recommended that the Bering Sea should be looked at separately from the full coastwide analysis, using the NMFS trawl data.
- Dr. Hare noted that most of the biomass has always been in the Bering Sea, but the Exploitable biomass (Ebio) is mostly in Areas 3AB, and that Ebio has not been increasing in Area 4.

Joel Hanson (The Boat Company) posed three questions about the diet studies. He noted that up to 30% of halibut diet is fish offal, and asked if there have been any studies about nutritional value of offal compared to whole fish? Mr. Hanson noted one presentation indicated that prey size depends on predator size, and large halibut eat large fish—he wondered about the composition across all size classes and if large fish consume a lot of arrowtooth flounder? If there were an increase in the number of halibut in the Gulf of Alaska, would they take care of some of the abundance of arrowtooth?

- Dr. Leaman agreed that having more information on this would be helpful, and that he was not sure about the nutritional value of offal.
- Dr. Aydin guessed that this would probably not be an effective population control since arrowtooth are a small portion of the halibut diet.

Ricky Gease (Kenai River Sport Fishing) asked how these models account for reducing the minimum size limit to reduce density-dependent competition, including halibut interaction with arrowtooth flounder?

- Dr. Hare explained that in work that he did about a decade ago, the best correlate found was halibut itself (age 10+), indicating intra-species competition, but noted that arrowtooth flounder were not included in that study. He noted that arrowtooth flounder have a biomass five times the size of halibut, so they probably are a factor in growth response, and that there is no way to know the effect of changing size limit until it is tested.

Roland Maw (United Cook Inlet Drift Association) recommended re-analyzing otoliths to see the difference in test methods and how this might affect the curve of size-at-age and other models derived from that graph. Mr. Maw also noted that he doesn't see a lot of food in halibut stomachs in the longline fisheries; he suspects voluntary regurgitation, and noted that diet studies need to take this into account.

- Dr. Leaman answered that the otolith re-aging project is underway, and they are also sectioning the otoliths to get growth increments. He noted that this only looks at the growth of the survivors, and isn't representative of the whole population.
- Dr. Leaman also explained that aging differences might have exaggerated the changes in size at age for older ages, but there is still a decline in size at age since late 1980s with the same test methods. He also noted that regurgitation has been accounted for in longline fisheries for a long time.

- Dr. Aydin noted that he does check the mouths of halibut for signs of regurgitation, and if there are any signs, they do not use that fish in their study. They do not use long line caught fish, which they assume are hungry since they go after bait.

Richard Yamada (Alaska Charter Association) noted that arrowtooth flounder have shown up in the past 5-6 years, and that he has noticed that halibut nursery areas have become overrun with arrowtooth flounder. There are about 5-7 arrowtooth flounder for every halibut. He asked if there have been studies on arrowtooth flounder migration, and suggested that competition for food is a big factor in size-at-age for halibut. Mr. Yamada, who fishes inside waters, pointed out that this is a big problem for recreational fishermen, who now have to put in lots of effort to catch halibut.

- Dr. Ianelli responded that there has not been any tagging or migration analysis on arrowtooth flounder, but there is a bottom trawl survey that includes arrowtooth flounder, which shows the distribution. He agreed that population and migration studies on arrowtooth flounder should be considered for future research.
- Dr. Forrest noted that they see a lot of arrowtooth flounder in Canada, and that a stock assessment is planned for the next two to three years.

Participant Feedback/ Panel Responses: Impacts and Management of Halibut Bycatch

Dr. Jonathan Raab led a facilitated discussion where workshop attendees provided their views on halibut ecology and panel members provided feedback.

Linda Behnken (Director of the Alaska Longline Fisherman's Association) noted that she hoped to develop a joint understanding of the impact of bycatch on halibut stock and that it would be helpful to identify what metrics need to be included in any evaluation of bycatch. The metrics she identified were: the effect on yield and spawning biomass, the components of stock (particularly the U26 and O26), growth rates by area, the distribution of bycatch by area, and the accuracy of bycatch estimation. Any evaluation that doesn't include all of these is oversimplified and is not meaningful. Ms. Behnken recommended that the panel should specify what the metrics are as an output from these meeting.

Ms. Behnken noted that there is lot of uncertainty in managing the halibut stock, but there is a lot known about the directed fishery, size classes, and more known about O26, whereas there is little known about the U26 portion of the stock, including its growth rates and migration. She recommended that this need to be looked at and should be a focus of future research, including whether the current trawl assessment is giving good information on this portion of stock.

She noted that Dr. Valero concluded that if the minimum size limit were reduced, then the harvest rate for the directed fishery would need to be reduced by 50% to avoid the increased risk to the stock from increased capture of immature female halibut. In Dr. Hare's presentation, he noted that most of the trawl bycatch is around 26 inches, which are also immature fish. That bycatch can be accounted for through a direct deduction in the CEY or by adjusting the harvest rate. Until 2010, all bycatch was accounted for through a harvest rate adjustment; now a direct deduction is taken for bycatch/wastage of O26U32 fish. With this new accounting for the

O26U32 fish, the target harvest rate was changed from 20% to 21.5% (and 15% to 16.5% in Area 3B and 4) which is an 8% change. Dr. Hare noted that accounting for the U26 bycatch as a direct deduction would change the harvest rate by about the same percentage, but it is unclear in what area that deduction should be taken, so it is still factored into the harvest rate. If the effect of allowing the directed fishery to harvest fish U32 inches results in a 50% reduction in the harvest rate to protect stocks, why does bycatch of these same size fish only affect the harvest rate by 8%-16%??

- Dr. Hare noted that there are two issues, first that in the work that he and Dr. Valero did, when you drop the minimum size, this changes the definition of the exploitable biomass (to include the 26-32" fish, which increases Ebio), so it requires dropping the harvest rate. When they did the other study, they didn't change selectivity or the definition of Ebio. Dr. Hare noted that these two studies couldn't be directly compared because they have a different definition of Ebio.
- Ms. Behnken responded that if there is that dramatic an effect of fishing the 26-32" fish that requires half the harvest rate, then the impact of the stock in that class size should have a larger impact on the harvest rate.

Roland Maw discussed selectivity and recovery rate. He described what happens when he offloads: there is a separation of the halibut by size, and his tally sheet reports the number of fish by size class. He noted that a 32" fish generates about 80oz of useful fillet, which sells for $10/lb, resulting in a $6.50 ground price. In contrast, a 26" fish generates about 25oz of fillet, which results in $3.25 ground fish price. For an IFQ user, they would rather use their quota to deliver bigger fish. If there is a consideration of reducing size limit, a market analysis is essential. Mr. Maw described "finger fish"—when he offloads, if a fish is on margin of 10-12 lbs (each fish is weighed), then a finger goes on scale to avoid falling below the minimum. He suggested that if the size limit were lowered, then the finger fish would fall from the 10-15lb category to the next category.

Mr. Maw discussed the discard mortality rate, where 16% is the value used in the longtime industry. He noted that this number is from pre-IFQ days and that fishing behavior has changed; they are doing shorter sets, rather than doing long sets. If they do a longer set, there has been a dramatic increase in sleeper shark depredation, where they take a bite out of the bigger fish, and there is an issue with sand fleas. Mr. Maw believes that the mortality rate is closer to 10%, and is worth more study to get a more accurate number into the models.

- Dr. Forrest responded that she has heard suggestions before that selectivity might move to the right, as fisherman may move away from areas with small fish to areas with bigger, more valuable fish. She asked what the price difference would need to be to have this happen and suggested 100% observer coverage may be necessary. She also suggested that is a good topic for an experimental management approach.
- Mr. Maw responded that they will have observer coverage coming in soon, but this might not detect the selectivity change because he is already avoiding areas where the smaller fish are because big fish are worth more. He group tries to fish with a minimum size of 33 or 34 inches.
- Dr. Martell pointed out that there is economic value to be gained by decreasing size, but could increase economic efficiency and decrease the mortality rate. He also noted that

the expected wastage is taken off the top from the CEY, but this doesn't prevent fisherman from cheating, so 100% observer coverage and individual responsibility for each vessel is also needed.

- Dr. Hare noted that a reduction in size would need to be accompanied with a change in the selectivity curve, but overall quota should not increase. They would need to assess the response by fishing industry before there would be any increase in quota.

Leonard Herzog (Area 4 fishermen) noted that about half of the halibut biomass is in the Bering Sea, and even through Area 4CDE has small fishery that was cut by a third, it is the area where bycatch is taken and biomass is growing. He suggested that the panel focus on Area 4CDE and on migration. He noted that two reports on migration were presented, and believes that they call into question the huge changes that the IPHC made in management when they moved from an area specific to a coastal style. He noted that none of recent PAT tags were found outside of 4CDE and that 93% of PIT tags stayed inside 4CDE and another 6% were from a nearby area. He noted that 99% of the PIT tags had nothing to do with the Gulf of Alaska; he believes that migration is critical. Mr. Herzog recommended looking at the Bering Sea and the Gulf as different areas, and even taking a look at 4CDE on its own.

James Whitethorn (West Brothers Group) recalled numbers from an Alaska Dept. of Fish & Game meeting for bycatch wastage for the crab pot fishery and that they were deducting from the quota in 2C by 303,000 lbs, whereas a presenter suggested a lower number. He hopes that the panel will correct this data and the quota.

- Dr. Leaman responded that this issue was flagged at the 2012 annual meeting, and they will look to update the data with State of Alaska help.
- Mr. Whitethorn also suggested that the trawl fleet should have 100% observer coverage and boats under 60 feet should have 100% electronic monitoring. Mr. Whitethorn noted that for his small boats, they have very short weather windows and could miss opportunities if they need to wait for an observer, and they may need to cut a crewmember to make room for an observer. He also noted that he thinks everyone should pitch in to help conserve halibut, and every harbor should be monitored, every lodge should be equipped with a monitor to get accurate count on halibut and bycatch wastage.

Bob Alverson (Fishing Vessel Owner's Association) explained that there is a wastage estimate that is estimated for commercial fishery. In last couple weeks he has realized that it's generated by 30% of the best producing survey sites as a proxy for the whole area because there isn't full observer coverage yet. This assumes that 60% of halibut caught are U32, but his fleets aren't seeing that; with traditional, skate-top gear, it's a lot of work to pull up these fish. He believes that the first year of observer program will show this. Mr. Alverson also noted that, in regards to bycatch in Gulf from trawl fisheries, it was distressing to hear the observer union talk about water hauls to comply with requirements and NMPS talk about issues with accuracy and gaming the system in Kodiak. He doesn't believe that they'll be getting an accurate read on trawl bycatch and is wondering if there has been an error parameter study, especially with lack of observer on

under 60 ft vessels. He also noted that small fish contribute to spawning biomass, and wondered about the difference between some of the presentations regarding the contribution of the U32 bycatch on the cap.

- Dr. Leaman noted that the size composition of catch vs. landing was open to examination, and that observers might be able to give some insight on this. When the observer program started in British Columbia, they measured every fish discarded and compared with survey catches and found identical composition; so the size composition of wastage is probably comparable to survey.
- Dr. Hare added that they would welcome better data, and are trying to account for all sources of mortality; the only other information they have is their survey, realizing that they don't pick hot fishing spots. The key assumption is that they are catching the same proportion of U32 and O32 as commercial fishers, which may be overstated.

Bill Hayes (US Seafoods) noted that he's dealt with bycatch issues for over twenty years and all of the captains that he fishes with are all dedicated to, and have spent years and many dollars to, minimize halibut bycatch. Before Amendment 80, most of their fisheries shut down due to halibut bycatch, not their target species. He noted that they have two observers when fishing in the Bering Sea, and they are not ever both down in the factory at the same time, they trade off and they do a good job with estimates of the catch and discards. Mr. Hayes explained that fishermen have been pining for tools to do a better job with halibut bycatch management and all prohibited species; he supports John Gauvin's program for halibut deck sorting; it is instrumental for saving halibut. As captains, they hate discarding perfectly good fish or killing fish they can't use. Mr. Hayes also endorsed a rationalized system in Gulf of Alaska. He believes that Amendment 80 in Bering Sea has worked well and would be good in the Gulf. The larger halibut are mostly in the Gulf, which is where the biggest savings from deck sorting would be.

- Dr. Leaman noted the fisherman behavior makes a huge difference, for example they change behavior when given individual bycatch caps. He asked if that is the type of feedback they need?
- Mr. Hayes responded affirmatively; noting that he had the freedom to use a halibut excluder all of A season and for every pound caught, he delivered about 180 lb of fish, so the value of halibut is enormous. They can never have zero bycatch, but they can minimize the mortality rate, particularly in the Gulf. In the Bering Sea, it is more difficult because the halibut are the same size as their target species.
- Dr. Leaman also clarified that deck sorting would be more effective in the Gulf because of the size differential, but is that because the additional time makes a difference in the Bering Sea?
- Mr. Hayes responded that in the Bering Sea, it is hard to sort halibut because smaller halibut are going by during the sorting process and it's hard to sort through them in a timely manner. If the halibut are larger, they can effectively sort them all in short period of time.
- Dr. Ianelli asked what Mr. Hayes thought about linking bycatch limits to actual abundance of halibut (i.e., the PSC would change with halibut abundance)?
- Mr. Hayes responded that he was not sure; he sees areas of halibut abundance and the fish don't stay there. If they make one tow and see lots of halibut, then they move on. He also uses halibut excluders, so doesn't see as much halibut on deck.

Julie Bonney (Alaska Groundfish Data Bank) commented that one significant policy issue is to determine if bycatch is a conservation concern or an allocation issue. She noted that halibut wags the dog for everyone, and drives the fisheries. In every individual quota management program presented yesterday, they are significantly below the halibut cap allocated to the fishery. In the Canadian model, they are at 30% of the cap. Only in the Gulf of Alaska, which is still operated as a limited-access fishery, is this still an issue. On the policy side, it makes sense to reduce the cap in those areas where they aren't using the total bycatch amount.

Ms. Bonney explained that in the GOA Rockfish program, people spent millions of dollars to change their gear. If you set up a system where everyone is trying to do a good job, then the halibut don't end up driving the fishery, as long as fisherman have individual tools to reduce their halibut bycatch. The issues of allocation and cap drive the conversation in the wrong direction. Managers need to set up incentives to get everyone to do everything they can to reduce bycatch and wastage. The magnitude of the fishery in the North Pacific vs. Canada is different. The halibut rate determines how much target fish they can catch. In the North Pacific, most of her fishers fish 200-270 days per year and are at the 30% level for observer coverage. The floating cap that Dr. Ianelli raised in an intriguing idea since bycatch is driven by the total biomass in the system, but the only indicator for total biomass is from bottom trawl surveys and there is very little data from the Gulf of Alaska. Is there a better method to estimate total biomass?

Ed Richardson (Marine Conservation Alliance) noted that they have two observers on board boats fishing pollock and 99% of hauls are observed which he results in fairly accurate estimates. His fleets look at timely length frequencies so they know the size of the halibut they catch; they pay attention to the NMPS survey, and the timing and location of bycatch, so they know a lot about their halibut catch. They can see patterns emerging and react to them. In recent years, halibut bycatch is higher and there are a lot of small fish. It is a very difficult environment for trawlers in the Bering Sea. They think that there could be two population foci, and potential different management strategies. For fishing management practices, it takes a few years to see a pattern and another few to get to a solution, especially if they need new gear. To do this, you need to have the tools, including rationalization. Mr. Richardson believes that wastage has to do with slow growth, which is interacting with minimum size. The results depend on how the fishery is modeled, so there is a need to come to an agreement on the model. For future research, Mr. Richardson recommended some work that Martin Dorn did on the pollock stock assessment in the Gulf and has modeled the Gulf ecosystem, which could be a great start for future research.

Karl Haflinger (Sea State Inc.) hoped that the Commission will look at the question of benefits of bycatch reduction to the halibut stock. He found the presentations from Dr. Hare and Dr. Martell to be confusing since they came to different results. He thinks it would be useful for the public to have some recognition of differences between these approaches, particularly regarding how the under 32 inch yield contribution was derived and if the model accounted for density-dependence.

- Dr. Hare clarified that the fundamental difference in the two analyses is how the U26 component is dealt with. For the O26, both result in about the same 1:1 ratio (reducing bycatch increases yield by the same amount). The big player is bycatch of little halibut, which have much greater value left in water than taken out because of their contribution to future spawning biomass. Dr. Hare explained that Dr. Martell used 1:1 ratio for U26 as well. On the conservation side, the U26 bycatch is where future yield will come from, so it is worth more than one-to-one in future yield.
- Dr. Martell agreed with Dr. Hare, in that most of the analysis was the same for O26, but he didn't analyze U26. Dr. Martell also noted that the definition of yield loss ratios is different in the two models. They also both made a lot of similar assumptions (e.g., using the same mortality rate same for U26 and O26), which could be examined. He noted that when there are lots of competitors, the fish need to spend more time feeding, which exposes them to more predation, which could lead to higher mortality.

Joel Hanson (The Boat Company) took note of the migration study and hoped that additional research will take place in this field. He appreciated the discussion on Canada's 100% observer program; questioned if 30% observer coverage is enough to see "observer effect"? He expressed support for 100% electronic monitoring of small vessels, with the possible exception of open skiffs. Mr. Hanson asked Dr. Martell about his graph that showed historical and projected mortality rates, and which inputs caused the immediate and robust growth in mortality rates in the Gulf? He hypothesized that if the retrospective bias were considered next year, that mortality rates for the directed fishery would not increase, but probably go down in the future. He asked to what extend is the precautionary principle observed while the numbers of halibut bycatch in the Gulf is kept constant?

- Dr. Hare responded that the current harvest policy was developed 10 years ago, and factors in bycatch as a reduction in recruitment to the stock. In the simulations the female biomass drops. They looked at both density-dependent growth response and flat growth. Dr. Hare noted that these analyses are dated at this point, but that the basis of the harvest policy was precautionary. It is in the process is being upgraded and needs to be updated to reflect current conditions.
- Dr. Martell responded that the forward projections in his analysis used assumptions about recruitment (he used low, medium and high), but the same fishing mortality rates come out because the model assumes a 20% exploitation rate across the whole coast. The V-shaped recovery pattern is artifact from the IPHC age structure and the assumption of a constant recruitment. Dr. Martell noted that he would probably need to include a stochastic element in the model in order to pass peer review.

Julianne Curry (Petersburg Vessel Owners Association) noted that she is uncomfortable with the focus on bycatch as an allocation issue. The directed fisheries would say that this is an allocation issue; allocating who is responsible for bycatch, since they see a reduction in their yield. Ms. Curry suggested that future research include a focused study on the migration of halibut and the downstream effects of bycatch on other regulatory areas. Ms. Curry also mentioned that she is uncomfortable with the assumption that a change in size limit means a change in fishery practice and would require 100% observer coverage. She noted that the halibut

fishery operates in time-period constraints; people are trying to maximize their trip, and save money on bait and fuel. She mentioned that she heard that someone mentioned only collecting diet information from trawl fishing, however she knows that halibut are opportunistic feeders, and are not just going after line bait because they are hungry.

- Dr. Martell agreed with the need for a migration study, but first recommended using the historical tagging data to develop an integrated assessment model to see the effects on downstream ecology.

John Gauvin (Alaska Seafood Cooperative) discussed the idea of the floating cap for halibut linked to biomass. He noted that his cooperative's captains in the Bering Sea say that the biomass of halibut that overlaps with their target fish has increased; that the ratio of halibut in their catch has gone up over time, so the cap for halibut would be going up right now, though downstream, they are seeing less. He believes that fisheries in the Bering Sea have learned to avoid halibut and since Amendment 80 in 2007, they have done a good job avoiding catching halibut. The captains do a lot to avoid catching halibut and stay under the cap, including spending a lot of money, using halibut excluders, and sharing information to avoid halibut hotspots. He questioned, from an equity perspective, if it makes sense to lower their cap because they had done such a good job lowering their halibut bycatch. They don't know about their ability to avoid halibut in the future; the extent of halibut overlap with their target species will change over time. They want to be able to catch their ground fish and not be punished with lower cap. Their rationalization program required an increase in retention of target fish, and they have been able to improve that. The directed fishery needs to use tools they have to either not catch undersized fish or figure out how to market them. Mr. Gauvin expressed concern about the lack of good information about discard rates. It troubles him to use proxy data from survey to estimate discard and recommended using cameras. Finally, he noted that his captains think they can fish for arrowtooth flounder in high abundance areas with little halibut bycatch. He thinks that arrowtooth flounder must be competing with halibut, so they could try to fish down some of these areas because the market for arrowtooth bigger than has been before and it's a way to test the competition hypothesis.

- Dr. Ianelli asked Mr. Gauvin to comment on economic efficiency when it comes to avoiding bycatch.
- Mr. Gauvin responded that halibut bycatch has constrained available yield of target groundfish in the Gulf, and sometimes the Bering Sea, so they leave a lot of fish in the water. They need to be able to catch groundfish efficiently given constraints of halibut bycatch, and one way is choosing when to fish and using halibut excluders. He noted that using halibut excluders can results in a loss of 10-30% of the target catch, but is worthwhile to avoid having the fishery shut down because they reach the halibut cap.

Paul MacGregor (At-Sea Processors Association) noted that a chart that was shown yesterday showed a drastic reduction in bycatch in the mid-1980s, and there was a reference to that being the target, but foreign fleets at that time cheated by avoiding observer coverage in areas with high bycatch. They had a manual that described how to cheat and in 1985 there was a big investigation. It was this scheme that resulted in low bycatch in 1980s. Mr. MacGregor noted that he had asked the Commission previously not to use the chart without a footnote about this

time period, and that it is not a relevant or appropriate reference point for bycatch levels. He also supported the idea of a gap analysis for a way to account for bycatch mortality and that it would be a good time to do an audit now that they are restructuring the observer program. He (facetiously) suggested that they could eliminate bycatch by getting rid of observers since only observed boats seem to have bycatch.

Duncan Fields (NPFMC) asked about a pie chart showing the age of predators and halibut diet, noting that the only overlap is pollock; he wondered how the growth of arrowtooth flounder competes with halibut since pollock seems to be the only overlap in diet. Regarding management approaches and programs, Mr. Fields wondered if there is any place in the treaty between the two countries that specifies that dead halibut have to be discarded. Should we use retention as an incentive for bycatch reduction?

- Dr. Leaman noted that the idea is to minimize bycatch, not necessarily to discard dead halibut, but the process is to reduce total bycatch without turning it into a target fishery.
- There was some discussion about the idea of keeping bycatch. Mr. Fields suggested two possible approaches: a comprehensive rationalization approach, or bycatch allocation IFQ of bycatch that is not the target species, and noted his concern about a public policy that wastes a significant amount of halibut.
- Dr. Martell asked if transferability between gear types is part of the solution?
- Mr. Fields answered that it could be, but you would need to know the portion of market share for each gear type.
- Dr. Martell agreed that it is a lose-lose situation to discard dead fish.
- Dr. Leaman noted that the halibut fishery is constrained by halibut bycatch every year, but the two countries agreed on reductions on bycatch, which have not been met, at least in the US.

Kurt Cochran (F/V Marathon) noted that the observer program has changed over time and that the new program will include random selections for coverage. He noted that most fishermen don't actually game the system, but do respect the law. He also commented that most of the time the coverage is more than 30% and that observer coverage is already pretty robust. Mr. Cochran asked noted that he doesn't have a problem with 100% observers, but believes that fishing practices are the same with and without the observers.

Appendix 3: Summary of Ideas for Future Research

The bulleted list of potential future research summarizes the numerous suggestions made during the course of the two-day workshop (both during the two specific panel discussions on future research as well as other times when suggestions were made). The list includes all suggestions made by one or more Panelists and does not imply consensus. See the actual meeting summary for who made the initial recommendation and more context for each recommendation.

Inter-species Interaction

- Investigate density interaction with other species, especially those species with similar life phases, including arrowtooth flounder.
- Examine whether the decline in size at age has origins with competition during early life stages with other flatfishes (yellowfin sole, rock sole, flathead sole, arrowtooth, others).
- Examine the relative abundance of the other flatfishes in the Gulf of Alaska during the 1950's from trawl surveys or commercial catches and the environmental conditions in the Gulf of Alaska during that time to see what the stock assessment could tell us about halibut recruitments and the rate of fishing on halibut in previous periods.
- Compare age-specific spatial distribution of potential halibut competitors to see if they eat the same prey in the same areas as halibut and if prey is in limited supply.
- Investigate changes in size at age for other species (e.g., GOA pollock, Pacific salmon), to see if they offer insights into the mechanisms for reduced halibut size at age. Examine if there are common ecological explanations (energy flow to pelagic vs. benthic) or biological explanations (stock density-dependent effects).

Halibut Size at Age

- Look at the time from the 1920s to 1980s when the size at age was increasing, to see if there is an opportunity to learn about the mechanisms that lead to this; this may help explain when and how populations of halibut responded in a positive way to help us understand the current decline.
- Examine spatial, temporal and age-specific patterns in size at age to help elucidate causal mechanisms. For instance, size at age was relatively stable for ages 6-10 over 1993-2003 and then declined; for the older ages, size at age generally declines steadily over 1993-2011. Determine if these changes are associated with differences in diet among young/small and old/large halibut, and if these differences, when analyzed spatially, help elucidate ecological mechanisms behind the decline in size at age.

Halibut Migration Studies

- Examine the current migration data (spatially and temporally) to determine if size, sex, age, and/or growth rates influence the propensity to migrate and if the annual migration rates are density dependent.
- Extend analyses on the impacts of bycatch and reduction in size limit to include migration.

Climate Impacts

- Update previous work on climate effects on the ecosystem (e.g. that climate changes recruitment; strong/weak recruitment leads to increases/decreases in stock size) to see if this analysis still holds true with current data.
- Further study the influence of climate on growth or size; one study demonstrated climate effect on early growth, but this issue warrants further research.

Fishing as a Cause of Evolution

- Investigate the connection between fishing and size at age; fishing as a cause of evolution should be a research priority so this potentially low chance, but high-risk, mechanism can be eliminated.
- Consider reaction-norm-based approach to disentangle evolutionary effects versus phenotypic plasticity; an approach that has been used for Atlantic cod and includes examination of growth and age and size at maturity. Density-dependence tends to lead to predictable changes in these growth and maturation. For instance, higher fish densities tend to lead to slower growth, which tends to delay maturation. When you find patterns that diverge from expectations owing to density-dependence, it may be indicative of an evolutionary genetic effect.
- Collect baseline genetic data now against which future genetic samples could be compared.
- Calculate the fishing mortality rate that is required to get to the Type II mortality that is seen. It was discussed that current fishing mortality rates are within realm of reasonable, around 70-75%, and that current harvest rates are below what has been historically seen in the fishery.

Otolith Re-testing

- Re-evaluate archived otoliths with contemporary methods to eliminate potential methodological impacts on the observed trends. A sub-sampling approach may be an efficient means to quickly resolve this issue.
- Calculate growth increments from otoliths (break and bake) from the time period of increasing size at age as this may help to understand when and how different sizes of halibut responded.
- Examine growth increments on otoliths and compare ocean conditions to see the impact of ocean temperatures on regulation of physiology, affecting growth and survival.

Diet Studies

- Investigate a possible shift in diet of halibut from the period of increased growth rate to the present (e.g., pollock abundance in the Gulf of Alaska then and now) and its effect on halibut growth.

Statistical/ Sampling Changes

- Investigate Bayesian approaches in lieu of the types of estimators discussed. Model-based estimators developed within the Bayesian framework were not discussed; the workshop focused on design-based estimators. Examples of model-based estimators can be found within Hirst et al. (2004), Millar and Fryer (2006), and Millar and Hirst (2007).
- Consider using the regression estimator, rather than ratio estimator; if there is a significant intercept then the regression estimator will be more precise.

Management Approaches

- Consider creating better incentives for fisherman to reduce bycatch, including fee-based approaches.
- Continue bycatch monitoring and discard mortality rate reduction programs, and identify clear objectives for these programs.
- Continue research and reporting of successful co-operative programs and successful incentives for reduction of bycatch.
- Conduct an adaptive management experimental fishery to look at the effects of reducing the minimum size limit on fishing behavior.
- Consider a floating cap; in the Gulf of Alaska, the Council has a PSC limit that could vary with abundance, and this type of floating cap, instead of a hard cap, should be considered in the management program.
- Revisit the halibut Harvest Policy, given large changes in size at age and understanding of halibut ecology.
- Consider individual bycatch caps to reduce halibut bycatch for the US.

Additional Analyses

- Consider incorporating halibut catch and size data from the NMFS annual/biannual trawl survey into the annual stock assessment. Trawl survey data provide another wealth of information on the status and geographic distribution of halibut stocks. Owing to mesh size, the NMFS surveys may also help inform the retrospective bias in the estimates of recent recruitments.
- Conduct systematic research into retrospective bias in stock assessment model.
- Investigate the use of length frequency data from the Bering Sea.
- Continue research on Dr. Hare's analysis on impact of female spawning biomass, which just looked at 2008 and across all fisheries for U26.
- Examine the structural assumptions of the stock assessment model (particularly with respect to fishery selectivity) and of the analyses presented at the meeting.
- Create a universal assessment that incorporates everything into the annual stock assessment, including data on the spatial nature of fishery.
- Look at the Bering Sea tagging and migration data on a finer scale, especially in Area 4. It appears that there is some heterogeneity there, and a breakout seems to be workable with the existing data.

Appendix 4: References Provided by Panel

Dr. Leaman listed the following references:

- Benoît, H.P. and Allard, J. 2009. Can the data from at-sea observer surveys be used to make general inferences about catch composition and discards. Can. J. Fish. Aquat. Sci. 66: 2025-2039.
- Faunce, C.H. and Barbeaux, S.J. 2011. The frequency and quantity of Alaskan groundfish catcher-vessel landings made with and without an observer. ICES J. Mar. Sci. 68: 1757-1763.
- Mawani, T. 2009. Evaluation of the commercial groundfish integration pilot program in British Columbia. MA thesis, Royal Roads University, Victoria, Canada.

Dr. Allen provided the following references:

- Allen, M., Kilpatrick, D., Armstrong, M., Briggs, R., Pérez, N and Course, G. (2001). Evaluation of sampling methods to quantify discarded fish using data collected during discards project EC 95/094 by Northern Ireland, England and Spain. Fisheries Research, 49, 241-254.
- Barnhart, H.X., Haber, M. and Song, H. (2002). Overall concordance correlation coefficient for evaluating agreement among multiple observers. Biometrics, 58, 1020-1027.
- Barnhart, H.X., Haber, M.J. and Lin, L.I. (2007). An overview on assessing agreement with continuous measurements. Journal of Biopharmaceutical Statistics, 17: 529-569.
- Bland, J.M. and Altman, D.G. (1986). Statistical methods for assessing agreement between two methods of clinical measurement. The Lancet 1(8476): 307-311.
- Bland, J.M. and Altman, D.G. (1995). Comparing methods of measurement: why plotting difference against standard method is misleading. The Lancet, 346: 1085-1087.
- Bland, J.M. and Altman, D.G. (1999). Measuring agreement in method comparison studies. Statistical Methods in Medical Research, 8: 135-160.
- Bland, J.M. and Altman, D.G. (2007). Agreement between methods of measurement with multiple observations per individual. Journal of Biopharmaceutical Statistics, 17: 571-582.
- Carstensen, B. (2010). Comparing Clinical Measurement Methods: A practical guide. Wiley. ISBN: 978-0-470-69423-7
- Chakrabarty, R.P. and Rana, D.S. (1974). Multistage sampling with partial replacement of the sample on successive occasions. Proceedings of the American Statistical Association, Social Sciences Section, 262-268.
- Chakrabarty, R.P. and Rana, D.S. (1977). Joint estimates of change and mean in multistage sampling on successive occasions. Proceedings of 41st Session, New Delhi, Bulletin of the International Statistical Institute XLVII, 4, 103-107.
- Cochran, W.G., Third Edition (1960). Sampling Techniques. Wiley Publications.
- Cunia, T. (1965). Continuous Forest Inventory, partial replacement of samples and multiple regression. Forest Science, 11, 480-502.
- Cunia, T. and Chevrou, R. B. (1969). Sampling with partial replacement of three or more occasions. Forest Science, 15, 204-224.
- Hirst, D., Aanes, S., Storvik, G., Huseby, R.B. and Tvete I.F. (2004). Estimating catch at age from market sampling data by using a Bayesian hierarchical model. Applied Statistician, 53, 1, 1-14.
- Kathuria, O.P. and Singh, D. (1971a). Comparisons of estimates in two-stage sampling on successive occasions. Journal of the Indian Society Agricultural Statistics, 22, 31-51.
- Kathuria, O.P. and Singh, D. (1971b). Relative efficiencies of some alternative procedures in two-stage sampling on successive occasions. Journal of the Indian Society Agricultural Statistics, 23, 101-114.

- Kathuria, O.P. (1975). Some estimators in two-stage sampling on successive occasions with partial matching at both stages. Sankhya: The Indian Journal of Statistics, Series C, 37, 3, 147-162.
- Köhl, M., Scott, C.T. and Zingg, A. (1995). Evaluation of permanent sample surveys for growth and yield studies: a Swiss example. Forest Ecology and Management, 71, 187-194.
- Krouwer, J.S. (2008). Why Bland-Altman plots should use X, not (Y+X)/2 when X is a reference method. Statistics in Medicine, 27: 778-780.
- Lin, L.I. (1989). A concordance correlation coefficient to evaluate reproducibility. Biometrics 45(1): 255-268.
- Lin, L.I. (2000). A note on the concordance correlation coefficient. Biometrics 56: 324-325.
- Millar, C. and Fryer, R. (2006). Estimating discards conditional on landings and other factors. ICES CM 2006/K:03.
- Millar, C. and Hirst, D. (2007). Estimating discards at age from discard sampling data by using a Bayesian hierarchical model. ICES CM 2007/ACFM:06, 4pp.
- Newton, C.M., Cunia, T. and Bickford, C.A. (1974). Multivariate estimators for sampling with partial replacement on two occasions. Forest Science, 20, 2, 106-116.
- Omule, S.A.Y. (1982). Estimators for successive forest sampling with partial replacement. Canadian Journal of Forest Research, 12, 753-760.
- Omule, S.A.Y. (1984). Multistage sampling with partial replacement. Canadian Journal of Forest Research, 14, 6, 869-873.
- Rana, D.S. and Chakrabarty, R.P. (1976). Three-stage sampling on successive occasions. Proceedings of the American Statistical Association, Social Statistics Section, 700-704.
- Scott, S.T. (1984). A new look at sampling with partial replacement. Forest Science, 30, 1, 157-166.
- Scott, C.T. and Köhl, M. (1993). A method for comparing sampling design alternatives for extensive inventories. Mitteilungen der Eidgenössischen Forschungsanstalt für Wald, Schnee und Landschaft, 68, 1, 3-62.
- Scott, C.T. and Köhl, M. (1994). Sampling with partial replacement and stratification. Forest Science, 40, 1, 30-46.
- Singh, D. (1968). Estimates in successive sampling using a multistage design. American Statistical Association Journal, 63, 99-112.
- Singh, D. and Kathuria, O.P. (1969). On two-stage successive sampling. The Australian Journal of Statistics, 11, 59-66.
- Sukhatme, P.V. & Sukhatme, B.V., Second Revised Edition (1970). Sampling theory of surveys with applications. Iowa State University Press.
- Tikkiwal, B.D. (1964). A note on two-stage sampling on two successive occasions. Sankhya: The Indian Journal of Statistics: Series A, 97-100.
- Warren, W.G. (1993). More on persistence and the potential of sampling with partial replacement. ICES CM 1993/D:56.
- Warren, W.G. (1994). The potential of sampling with partial replacement for fisheries surveys. ICES Journal of Marine Science, 51, 3, 315-324.

Appendix 5: Meeting Attendees

In-Person Meeting Attendees

ROLE	NAME	AFFILIATION
PANELISTS	Michelle Allen	Agri-Food & Biosciences Institute
	Bob Clark	ADF&G
	Jane DiCosimo	NPFMC
	Robyn Forrest	Fisheries and Oceans Canada
	Steven Hare	IPHC
	Jim Ianelli	NMFS AFSC
	Tom Jagielo	Tom Jagielo Consulting
	Gordon Kruse	University of Alaska-Fairbanks
	Bruce Leaman	IPHC
	Steve Martell	University of British Columbia
	John Neilson	Fisheries and Oceans Canada
	Tory O'Connell	Sitka Sound Science Center
FACILITATORS	Jonathan Raab	Raab and Associates
	Stephanie Stern	Concur
PARTICIPANTS	Alan Haynie	NMFS AFSC
	Allison Dauble	ODFW
	Anne Vanderhoeven	Bristol Bay Econ Dev. Group
	Barry Ackerman	DFO Vancouver
	Becca Robbins Gisclair	Yukon River Drainage Fisheries Assoc.
	Bill Hayes	US Seafoods
	Bill Tweit	NPFMC
	Bob Alverson	FVOA
	Bob Krueger	AK Whitefish Trawler Assoc.
	Brent Paine	United Catcher Boats
	Bruce Turner	PFMI
	Chantelle Caron	Fisheries and Oceans Canada
	Charlie Swanton	ADF&G
	Christie Donich	Homer Charter Assoc.
	Claude Dykstra	IPHC
	Craig Faunce	NMFS AFSC
	Dan Areill	Marine Stewardship Council
	Dan Hull	NPFMC
	Dave Benson	NPFMC
	Dayr Lowry	Washington State Fish and Wildlife
	Don Ashley	F/V Gold Rush Fisheries
	Duncan Fields	NPFMC
	Ed Dersham	NPFMC
	Ed Richardson	MCA
	Eric Olsen	FVOA
	Glenn Merrill	NMFS AK Region
	Glenn Reed	PSPA
	Gregg Williams	IPHC
	Heather Gilroy	IPHC

PARTICIPANTS	Heather McCarty	McCarty Assoc., Juneau
	Jason Jannot	NWFSC/WCGOP/NOAA Fisheries
	Jay Herbert	Area 4 Fishermen
	Jeff Jones	State of Alaska
	Jennifer Cahalan	PSMFC/NMFS AFSC
	Jennifer Hagen	Quileute Tribe
	Jennifer Mondragon	NPFMC
	Jim Balsiger	NMFS and IPHC
	Jim Humphreys	Marine Stewardship Council
	Jim Whitethorn	West Brothers Group
	Joel Hanson	The Boat Company
	John Gauvin	Alaska Seafood Cooperative
	John Henderschedt	NPFMC
	John Whiddon	Pacific Seafood
	Juan Valero	IPHC
	Julianne Curry	Petersburg Vessel Owner's Association
	Julie Bonney	Alaska Groundfish Data Bank
	Karl Haflinger	Sea State Inc.
	Kerim Aydin	NMFS AFSC
	Kevin Delaney	Biologist
	Kirsten MacTavish	IPHC
	KJ Herman	F/V Windward Fisheries
	Kyungman Ko	MIFATN of Korea
	Kris Norosz	Icicle Seafoods, Inc.
	Kurt Cochran	F/V Marathon
	Leonard Herzog	Area 4 Fishermen
	Linda Behnken	ALFA
	Lisa Thompson	NMFS AFSC
	Loh-lee Low	NMFS AFSC
	Martin Loefflad	NMFS AFSC
	Matt Upton	U.S. Seafoods
	Melinda Ashley	F/V Gold Rush Fisheries
	Melvin Grove	Prince William Sound Charter Boat Assn.
	Merrick Burden	Marine Conservation Alliance
	Michael Lake	Alaskan Observers Inc.
	Mike Szymanski	Fisherman's Finest
	Neil Davis	DFO Vancouver
	Nicole Kimball	ADF&G
	Patricia Nelson	NMFS AFSC
	Paul MacGillivray	Fisheries and Oceans Canada
	Paul MacGregor	At-Sea Processors Assn.
	Peggy Parker	Halibut Assn. of North America
	Ralph Hoard	IPHC
	Ray Webster	IPHC
	Rebecca Reid	Fisheries and Oceans Canada
	Richard Yamada	Alaska Charter Assn.
	Ricky Gease	Kenai River Sport Fishing
	Roland Maw	United Cook Inlet Drift Assn.

PARTICIPANTS	Roy Hyder	NPFMC
	Ruben Hanke	Kenai River Sport Fishing
	Ruth Christiansen	ADF&G
	Sam Cotten	NPFMC
	Sarah Williams	NMFS/NWR
	Sharie Teeple	Gross and Assoc.
	Steve Ignell	NMFS AFSC
	Susan Robinson	Fisherman's Finest
	Teresa A'mar	NMFS AFSC
	Thomas Wilderbuer	NMFS AFSC
	Tom Gemmel	Halibut Coalition
	Tom Ohaus	SEAGO
	Tracee Geernaert	IPHC

Webcast Participants

NAME	NAME
Aaron Williams	Jonathan Pollard
Alexander Kotlarov	K McGauley
Andrew Jensen	Karla Bush
Andy Mezirow	Kathy Hansen
Aregash Tesfatsion	Ken L Larson
Barbi Failor	Kyungman Ko
Barry Ackerman	Lara Erikson
Barry Kaufmann	Lauri Sadorus
Ben Fissel	Linda Arnold
Beth Concepcion	Linda Gibbs
Beverly Minn	Lisa Newland
Brad Robbins	Loh-lee Low
Brenda Dale	Lynn Mattes
Brian Walker	Margaret Bauman
Bruce Gabrys	Marissa Merculieff
Bud Graham	Mark Russell
Carol Batteen	Mary Furuness
Caroline McKnight	Maura Sullivan
Chantal Lamadeleine	Melanie Brown
Charles Piston	Michael Lake
Chris Johnston	Mike Joe
Chuck Ashcroft	Neil Rodriguez
Claude Dykstra	Obren Davis
Craig Faunce	Pamela Gale
Dan Falvey	Pat Livingston
Dan Martin	Paul Clampitt
Dana Hanselman	Paul Macgregor
Darrell Brannan	Paul Olson

David Witherell	Peggy Murphy
Deb Wilson-Vandenberg	Pete Pasagshak
Diane Scoboria	Pete Wedin
Dick Curran	Peter Thompson
Don Ashley	Phillip Lestenkof
Earl Krygier	Ray Melovidov
Ed Hansen	Richard Tuluk
Edward Richardson	Russ Hare
Ernie Weiss	Sarah Webster
Gail Bendixen	Scott Meyer
Gerald Kristianson	Shannon Davis
Gerry Merrigan	Simeon Swetzof jr.
Gway Kirchner	Stephani Zador
Heath Hilyard	Stephanie Madsen
Heather Reed	Steve Kaimmer
Huyen Tran	Steve Wischniowski
Jack Tagart	Tamara Briggie
Jason Gasper	Theresa Peterson
Jason Good	Thomas Wilderbuer
Jason Jannot	Timothy Evers
Jay Walker	Timothy Thomas
Jeff Farvour	Tom Pearson
Jeff Kauffman	Tracee Geernaert
Jennifer Hagen	Wes Erikson
Joan Forsberg	Young Hoon Lim
Joel Cladouhos	
Jon Warrenchuk	

AGENDA C-1(b)
JUNE 2012

MEMORANDUM

TO: Council and AP Members

FROM: Chris Oliver
Executive Director

ESTIMATED TIME
20 HOURS
All C-1 items

DATE: May 29, 2012

SUBJECT: Halibut Bycatch

ACTION REQUIRED

Final Action to set GOA halibut PSC limits in federal regulations.

BACKGROUND

Final Action on GOA PSC limits

The Council is scheduled to take final action on proposed changes to the management of commercial groundfish fisheries in the Gulf of Alaska (GOA) that would occur through an amendment to the GOA Groundfish Fishery Management Plan. Prohibited species catch (PSC) or "bycatch" limits on removals of Pacific halibut can limit fishing activity on targeted groundfish fisheries or affect fishing practices. The fisheries that have the highest halibut PSC usage in the GOA are: 1) Pacific cod trawl and longline fisheries, 2) shallow-water flatfish complex and arrowtooth flounder trawl fisheries, and 3) rockfish trawl fishery. Some target fisheries do not typically fully utilize their PSC allowances while other fisheries typically are closed before reaching their TACs because they have fully utilized PSC allowances.

Current halibut PSC limits have remained unchanged since their implementation in 1986 for trawl fisheries and revision in 1995 for fixed gear fisheries. Recent declines in halibut biomass, particularly in the GOA, have exacerbated concerns about levels of PSC in groundfish fisheries because of the potential effect of halibut PSC on other user groups.

In April 2011 the Council adopted a range of proposed reductions for analysis that would be implemented through the GOA groundfish harvest specifications process after scoping the issue through a number of discussion papers in 2011 and 2012. In addition to the No Action Alternative, the proposed alternative (Alternative 2) included options for reductions of a) 5 percent, b) 10 percent, and c) 15 percent of the 2,000 mt halibut PSC limit on trawlers and 300 mt halibut PSC limit on fixed gear groundfish operations. In June 2011, the Council reorganized the Alternative 2 suboptions.

In October 2011, the Council initiated a new action to 1) remove GOA halibut PSC limits from the annual harvest specifications process through an amendment to the GOA Groundfish FMP and 2) set halibut PSC limits in federal regulations. The proposed action would mirror the process for setting halibut PSC limits in BSAI groundfish fisheries. The Council also modified the options under the Alternative 2 and scheduled initial review of the analysis for February 2012.

During initial review of the analysis the Council requested that the analysts incorporate additional information. The Council also made several changes to Alternative 2 options and suboptions (Item C-1(b)(1)). And to accommodate the April 2012 halibut "bycatch" workshop, which the Council and stakeholders felt would be informative for selecting a preferred alternative, the Council set the date for

final action for June 2012. Assuming Council final action and Secretarial approval, NMFS has advised the Council that the likely timeline for implementation of a preferred alternative would be 2014.

The analysis was distributed on May 11, 2012. The executive summary is attached (Item C-1(b)(2)). Supplemental information is under (Item C-1(b)(3)). Alternatives under consideration are listed below:

Alternative 1. (Status quo). Retain the process for changing GOA halibut PSC limits through the annual groundfish harvest specifications process.

Alternative 2. Amend the GOA Groundfish FMP to remove setting GOA halibut PSC limits from the annual harvest specifications process. GOA halibut PSC limits would be established (and amended) in federal regulation.

Option 1 (Status quo). Retain the existing 2,000 mt trawl and 300 mt hook and line halibut PSC limits and write them into regulation.

Option 2. Revise the current GOA halibut PSC limits and write the new limits into regulation.

Suboption 1. Reduce the halibut PSC limit for hook and line gear CP sector by:

a) 5 percent
b) 10 percent
c) 15 percent

Suboption 2. Reduce the halibut PSC limit for hook and line gear CV sector by:

a) 5 percent
b) 10 percent
c) 15 percent

Suboption 3. Reduce the halibut PSC limit for trawl gear by:

a) 5 percent
b) 10 percent
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Suboption 3.1. AFA/Amendment 80/Rockfish Program sideboard limits will be:

a) Applied as percentage against the GOA halibut PSC limit (Status quo)
b) Redefined in mt, calculated against the status quo GOA halibut PSC limits

Suboption 3.2. Allow the Amendment 80 sector to roll unused halibut PSC from one season to the subsequent season (similar to the non-Amendment 80 sectors).

Suboption 3.3. Allow available trawl halibut PSC in the second season deep water and shallow water complexes to be aggregated and made available for use in either complex from May 15th through June 30th. Halibut PSC sideboards for the Amendment 80 and AFA sectors would continue to be defined as deep water and shallow water complexes in the second season.

North Pacific Fishery Management Council
C2 – GOA Halibut PSC Motion
February 2, 2012

The Council approves the release of the EA/RIR/IRFA for public review, incorporating recommendations from the SSC that pertain to the analysis as possible, with the following additions:

1. New IPHC bluebook information and CEY from the 2012 annual IPHC meeting, including expanded discussion on a) the methods and assumptions used in the lost yield and migration models that are briefly described within the analysis; and b) the methods used by IPHC staff to apportion bycatch among the U26, O26-U32, and O32" size categories.
2. Add a new suboption under Option 2, Suboption 3 that would allow the Am. 80 sector to roll unused halibut from one season to the subsequent season, similar to the non-Am. 80 sectors.
3. Remove Suboption 3.1, which would apply the full trawl PSC limit reduction to the 5th season only.
4. Add a new suboption under Option 2, Suboption 3 to allow available trawl halibut PSC in the 2nd season deep and shallow water complexes to be aggregated and made available for use in either complex from May 15 through June 30. Halibut PSC sideboards for the Am. 80 and AFA sectors would continue to be defined as deep and shallow water complexes in the second season.

Revised[1] Executive Summary to the GOA Halibut PSC Limit Analysis

This analysis examines proposed changes to the management of commercial groundfish fisheries in the Gulf of Alaska (GOA) that would occur through an amendment to the GOA Groundfish Fishery Management Plan. Prohibited species catch (PSC) limits on removals of Pacific halibut can limit fishing activity on targeted groundfish fisheries or affect fishing practices. The fisheries that result in the highest halibut PSC in the GOA are the 1) Pacific cod trawl and longline fisheries, 2) shallow-water flatfish complex and arrowtooth flounder trawl fisheries, and 3) rockfish trawl fishery. In some target fisheries, PSC limits are not typically fully utilized, while other fisheries are 'typically' closed prior to attainment of the target TAC because they have fully utilizing its PSC allowance.

Current halibut PSC limits concern the Council because these limits have remained unchanged since their implementation in 1986 for trawl fisheries and revision in 1995 for fixed gear fisheries. Recent declines in halibut exploitable biomass, particularly in the GOA, have exacerbated concerns about levels of PSC in groundfish fisheries because of the potential effect of halibut PSC on other user groups.

This analysis includes an Environmental Assessment/ Regulatory Impact Review/ Initial Regulatory Flexibility Analysis (EA/ RIR/IRFA). The EA is intended to implement an amendment to the GOA Groundfish Fishery Management Plan. The RIR and IRFA are intended to support federal rulemaking.

In April 2011, the Council adopted a range of proposed reductions for analysis that would have been implemented through the GOA groundfish harvest specifications process for 2012/2013 after scoping the issue through a number of discussion papers in 2012 and 2011. In addition to the No Action Alternative, the proposed alternative (Alternative 2) included options for reductions of a) 5 percent, b) 10 percent, and c) 15% of the 2,000 mt halibut PSC limit on trawlers and 300 mt halibut PSC limit on fixed gear groundfish operations. Two suboptions addressed effects on trawl PSC limit apportionments. In June 2011, the Council reviewed the suite of alternatives for analysis and reorganized the suboptions.

In October 2011, the Council initiated a new action to remove GOA halibut PSC limits from the annual harvest specifications process through an amendment to the GOA Groundfish FMP and set halibut PSC limits in federal regulation. Such an action would mirror the process for setting halibut PSC limits in BSAI groundfish fisheries. The Council also modified the options under the proposed alternative for revising GOA halibut PSC limits and held an initial review of the analysis for the revised management approach and alternatives for February 2012. At that time the Council determined that final action will be scheduled for June 2012, with the intention that federal regulations to implement the Council's preferred alternative would be in effect by 2014.

Environmental Assessment

Purpose and Need

Decreases in the amount of Pacific halibut (*Hippoglossus stenolepis*) available to the directed Gulf of Alaska (GOA) halibut fisheries focused public awareness of halibut prohibited species catch (PSC) usage by both the trawl and hook-and-line sectors. In Area 2C, the commercial IFQ sectors have experienced substantial decreases in their allowable harvest since 2007 (e.g., Charter halibut harvests have declined as a result of reductions in bag limits and size limits since 2009 (See Section 4.5.1). Declines in commercial halibut catch limits and charter guideline harvest levels (GHL) reportedly have decreased profitability, or, in some cases, resulted in economic losses. Participants in directed halibut fisheries often site halibut PSC usage as an area that should be examined as a way to reduce halibut removals. The International Pacific Halibut Commission (IPHC) has indicated that future fishery CEYs in Area 3A could decline substantially. If those declines occur, the directed halibut fisheries in Area 3A may face economic conditions similar to those experienced in Area 2C.

[1] Pacific halibut subsection only was revised to include 2012 IPHC information (p. iv-v)

The proposed action would reduce one or more of the halibut PSC limits that have been established for the GOA. Halibut savings would then accrue to the directed fisheries in both the near term and long term. Near term benefits would result from the PSC reductions of halibut that are over 26 inches in length (O26). The legal-size limit for the commercial halibut fishery is 32 inches or greater. The removals of halibut 32 inches or over in total length are known as O32, and removals of halibut under 32 inches in total length are U32. The minimum size limit in the commercial halibut fishery means the O26 component of halibut PSC O32 would be available to the IFQ fishery the year the PSC is foregone, or when the fish reach the 32 inch limit. Longer term benefits in the directed fisheries would accrue from under 26 inches (U26) halibut PSC. Benefits from these smaller halibut would occur as they recruit into the directed fishery.

The purpose of halibut prohibited species catch management in the GOA is to minimize halibut removals when taken in the groundfish fisheries to the extent practicable, while achieving optimum yield. Minimizing halibut PSC while achieving optimum yield is necessary to maintain a healthy marine ecosystem ensure long-term conservation and abundance of halibut, provide maximum benefit to fishermen and communities that depend on halibut and groundfish resources, as well as U.S. consumers, and comply with the Magnuson-Stevens Act and other applicable federal law. National Standard 9 of the Magnuson-Stevens Act requires that conservation and management measures shall, to the extent practicable, minimize bycatch. National Standard 1 of the Magnuson-Stevens Act requires that conservation and management measures prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.

The proposed action would modify the GOA PSC limits and the process by which they are set. Currently the PSC limits are set as part of the annual specifications process. Implementing this proposed amendment to the GOA Groundfish Fishery Management Plan (FMP) would establish the PSC limits for the trawl and fixed gear sectors in regulation. GOA PSC limits then could be modified only through an amendment to those regulations. Seasonal and gear apportionments of halibut PSC limits would continue to set through the annual GOA groundfish harvest specifications process.

Council Objective

The Council has long been cognizant of and continues to recognize the extreme importance of halibut to all resource user groups. The Council also acknowledges that, for a wide variety of reasons, the dynamics of the directed and non-directed halibut fisheries have changed significantly since halibut PSC limits were first established. Given concerns with the current halibut PSC limits in the GOA, and the effect this bycatch has on both directed fishing opportunities and productivity of the stock, there is a need to evaluate existing halibut PSC limits and the way in which these limits are established.

The objective of the proposed action is to reduce halibut PSC limits for the GOA groundfish fisheries. Reductions in the PSC limit will generate halibut savings in years of relatively high halibut PSC. In years of low PSC usage, the PSC limit reduction may not be a constraint. Those years the groundfish sectors would be affected by the proposed changes. In years that halibut PSC savings occur, they will benefit the halibut resource and the directed halibut fisheries dependent on the GOA halibut resource. Conversely, groundfish harvesters will have their harvest constrained those years. The reductions in harvest will impact revenue generated from the fisheries. The magnitude of the revenue change will depend on the quantity of groundfish harvest foregone and the price flexibility of those groundfish species.

Problem Statement

The Council has long been cognizant of and continues to recognize the extreme importance of halibut to all resource user groups. The Council also acknowledges that, for a wide variety of reasons, the dynamics of the directed and non-directed halibut fisheries have changed significantly since halibut PSC limits were first established. Given concerns with the current halibut PSC limits in the GOA, and the effect this bycatch has on both directed fishing opportunities and productivity of the stock, there is a need to evaluate existing halibut PSC limits and the way in which these limits are established.

Currently, the GOA Groundfish harvest specifications annually establish a 2,000 mt halibut Prohibited Species Catch (PSC) limit for trawl gear and a 300 mt halibut PSC limit for hook and line gear. The

GOA Groundfish FMP authorizes the Council to recommend, and NMFS to approve, annual halibut mortality limits as a component of the proposed and final groundfish harvest specifications. Halibut PSC limits are set separately for trawl and fixed gear, which may be further apportioned by season, regulatory area, and/or PSC fishery category.

The Council is concerned about the feasibility of revising GOA halibut PSC limits through groundfish harvest specifications and recognizes that addressing halibut PSC limits in this manner on an annual basis is not in the best interest of the Council's deliberative process in the long run.

With the exception of PSC limit reductions in the IFQ sablefish fishery and the Rockfish Pilot Program, the current PSC limits have not been revised since 1989 for trawl gear and 1995 for hook and line gear. Since that time there have been significant changes in groundfish and halibut management programs and fishing patterns, environmental conditions, fishing technology, and knowledge of halibut and groundfish stocks. Halibut is fully utilized in the directed sport, subsistence, and commercial fisheries and is of significant social, cultural, and economic importance to communities throughout the geographical range of the resource. Halibut PSC limits are also critical to the prosecution of many groundfish fisheries operating in the GOA.

Since the existing GOA halibut PSC limits were established, the total biomass and abundance of Pacific halibut has varied and in recent years the stock has experienced an ongoing decline in size at age for all ages in all areas. Exploitable biomass has decreased 50% over the past decade. In recent years, the directed halibut catch limits in regulatory areas 2C, 3A and 3B have declined steadily. From 2002 to 2011 the catch limit for the combined areas 2C, 3A and 3B declined by almost 50% and the Guideline Harvest Level (GHL) to the charter halibut sector in Area 2C has been reduced by a similar percentage.

While the IPHC accounts for bycatch mortality when establishing catch limits for the directed fisheries in order to maintain the halibut stock's productivity, it is the Council's responsibility to manage halibut PSC limits and meet the requirements of National Standard 9 to minimize bycatch.

Alternatives

The Council adopted the following alternatives, options, and suboptions for analysis in October 2011.

Alternative 1. (Status quo). Retain the process for changing GOA halibut PSC limits through the annual groundfish harvest specifications process.

Alternative 2. Amend the GOA Groundfish FMP to remove setting GOA halibut PSC limits from the annual harvest specifications process. GOA halibut PSC limits would be established (and amended) in federal regulation.

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Suboption 3.3. Allow available trawl halibut PSC in the second season deep water and shallow water complexes to be aggregated and made available for use in either complex from May 15th through June 30th. Halibut PSC sideboards for the Amendment 80 and AFA sectors would continue to be defined as deep water and shallow water complexes in the second season.

Groundfish

Under the status quo, no groundfish stock has been determined to be overfished or approaching an overfished condition. Annual catch limits (ACLs) and total allowable catches (TACs) generally have been increasing since 2009, and the most recent stock assessments (2011) indicate that the trend is expected to continue into the immediate future. Many groundfish quotas are apportioned spatially and temporally to reduce potential impact on Steller sea lions, and this proposed action would not affect this apportionment. Under Alternative 2, lower PSC limits may result in certain groundfish fisheries closing before the respective TACs or apportionments are reached or the fleets would have to engage in fishing activity to minimize unintended harvests of halibut, while a higher PSC limit would allow for target groundfish fishing at current (or near current) levels, and impacts would likely be similar to the status quo fishery. If groundfish TACs are not fully harvested, fishing would have less impact on the stocks, and there would be no adverse impact on groundfish stocks from the fisheries. Any changes in fishing patterns that may result from the alternatives, however, would be monitored and updated in future stock assessments.

Pacific halibut (Source: IPHC) ***This section was updated to incorporate the status of the stock as of 2012***

The GOA groundfish fishery has an adverse impact on Pacific halibut through direct mortality due to prohibited species catch. Under the status quo, Pacific halibut are a prohibited species and it is incumbent upon fishermen, under the regulations, to avoid catching them. The Groundfish Programmatic EIS considered impacts of the fisheries on the halibut population, reproductive success, and habitat, and concluded that it is unlikely that groundfish fishing has indirect impacts on these aspects of Pacific halibut sustainability. The groundfish fisheries also incidentally catches halibut prey species, including euphausiids, herring, sand lance, capelin, smelt, pollock, sablefish, cod, rockfishes, octopus, crabs, and clams, however the catches of these prey species are very small relative to the overall populations of these species. Thus, groundfish fishing activities are considered to have minimal and temporary effects on prey availability for halibut.

Coastwide exploitable biomass at the beginning of 2012 is estimated to be 260 M lbs, down from the end of 2010 estimate of 317 M lbs. The model chosen for the assessment in 2012 differed from the version used for the past few years. Treatment of survey catchability is the only difference between the two models. The downward revision reflects weaker recruitment of the 1989-1997 cohorts, revised weight per unit effort indices based on late-season data in 2010, and the ongoing retrospective behavior shown in the model. Female spawning biomass is estimated at 319 M lbs at the start of 2012, a decline of nearly 9% over the beginning of 2011 estimate of 350 M lbs. The female spawning biomass shows somewhat lesser retrospective behavior, possibly lending credence to the belief that the ongoing declines in size at age, which strongly affect selectivity-at-age, is one of the root causes of the retrospective behavior. Trawl estimates of abundance are similar to assessment estimates in most areas, and also provide evidence that while exploitable biomass and numbers continue to decline, the total biomass and number of halibut remains level, or slightly increasing.

The halibut stock has declined due to reduced recruitment, reduced size at age, and harvest rates higher than the target rates in most areas. The sharply declining exploitable biomass over the past decade has resulted from small incoming year classes, in combination with reduced growth rates, replacing earlier year classes that were much larger, especially the 1987 and 1988 year classes. Changes to the total biomass can be

attributed, in large part, to the incoming 1998 through 2003 year classes that are estimated to be well above average, particularly the 1999 and 2000 year classes. The extent to which these year classes will contribute to EBio over the next few years depends on size at age which continues to decline.

Projections based on the currently estimated age compositions suggest that both exploitable and spawning biomass may increase over the next several years as these strong year classes recruit to the fishable and spawning components of the population. Projected increases are tempered both by potential ongoing decreases in size-at-age, as well as realized harvest rates which continue to be above target in several regulatory areas. Trawl estimates of abundance are similar to assessment estimates in most areas, and also provide evidence of very large numbers of small halibut as recorded in the eastern Bering Sea Trawl survey.

The time series of abundance illustrates the strength of the celebrated 1987, and to a lesser extent 1988, year classes. As was true for the last several years, the current assessment suggests that three large year classes – 1998, 1999, and 2000 – are poised to enter the exploitable biomass over the next few years. Presently, these year classes look to be larger – in terms of numbers of fish – than the 1987 and 1988 year classes. However, it is important to note again that size at age is much smaller now than it was 20 years ago. This has two important ramifications – first it means that the three strong year classes are only just beginning to reach the exploitable size range and, therefore, their true numbers in the population are still uncertain. Secondly, it also means that for a given number of halibut, their collective biomass will be lower.

Currently, a large fraction of males never reach the minimum size limit and thus never enter the EBio. It remains to be seen just how well these year classes may develop into the exploitable component of the stock. If size at age remains at current values, then the projections for both the EBio and SBio are optimistic and indicate that the declines over the past decade are on the verge of reversing.

The continued problem of reductions in previous estimates of biomass as additional data are obtained has the effect of increasing the realized historical harvest rates on the stock. For 2012, the IPHC approved a 21.5% harvest rate for use in Areas 2A through 3A and a 16.1% harvest rate for Areas 3B through 4. These continued declining harvest rates in several areas has resulted in the IPHC taking aggressive action to reduce harvests. Commercial catch limits adopted by the IPHC for 2012 were lower than in 2011 in all regions of the stock except Areas 2A and 2C.

The impacts of reducing halibut PSC limits for groundfish target fisheries under the proposed actions does not simply reallocate that reduced halibut mortality amounts to directed fishery halibut users. While halibut PSC limits are often closely approached in the GOA groundfish fisheries, these removals are known imprecisely. While all halibut mortality sources are taken into account when commercial IFQ catch limits (and combined catch limits under the proposed Halibut Catch Sharing Plan (CSP)) are set, the negative impacts of these removals on lost spawning biomass and lost yield are not prevented. Incidental catches of halibut result in a decline in the halibut standing stock biomass, reduced reproductive potential of the halibut stock, and reduced short- and long-term halibut yields to the directed hook-and-line fisheries and the charter sector in Area 2C and 3A under the proposed CSP.

Other resource components

Under the status quo, marine mammal and seabird disturbance and incidental take are at low levels and are mitigated by current spatial restrictions on the GOA groundfish fisheries. Under either of the alternatives, disturbance or incidental take is not expected to increase to a level that would result in population level effects on marine mammals or seabirds. Additionally, marine mammals and seabirds may be affected by changes in prey availability or prey density due to fishing, or benthic habitat alteration under the status quo or proposed options under Alternative 2. In years where proposed reductions in halibut PSC limit constrains fishing, Alternative 2 may reduce the potential effects of the groundfish fishery on prey availability. If the fleet spends longer time fishing in areas with low groundfish catch rates to avoid halibut, there may be some increase to benthic habitat impacts and potential removals of marine mammal and seabird prey. However, this increase is unlikely to result in population level effects.

Previous analyses have found no substantial adverse effects to habitat in the GOA caused by fishing activities. Alternative 2 may reduce any effects on habitat that are occurring under the status quo. The

potential effects on an area would be constrained by the amount of the groundfish TACs and by the existing habitat conservation and protection measures. Overall, the combination of the direct, indirect, and cumulative effects on habitat complexity for both living and non-living substrates, benthic biodiversity, and habitat suitability is not likely to be significant under any of the alternatives.

Regulatory Impact Review

The RIR considers the impact of reducing the amount of halibut PSC available to the GOA groundfish fisheries by 5 percent, 10 percent, and 15 percent. Impacts are positive for sectors that rely on halibut IFQ and the guided sport fleet and their clients[2]. Negative impacts are realized by the groundfish fleets and the industry sectors and consumers that rely on GOA groundfish harvests.

To describe the impacts, changes in gross revenue are compared to the status quo to determine how reductions in PSC limits impact various sectors. The analysis acknowledges that comparing changes in gross revenue does not provide information on the profitability of firms or net benefits to the Nation. However, additional data on the costs incurred by the firms that rely on halibut and groundfish from the North Pacific and consumer surplus of U.S. residents that consume these products are needed to generate those estimates. That information is currently unavailable for all sectors that harvest, process, provide support, and consume halibut and groundfish in the Gulf of Alaska.

Proposed halibut PSC reductions may be applied to the trawl, fixed gear, or both fisheries. Currently only the hook-and-line vessels in the fixed gear fishery are operating under halibut PSC limits. Different PSC reductions could be selected for the catcher vessel and catcher processor sectors. It is assumed that the Council has the authority and information, based on this analysis, to select any percentage in the range it considered for any sector.

The retrospective analyses in this document assume that the Status Quo would not cause any change. Therefore, all reductions for the options considered, deduct any change estimated to be contributed by the Status Quo.

Direct comparisons are not made between gross revenue increases in the directed halibut fisheries and the gross revenue foregone in the groundfish fisheries. Estimates for the two sectors were made using different methodologies and assumptions. Direct comparisons may generate misleading results in terms of changes in gross revenue gained or foregone by this action.

The estimates of gross revenue changes assume no modification of fleet behavior as a result of implementing the halibut PSC reductions. If harvesters are able to reduce the halibut PSC rates in the various fisheries considered, the estimates will exceed those that would have actually occurred. Conversely, the analysis assumes the TAC in place historically will not change for the years considered. Stock assessment models and forecasts discussed in the GOA SAFE Report indicate that TACs are projected to increase for Pacific cod and other valuable GOA species. If the TACs increase, and halibut PSC rates do not change, the amount of first wholesale gross revenue foregone will be underestimated. Ex-vessel and first wholesale prices are assumed not to change if the quantity of fish harvested is increased or reduced. These species are sold in a world market for groundfish and the changes in quantities delivered are not expected to influence the world market prices.

Directed Halibut Fishery Impacts

The analysis estimates the increase in pounds of halibut available to the guided sport sector and the commercial IFQ sector, by IPHC area, under each alternative considered by the Council (using tier 1 and tier 2 of the CSP and using the GHL). All halibut projections assumed that the halibut PSC limit change is equivalent to the reduction in halibut PSC taken by the trawl and hook-and-line sectors. Reductions in halibut PSC by the trawl and hook-and-line sectors would reduce the amount of "bycatch" deducted from the total CEY in proportion to the percentage of the total PSC reduction that is assumed to be over 26 inch. For example, if half of the PSC taken in an IPHC area is over 26 inch, half of the PSC taken in that area would be

[2] Benefits to personal and subsistence users are neutral as those halibut harvests are not limited by other removals.

deducted from the total CEY. The over 26 inch "bycatch" is the only component, that is deducted from the total CEY to estimate the fishery CEY, that is assumed to change in this analysis. Finally, benefits that are estimated to accrue to the directed halibut fisheries are for the first year of PSC reductions. Benefits to these sectors will increase over time as U26" halibut recruit into the directed fishery.

HOW TO INTERPRET THE FOLLOWING TABLES

The tables below are provided as an example of how to interpret the data presented in the halibut impact sections. Proposed trawl PSC limits (in mt on the left and 1,000 lb on the right) head columns across the top of each table and proposed hook-and-line PSC limits (in 1,000 lb) head each rows to the left of the same table. The pounds of PSC are converted from metric tons using the following formula: PSC (mt) ÷ 604.7898 ×1000. For example, the 2,000 mt of halibut PSC is equivalent to 3,307 thousand pounds (or 3.3 million pounds) of halibut PSC mortality of fish over 26 inches. These sample tables demonstrate which proposed options for halibut PSC reductions (0/5/10/15 percent) are associated with each proposed PSC limit (in mt and thousand lb).

The matrix of cells represents the increase in halibut available to the guided sport and commercial IFQ sectors under each option. Using the bookends of results from the above table on the right as an example of how to interpret the tables, maintaining the status quo trawl PSC limit (e.g., 0% reduction) and reducing the hook-and-line limit under Alternative 2 Option 1 (e.g., 5%), results in an estimated 18,600 lb increase in the amount of halibut available to the guided sport and commercial IFQ sectors. If both the trawl and hook-and-line sector's PSC limit is reduced under Alternative 2, Option 3 (e.g., 15%), an additional 366,000 lb of halibut is estimated to be available for the guided sport and commercial IFQ sectors.

GOA		Trawl PSC (mt)			
		2,000 (0%)	1,900 (5%)	1,800 (10%)	1,700 (15%)
HAL PSC (mt)	300 (0%)	All combinations of PSC reductions, some tables report weight others report revenue changes			
	285 (5%)				
	270 (10%)				
	255 (15%)				

GOA		Trawl PSC (1000 lb)			
		3307 (0%)	3142 (5%)	2976 (10%)	2811 (15%)
HAL PSC (1000 lbs)	496 (0%)	0.0	103.4	206.7	310.1
	471 (5%)	18.6	122.0	225.4	328.7
	446 (10%)	37.3	140.7	244.0	347.4
	422 (15%)	55.9	159.3	262.7	366.0

The GOA-wide increase in the amount of halibut available to the guided sport sector, during the first year of PSC reductions, will depend on future management of this fishery. Currently the fishery is managed under the GHL. Under the GHL the charter sector will only operate under a larger catch limit if the PSC savings trigger movement to a higher harvest tier. Given the estimated savings, it was unlikely that the Total CEY would increase enough to move the charter sector to a higher tier. Therefore, most years under the GHL, all of benefits from the PSC savings during the first year would be projected to accrue to the commercial IFQ fishery. If the charter sector is managed under a modified catch sharing plan in the future, the charter sector is more likely to receive a higher catch limit. Because it is not possible to project with certainty how the charter sector would be managed under a modified catch sharing plan, the estimates in this analysis are based on the old catch sharing plan split of the combined commercial and charter catch limit. Based on current actions by the Council, the estimates provided in the executive summary of this analysis are likely too low for the charter sector and too high for the commercial IFQ sector. To provide some information on the magnitude of the change, the current CSP percentages[3] would increase the charter allocation by a range of 0 lb under the status quo to 38,700 lb under a 15% PSC mortality reduction applied to both the hook-and-line and trawl sectors (Table ES-1). The vast majority of the increase is projected to occur in Area 3A. In Area

[3] Those approved by the Council, but currently being reconsidered.

2C, the increase ranges from 0 lb to under 100 lb, depending on the option selected. Applying tier 2 of the CSP to the halibut available for use by the guided sport sector and the commercial IFQ sector would slightly decrease the amount of halibut allocated to the guided sport sector. The amount of the decrease is equal to the increase by the commercial IFQ sector, because the CSP percentage that divides the available halibut between the two sectors changes.

Estimates for Area 2C may be underestimates of that expected to occur because the model does not account for halibut migration patterns. If it were possible to include those patterns and the general pattern was movement from west to east, the estimates for Areas 3B and 3A may be too high and the estimate for Area 2C may be too low. However, because the majority of the halibut PSC is taken in Areas 3A and 3B, the greatest impact would be expected there even if migration patterns were included.

Table ES- 1 Increases in halibut (in 1,000 lb net weight) available to the guided sport sector in Areas 2C and 3A, under tier 1 of the current CSP. (Source: IPHC estimates of change in fishery CEY)

GOA		Trawl PSC (1000 lbs)			
		3,307	3,142	2,976	2,811
HAL PSC (1000 lbs)	496	0.0	12.0	24.1	36.1
	471	0.9	12.9	24.9	37.0
	446	1.7	13.8	25.8	37.8
	422	2.6	14.6	26.7	38.7

3A		Trawl PSC (1000 lbs)			
		3,307	3,142	2,976	2,811
HAL PSC (1000 lbs)	496	0.0	12.0	24.1	36.1
	471	0.8	12.9	24.9	36.9
	446	1.7	13.7	25.7	37.8
	422	2.5	14.5	26.6	38.6

2C		Trawl PSC (1000 lbs)			
		3,307	3,142	2,976	2,811
HAL PSC (1000 lbs)	496	0.0	0.0	0.0	0.0
	471	0.0	0.0	0.0	0.0
	446	0.1	0.1	0.1	0.1
	422	0.1	0.1	0.1	0.1

3B		Trawl PSC (1000 lbs)			
		3,307	3,142	2,976	2,811
HAL PSC (1000 lbs)	496	0.0	0.0	0.0	0.0
	471	0.0	0.0	0.0	0.0
	446	0.0	0.0	0.0	0.0
	422	0.0	0.0	0.0	0.0

Note: The Council's proposed changes to the CSP would result in more halibut available to the charter sector. The actual amount cannot be estimated until the Council makes a final decision on the program.

Converting the estimated additional pounds of halibut available to increased gross revenue was done by dividing the increase in halibut to the charter sector by the average weight of halibut harvested per angler. The resulting amount was multiplied by an estimated cost of a charter trip. Based on these assumptions the charter sector was estimated to generate an additional $0 to $290,000 depending on the CSP tier and PSC reduction. Almost all of the benefits would be generated by vessels in Area 3A. These estimates also assume precise management of charter effort, which is unlikely given the current management tools.

Table ES- 2 Estimated GOA wide increase in charter gross revenue under the catch sharing plan.

CSP Step 1		Trawl PSC (1000 lbs)			
GOA		3,307	3,142	2,976	2,811
HAL PSC (1000 lbs)	496	$ -	$ 90,238	$180,475	$270,713
	471	$ 6,279	$ 96,516	$186,754	$276,991
	446	$ 12,557	$102,795	$193,032	$283,270
	422	$ 18,836	$109,074	$199,311	$289,549

CSP Step 2		Trawl PSC (1000 lbs)			
GOA		3,307	3,142	2,976	2,811
HAL PSC (1000 lbs)	496	$ -	$ 82,034	$164,068	$246,102
	471	$ 5,708	$ 87,742	$169,776	$251,810
	446	$ 11,416	$ 93,450	$175,484	$257,518
	422	$ 17,124	$ 99,158	$181,192	$263,226

In the IFQ fishery, estimates of the change in catch were similar, but slightly larger when the GHL method was used versus the CSP. The difference is a result of the entire change in available halibut being assigned to the IFQ sector under the GHL. However, the change would have been greater if the increase in halibut available resulted in moving from one GHL tier to another.

Based on the GHL, each 5 percent decrease in the hook-and-line PSC limit is estimated to increase the IFQ available in the GOA by about 18,600 lb. A five percent reduction in the trawl PSC limit (applied to 2,000 mt) is projected to increase the amount of IFQ halibut by about 103,400 lb (Table ES-3). IFQ pounds are estimated to increase in Area 2C by about 150 lb for each five percent reduction in the hook-and-line PSC

limit. The trawl PSC limit did not impact the estimated IFQ lb that would be available in Area 2C, because of the amount of halibut PSC taken by trawl gear in that area. Estimated increases in IFQ lb ranged from 0 lb under the status quo to 400 lb under a 15 percent reduction to both the hook-and-line and trawl sectors. Halibut IFQ in Area 3A is projected to increase by about 6,900 lb for each five percent reduction in the hook-and-line PSC limit. Each five percent reduction in the trawl PSC limit is projected to increase the amount of halibut IFQ available by 76,700 lb. In Area 3B, a five percent reduction in the amount of hook-and-line halibut PSC is projected to increase halibut IFQ by about 11,600 lb.; and each five percent reduction in the trawl PSC limit is projected to increase the amount of IFQ available by a total of about 26,700 lb. If the estimates were based on the CSP they would be slightly lower.

Table ES- 3 Projected increases in commercial IFQ pounds under each option to reduce the PSC mortality limit (using the GHL).

GOA		Trawl PSC (1000 lbs)			
		3307	3142	2976	2811
HAL PSC (1000 lbs)	496	0.0	103.4	206.7	310.1
	471	18.6	122.0	225.4	328.7
	446	37.3	140.7	244.0	347.4
	422	55.9	159.3	262.7	366.0

3A		Trawl PSC (1000 lbs)			
		3307	3142	2976	2811
HAL PSC (1000 lbs)	496	0.0	76.7	153.4	230.0
	471	6.9	83.6	160.2	236.9
	446	13.8	90.4	167.1	243.8
	422	20.6	97.3	174.0	250.7

2C		Trawl PSC (1000 lbs)			
		3307	3142	2976	2811
HAL PSC (1000 lbs)	496	0.0	0.0	0.0	0.0
	471	0.1	0.1	0.1	0.1
	446	0.3	0.3	0.3	0.3
	422	0.4	0.4	0.4	0.4

3B		Trawl PSC (1000 lbs)			
		3307	3142	2976	2811
HAL PSC (1000 lbs)	496	0.0	26.7	53.4	80.1
	471	11.6	38.3	65.0	91.7
	446	23.2	49.9	76.6	103.3
	422	34.8	61.5	88.2	114.9

Source: IPHC

The analysis multiplied the increases in IFQ pounds by a range of first wholesale values based on the area of harvest. First wholesale prices were derived from COAR data based on the range reported from 2003 through 2010. The prices per pound used for Area 2C were $3.64 and $6.32; for Area 3A they were $3.52 and $6.65; and for Area 3A they were $4.13 and $8.15. Because most of the increase in IFQ pounds was projected to be in Area 3A and Area 3B, most the increase in gross first wholesale revenue was also projected to accrue to QS holders in those areas.

Insufficient data are available to estimate the impacts of reducing the halibut PSC limit for the Southeast Outside District (SEO) demersal shelf rockfish (DSR) fishery on directed commercial harvesters, processors, communities, and consumers. It is not possible to determine historic halibut PSC usage in that fishery, due to low observer coverage. Restructuring the observer program will allow NOAA Fisheries to deploy observers in the SEO DSR fishery. Groundfish observers will collect information on halibut PSC as part of their normal duties. That information, collected over time, will provide better estimates of halibut taken in the directed DSR fishery and their survival rates. NOAA Fisheries would then have the information necessary to estimate halibut mortality, and would determine if the 10 mt limit (under the status quo or a 5 percent reduction) or the 9 mt limit (under a 10 percent or 15 percent reduction) is exceeded. Until that information is available, impacts on the SEO DSR cannot be generated.

DSR taken incidentally to the halibut IFQ fishery will not be affected by changes in the halibut PSC limit. Harvesters have historically utilized much of the DSR fishery as incidental catch in the IFQ fishery. At the current low Area 2C IFQ catch limit (2,330,000 lb or about 1,057 mt), the 10 percent DSR incidental catch rate would allow up to 105 mt of DSR to be taken. Additional DSR may be taken above the incidental catch limit, but it may not be sold. Currently most of the DSR taken above the incidental catch limit is for personal use.

Options considered by the Council would decrease the halibut PSC limit for the groundfish hook-and-line sector (other than SEO DSR and sablefish) to the amounts listed below in metric tons. Table ES-4 assumes

that the current seasonal allowances will continue into the future and the catcher vessel and catcher processor split will also continue.

Table ES- 4. Estimated increased halibut IFQ first wholesale gross revenue under each option, based on high and low IFQ prices (under charter GHL)

GOA		Trawl PSC (1000 lbs) 3307	3142	2976	2811
HAL PSC (1000 lbs)	496	$ -	$ 389	$ 779	$1,168
	471	$ 74	$ 463	$ 852	$1,241
	446	$ 147	$ 536	$ 926	$1,315
	422	$ 221	$ 610	$ 999	$1,389

3A		Trawl PSC (1000 lbs) 3307	3142	2976	2811
HAL PSC (1000 lbs)	496	$ -	$ 279	$ 558	$ 837
	471	$ 25	$ 304	$ 583	$ 862
	446	$ 50	$ 329	$ 608	$ 887
	422	$ 75	$ 354	$ 633	$ 912

2C		Trawl PSC (1000 lbs) 3307	3142	2976	2811
HAL PSC (1000 lbs)	496	$ -	$ -	$ -	$ -
	471	$ 1	$ 1	$ 1	$ 1
	446	$ 1	$ 1	$ 1	$ 1
	422	$ 2	$ 2	$ 2	$ 2

3B		Trawl PSC (1000 lbs) 3307	3142	2976	2811
HAL PSC (1000 lbs)	496	$ -	$ 110	$ 221	$ 331
	471	$ 48	$ 158	$ 269	$ 379
	446	$ 96	$ 206	$ 317	$ 427
	422	$ 144	$ 254	$ 365	$ 475

GHL: IFQ first wholesale higher value

GOA		Trawl PSC (1000 lbs) 3307	3142	2976	2811
HAL PSC (1000 lbs)	496	$ -	$ 727	$1,454	$2,182
	471	$ 141	$ 869	$1,596	$2,323
	446	$ 283	$1,010	$1,737	$2,464
	422	$ 424	$1,151	$1,879	$2,606

3A		Trawl PSC (1000 lbs) 3307	3142	2976	2811
HAL PSC (1000 lbs)	496	$ -	$ 510	$1,019	$1,529
	471	$ 46	$ 555	$1,065	$1,575
	446	$ 92	$ 601	$1,111	$1,621
	422	$ 137	$ 647	$1,157	$1,666

2C		Trawl PSC (1000 lbs) 3307	3142	2976	2811
HAL PSC (1000 lbs)	496	$ -	$ -	$ -	$ -
	471	$ 1	$ 1	$ 1	$ 1
	446	$ 2	$ 2	$ 2	$ 2
	422	$ 3	$ 3	$ 3	$ 3

3B		Trawl PSC (1000 lbs) 3307	3142	2976	2811
HAL PSC (1000 lbs)	496	$ -	$ 218	$ 435	$ 653
	471	$ 95	$ 312	$ 530	$ 747
	446	$ 189	$ 407	$ 624	$ 842
	422	$ 284	$ 501	$ 719	$ 936

Based on these PSC limits and historic usage, estimates of the amount of first wholesale gross revenue foregone under each option was estimated. Data from 2003 through 2010 was used to estimate changes in ex-vessel revenue and first wholesale gross revenue foregone under each option. A five percent reduction in the halibut PSC limit reduced ex-vessel gross revenue for the catcher vessel sector by $120,000 and $50,000 for the catcher processors (2003 through 2010 average). Reducing the non-DSR hook-and-line PSC limit by 10 percent decreased the average catcher processor estimated ex-vessel gross revenue by an average of $150,000 per year and the catcher vessel sector by $240,000 per year. The catcher processor's foregone ex-vessel gross revenue was reduced by $200,000 per year when the PSC limit was reduced by 15 percent. However, the catcher vessel sectors first wholesale revenue was reduced by about $440,000 per year.

Table ES- 6. Seasonal allowances of halibut PSC limits under proposed options.

	Total Allocation	1st season 86 percent (January 1 to June 10)	2nd season 2 percent (June 10 to September 1)	3rd season 12 percent (September 1 to End of Year)
All fisheries except demersal shelf rockfish				
Status quo - both operation types	290	250	5	35
Catcher processor (40.3% of total)				
Status quo	117	101	2	14
Option 1 - 5 % reduction	111	96	2	13
Option 2 - 10% reduction	105	91	2	13
Option 3 - 15% reduction	100	86	2	12
Catcher vessel (59.7% of total)				
Status quo	173	149	3	21
Option 1 - 5 % reduction	165	142	3	20
Option 2 - 10% reduction	156	134	3	19
Option 3 - 15% reduction	148	127	3	18
Demersal Shelf Rockfish				
Status quo	10	(no seasonal distribution)		
Option 1 - 5 % reduction	10			
Option 2 - 10% reduction	9			
Option 3 - 15% reduction	9			
All values are metric tons.				

Table ES- 6 Estimated gross revenue foregone by hook-and-line vessels under proposed options.

Year	Percentage reductions			
	Status Quo	5%	10%	15%
	Ex-vessel			
Catcher Processor	$0.00	$0.05	$0.15	$0.20
Catcher Vessel	$0.00	$0.12	$0.24	$0.44
	First Wholesale			
Catcher Processor	$0.00	$0.12	$0.32	$0.43
Catcher Vessel	$0.00	$0.22	$0.46	$0.84

A five percent reduction in the halibut PSC limit reduced ex-vessel gross revenue by $50,000 for catcher processors and $120,000 for catcher vessels. First wholesale gross revenue for the catcher processors was reduced by $120,000 and catcher vessel sector by $220,000 (2003 through 2010 average). Reducing the non-DSR hook-and-line PSC limit by 10 percent decreased the average catcher processor first wholesale gross revenue by an average of $320,000 ($150,000 ex-vessel) per year and the catcher vessel sector by $460,000 ($240,000 ex-vessel) per year. The catcher processor's foregone first wholesale gross revenue was reduced by $430,000 per year ($200,000 ex-vessel) when the PSC limit was reduced by 15 percent. However, the catcher vessel sectors first wholesale gross revenue was reduced by about $840,000 per year ($440,000 ex-vessel).

Treatment of the Central Gulf of Alaska Rockfish Program halibut Prohibited Species Catch limit reductions for the trawl sector under the Council's June 2012 proposed action

Summary The Central Gulf of Alaska Rockfish Program was implemented in 2012. A direct apportionment of 191.4 mt of halibut prohibited species catch (PSC) limit was allocated to Rockfish Program participants for use in this trawl fishery from May 1 through November 15. The third seasonal allowance to the deep-water species fishery was reduced by 1) 191.4 mt to fund the rockfish program apportionment and 2) 27.4 mt which may not be used as PSC limit by any sector. However, the 2,000 mt trawl halibut PSC limit was not reduced to reflect the 27.4 mt PSC limit reduction. It was "left in the water" and subject to reallocation to the directed halibut IFQ fixed gear fishery by the International Pacific Halibut Commission. Therefore, the trawl halibut PSC limit is now 1,972.6 mt (2,000 mt – 27.4 mt). And the portion of the halibut PSC limit *outside of the Rockfish Program is reduced by 191.4 mt to 1,781.2 mt to fund the halibut PSC needs of the Rockfish Program.* This amount will be increased if any of the 191.4 mt PSC limit is unused on November 15th. By regulation 55 percent of the unused amount of trawl halibut PSC limit of the 191.4 mt is added to the fifth season unspecified halibut PSC limit total. The remaining 45 percent of the unused amount is not available for use by any sector, effectively reducing the overall trawl PSC limit that year.

The Council analysis assumes, based on the Council's June 2011 motion[4], to exclude the Rockfish Program from any further proposed reductions (i.e., beyond the 27.4 mt PSC limit reduction that was made in 2012, which results in a total of 191.4 mt of PSC limit allocated to the CGOA Rockfish Program). The effect is that the proposed percentage reductions of 5%, 10%, or 15% would be applied to the amount of halibut PSC limit available to all trawl sectors except for the GOA Rockfish Program (2,000 mt – (27.4 mt + 191.4 mt) = 1,781.2 mt). This would result in PSC limit reductions, in addition to those already established in the new Rockfish Program[5], of: a) 89 mt (5%); b) 178 mt (10%); or c) 267 mt (15%). To achieve reduction equal to 5/10/15 percent of the 2,000 mt PSC limit (100/200/300 mt) would require applying a larger percentage reduction to GOA trawl fisheries outside of the Rockfish Program (see more detail below). Note that the Council could select any amount of halibut PSC limit reduction within the range analyzed (0 mt to 267 mt).

The analysts provide an example to illustrate the impacts of halibut PSC limit reductions on trawl fisheries not exempted from the proposed action. At the June 2011 Council meeting the Council indicated that when the proposed reductions would be applied, the CGOA Rockfish Program trawl halibut PSC limit apportionments were to be exempt from the proposed reductions of 5/10/15 percent. The Council's rationale was that the Rockfish Program participants already had their halibut PSC limit apportionment reduced by 27.4 mt and the roll-over of the unused portion of the 191.4 mt would be reduced by 45 percent. In 2011 about 65 percent of the 208 mt halibut PSC limit apportionment to the Rockfish Pilot Program was unused. The Rockfish Pilot Program sunset at the end of 2011 and was replaced by the revised CGOA Rockfish Program in 2012. For example, if half the 191.4 mt apportionment is not used in the future, a 45 percent reduction applied to the roll-over of the unused portion to the unspecified trawl halibut PSC limit would equal 43 mt, or a 22.5 percent reduction of the Rockfish Program apportionment. In June 2011 the Council stated its intent that the 27.4 mt and 191.4 mt of rockfish program halibut PSC limit were not subject to the proposed PSC limit reduction. Therefore, all of the tables in the analysis reflect the removal of the 27.4 mt (halibut PSC limit savings left 'in the water') and the 191.4 mt Rockfish Program apportionment from the third season deep-water species fishery allowance before the proposed 5/10/15 reductions are applied. Alternatively, if the Council intent was to apply the proposed percentage reductions to the entire historic 2,000 mt PSC limit (not reducing the Rockfish Program apportionment, but taking additional reductions from the non-Rockfish apportionment to compensate for keeping the current Rockfish Program allocation), the overall

[4] http://www.alaskafisheries.noaa.gov/npfmc/PDFdocuments/halibut/GOAHalibutPSC_Motion.pdf

PSC limit reduction would increase by the amounts shown below and would increase the effect on trawl vessels when not operating in the CGOA Rockfish Program. The impact on the trawl fleets depend on how the reductions associated with the Rockfish Program halibut PSC limits are distributed among the rest of the fleet.

Table ES- 7 Additional halibut PSC limit reduction in metric tons if the reduction was also applied to the Rockfish Program

	Reduction also applied to		
% Reduction	191.4 mt	27.4 mt	Both
5%	9.6	1.4	10.9
10%	19.1	2.7	21.9
15%	28.7	4.1	32.8

Note: It is assumed that the intent was not to reduce the 27.4 mt set aside that is not available for use as PSC limit. It was included for completeness to compare to the 2,000 mt halibut PSC limit.

Because the Council's proposed alternatives and options do not further reduce the Rockfish Program halibut PSC limits beyond how its apportionments were reduced when the program was restructured, applying the above reductions to the other fleets reduces their PSC limits by more than 5 percent, 10 percent, or 15 percent. In order to exempt the Rockfish Program and achieve a full 5/10/15 percent reduction of the current 2,000 mt limit, the reductions applied to halibut PSC limits on trawl sectors not in the Rockfish Program would need to be 5.5 percent, 11.1 percent, or 16.6 percent. Depending on how the reductions to the CGOA rockfish program halibut PSC limit are applied, they will change the PSC limit available by species fishery and season.

If the Council intent is different from that outlined in the summary above, and the 5%, 10%, or 15% halibut PSC limit reduction instead is applied to the current trawl halibut PSC limit, while not affecting the CGOA Rockfish Program halibut PSC limit apportionment of 191.4 mt, the Council should indicate how it intends to distribute the additional reduction associated with the 191.4 mt (and the 27.4 mt if the reduction is also applied to halibut PSC limit no longer available for use) to the non-Rockfish Program trawl sectors. If the Council clarifies in June 2012 that its intent is different than that assumed by staff in the public review draft analysis, staff can provide additional analysis in a subsequent draft.

The analysts seek Council clarification that the Council intent is to reduce the overall 2,000 mt GOA trawl halibut PSC limit to the new limit set at final action. For example, under Alternative 2, option 1 (5 percent reduction) the new limit would be set in federal regulations at 1,911 mt (or 1,884 mt if the 27.4 mt is removed from the overall limit and the percentage allocated to the third season is adjusted, 2,000 mt – 27.4 – 89 mt = 1,884 mt), recognizing that an additional reduction in halibut PSC limit could occur that would equal 45 percent of any unused amount of the 191.4 mt roll-over.

Because federal regulations that implement the Rockfish Program halibut PSC limit apportionments reference the 2,000 mt halibut PSC limit as the basis for the halibut PSC limit apportionments, *the analysts also seek clarification that the Council intent is to revise the percentages that establish the halibut PSC limit apportionments in regulation using the GOA trawl halibut PSC limit that is selected at final action in order to leave their PSC limit apportionment unchanged and to reflect the new (reduced) limit. For example, a new trawl halibut PSC limit would be 1,911 mt if the Council adopts a 5 percent reduction under the proposed action (2,000 mt – 89 mt = 1,911 mt). The 27.4 mt would continue to be removed from the third season before the allowance is released and would not be subject to the proposed percentage reductions.*

The proposed trawl halibut PSC limits for the options considered are presented in Table ES-8. For the analysis it is assumed that the same seasonal and complex percentages of the overall limit will continue in the future.

Table ES- 8 Trawl halibut PSC limits under the proposed options

	Total allowance	1st season January 20 to April 1	2nd season April 1 to July 1	3rd season* July 1 to September 1	4th season September 1 to October 1	5th season October 1 through December 31
Total Allowance						
seasonal share		27.5 percent	20 percent	30 percent**	7.5 percent	15 percent
Status quo	2000^	550	400	381	150	300
Deep-water complex						
seasonal share		12.5 percent	37.5 percent	50 percent**	0 percent	
Status quo	773	100	300	181		NA
Option 1 - 5 % reduction	734	95	285	172	0	
Option 2 - 10% reduction	695	90	270	163		
Option 3 - 15% reduction	657	85	255	154		
Shallow-water complex						
seasonal share		50 percent	11.1 percent	22.2 percent	16.7 percent	
Status quo	900	450	100	200	150	NA
Option 1 - 5 % reduction	855	428	95	190	143	
Option 2 - 10% reduction	810	405	90	180	135	
Option 3 - 15% reduction	765	383	85	170	128	
Undesignated						
seasonal share						100 percent
Status quo	300	NA				300
Option 1 - 5 % reduction	285					285
Option 2 - 10% reduction	270					270
Option 3 - 15% reduction	255					255

All values are metric tons, except where noted as percentages.

* Excludes 191.4 metric ton rockfish program halibut PSC allowance and 27.4 metric ton reduction from Rockfish pilot program

** Includes rockfish program allocations in the percentage.

^Only 1,973 metric tons are available for the fleet to harvest

On average (from 2003 through 2010) the first wholesale gross revenue from trawl gear vessels in the deep-water complex was estimated to decrease by $730,000, $2.49 million, and $3.35 million under a 5 percent, 10 percent, and 15 percent reduction in the deep-water trawl PSC limit, respectively. Average reductions in first wholesale gross revenue for trawl gear vessels in the shallow-water complex were estimated to be $1.02 million, $2.74 million, and $5.10 million, under a 5 percent, 10 percent, and 15 percent reduction in the PSC limit, respectively. Summing these reductions in estimated first wholesale gross revenue yields the estimates in Table ES- 9. Each cell in the matrix of Table ES- 9 shows the estimated average reduction in first wholesale gross revenue to the groundfish industry for an option considered by the Council. Placing the results in the matrix format allows each of the combinations considered by the Council to be easily compared. The smallest reduction ($330,000), other than the Status Quo, results from a 5 percent halibut PSC reduction applied to the catcher vessels and catcher processors in the hook-and-line fleet. Hook-and-line first wholesale revenue reductions are greatest when the halibut PSC limit is reduced by 15 percent ($1.26 million). Adding those values to the first wholesale gross revenue reductions from the trawl fleet provides the remaining estimates. So, a 5 percent decrease in the trawl halibut PSC limit was estimated to reduce the first wholesale gross revenue from the trawl fishery by $1.75 million. Adding that value to the first wholesale gross revenue reduction estimated for a 10 percent halibut PSC reduction to the hook-and-line fleet ($790,000), yields the $2.54 million estimate in that cell of the matrix (where the hook-and-line and trawl reductions intersect). The greatest annual reduction was estimated to be $9.71 million when a 15 percent reduction was applied to both the trawl and hook-and-line PSC limits.

Table ES- 9 Estimated annual average first wholesale gross revenue foregone in groundfish fisheries ($million)

		Trawl PSC Reductions			
		Status Quo	5%	10%	15%
Hook-and-Line Reductions	Status Quo	0	$ 1.75	$ 5.23	$ 8.45
	5%	$0.33	$ 2.08	$ 5.56	$ 8.78
	10%	$0.79	$ 2.54	$ 6.02	$ 9.24
	15%	$1.26	$ 3.01	$ 6.49	$ 9.71

Source: AKFIN summaries of NOAA Fisheries catch accounting and COAR data, 2003-2010

The Council requested in February that staff also provide estimates of the gross revenue foregone at the ex-vessel level. Table ES- 10 is a summary of the gross ex-vessel foregone under each option. Ex-vessel gross revenue reductions range from $0 under the status quo to $4.15 million when both hook-and-line sectors and the trawl sector's PSC allocation are reduced under the 15 percent option.

Table ES- 10 Estimated annual average ex-vessel gross revenue foregone in groundfish fisheries ($million)

		Trawl PSC Reductions			
		Status Quo	5%	10%	15%
Hook-and-Line Reductions	Status Quo	$ -	$ 1.57	$ 2.34	$ 3.51
	5%	$0.17	$ 1.74	$ 2.51	$ 3.68
	10%	$0.39	$ 1.97	$ 2.73	$ 3.90
	15%	$0.64	$ 2.21	$ 2.98	$ 4.15

Source: AKFIN summaries of NOAA Fisheries catch accounting and COAR data, 2003-2010

The estimates are intended to provide information on the amount of first wholesale revenue that would have been foregone if the halibut PSC reductions had been in place from 2003 through 2010. Actual reductions in revenue that occur in the future will differ from these estimates as halibut PSC rates and TACs change. Given all the factors that contribute to those changes, projecting revenue changes for future fishing years would generate estimates with sizable levels of uncertainty. Therefore, those estimates are not provided in this analysis.

Even if the analysts were able to accurately estimate the amount of revenue that would be foregone in the future, it is currently not possible to determine how individual firms would be affected by the changes. These estimates are fleet-wide averages of changes in gross revenue. Information is currently unavailable to determine the effect that reductions in gross revenue have on the net revenue of firms. It is the overall profitability of the firms and net benefits to the Nation that are of greatest interest for the RIR, because they indicate whether individual firms will remain viable in the long run, if revenues decline, and whether the Nation generates positive economic benefits from the proposed action. That information is not currently being collected for all industry sectors included in this analysis.

Halibut PSC Sideboard Limits

Sideboards have been implemented limiting the amount of the GOA trawl halibut PSC available to participants in the rockfish program, Amendment 80 program, and non-exempt AFA catcher vessels. These sideboards were adopted as part of catch share programs to limit program participants from fully using the flexibility provided by catch share allocations to increase their harvests in other fisheries.

NOAA Fisheries manages fleets to maintain their catches below the proscribed sideboard limits. The management approach differs with the sizes of the sideboard amount and the subject fleet, as well as the fleet's fishing practices. In fisheries with small sideboard limits that are deemed unmanageable, given the size of the sideboarded fleet, NOAA Fisheries may choose not to open the fishery. Fisheries that are never opened are listed in Table ES- 11.

Table ES- 11 GOA groundfish fisheries that are not opened to directed fishing.

AFA	Amendment 80	Rockfish Program*
Eastern Pacific cod (inshore and offshore)	No directed fishing closures	CV Western pelagic shelf rockfish
Western deep-water flatfish		CV Western Pacific ocean perch
Eastern and Western rex sole		CV Western northern rockfish
Eastern and Western arrowtooth flounder		CV deep-water complex fisheries
Eastern and Western flathead sole		CP shallow-water complex fisheries
Western Pacific ocean perch		
Western Northern rockfish		
Entire GOA pelagic shelf rockfish		
SEO District demersal shelf rockfish		
Entire GOA sculpins		
Entire GOA squids		
* For the month of July		

Proposed halibut PSC reductions would not affect the fisheries that are never opened to directed fishing. Fisheries with sideboard limits that can be managed by NOAA Fisheries will be permitted to target groundfish in the open fisheries. Members of these fleets, through cooperative agreements, may also be required to monitor their catches to stay within their sideboard limits. AFA non-exempt catcher vessels are most active in the shallow-water complex, particularly the first, third, and fourth seasons. The fleet is also active in the fifth season, but the halibut PSC sideboard limit is undesignated during the fifth season and therefore not apportioned between the deep-water and shallow-water complex fisheries. Only three times during 2003 through 2010 did seasonal halibut usage exceed the current seasonal sideboard limit. Those three cases were all in the deep-water complex and would have exceeded any of the proposed limits. Given that halibut PSC sideboard usage by the AFA non-exempt catcher vessel fleet is, in most cases, well below the applicable current sideboard limits, the halibut PSC reduction options would appear to minimally constrain the fleet, assuming current fishing practices continue.

Amendment 80 vessels are most active in the deep-water complex, which includes the rockfish and flatfish fisheries (e.g., rex sole, arrowtooth flounder). The third season has the largest number of participating Amendment 80 vessels. Most of these vessels are also qualified for the rockfish program in the Central Gulf. Participation in the shallow-water complex by the Amendment 80 sector is far more limited with only one to three vessels targeting these fisheries. When looking at the impacts of applying the entire halibut PSC reduction in the fifth season, the Amendment 80 fleet could be constrained more by the reduction in the overall halibut PSC limit than by the reduction in its sideboard limit, depending on the percentage reduction selected. The relatively small halibut PSC limit is likely insufficient to support opening a fifth season fishery (for details see Section 4.6.3.5).

The prohibition on sideboard rollovers from season-to-season for the Amendment 80 sector will increase the potential for the deep-water complex and shallow-water complex fisheries to close to Amendment 80 vessels as a result of the sideboards prior to the end of a season, especially the deep-water complex during the second and third season. If the deep-water species TACs were to increase significantly in the future, there is the possibility that the sector may have an insufficient halibut PSC sideboard limit to harvest the deep-water complex TACs. In the shallow-water complex, historical halibut PSC usage by the Amendment 80 sector indicates the first season could be constrained by the halibut PSC sideboard limit in the future.

With the exception of apportionment of halibut PSC to the Rockfish Program, trawl halibut PSC in the GOA is not apportioned between the different sectors. Given that halibut PSC is shared by all trawlers, the Amendment 80 sector is often racing other trawlers in their GOA groundfish fisheries. In general, the proposed reductions of halibut PSC limits will likely increase the race for fish in the GOA amongst all the trawlers.

Catcher processor fleet vessels participating in the Central GOA rockfish program will be limited in their catch of deep-water and shallow-water halibut PSC under a sideboard limit that is intended to constrain harvests from fisheries that are typically halibut constrained. This sideboard limit applies only during the month of July. Effort by the GOA Rockfish Program catcher processors during the month of July is centered

on the deep-water complex with the number of vessels ranging from 6 in 2010 to 11 vessels in 2009. Halibut PSC usage by these vessels has ranged from 30 mt in 2010 to 67 mt in 2008. The rockfish program vessels, operating under sideboard limits, focus most of its effort during the month of July on Western GOA and West Yakutat rockfish with some effort in the rex sole fishery. By comparison, effort by the Rockfish Program catcher processors in the shallow-water complex during the month of July is nearly non-existent. One catcher processor participated in the shallow-water complex in 2009.

During 2007, 2008 and 2009 halibut PSC usage by the catcher processors exceeded the 50 mt halibut PSC sideboard limit under the new Rockfish Program and therefore would have triggered a premature closure in the deep-water complex fisheries under all of the halibut PSC sideboard limit reduction options. Given that deep-water halibut PSC sideboard usage exceeded the status quo three times in the last four years, there is a high likelihood that the deep-water complex fisheries will be constrained by a reduced halibut PSC sideboard limit during the month of July. Catcher processors who are limited by the Rockfish Program halibut PSC sideboard limit race other trawlers before a halibut PSC forced shut down occurs during the month of July. A reduction of the halibut PSC will only increase this race for fish during the third season, and would likely result in a shortened third season in most years.

Suboption 3.2 was added to the list of proposed options at the February 2012 Council meeting. This suboption proposes treating the Amendment 80 sector like all other sectors, in that their unused halibut PSC sideboards could roll-over to the next season. The Amendment 80 sector would still be subject to deep-water and shallow-water sideboard designations.

Amendment 80 GOA groundfish sideboard limits are set for pollock (seasonal), Pacific cod (seasonal), Pacific ocean perch (annual), Northern rockfish (annual), and pelagic shelf rockfish (annual). However, the GOA flatfish fisheries are not subject to Amendment 80 sideboard limits, since those fisheries are traditionally limited by the halibut PSC. Because flatfish in the deep-water complex are primarily fished during the second and fifth seasons, the greatest benefit of roll-overs would likely be derived in the fifth season. Increased flexibility of halibut PSC usage will become more important as PSC limits are reduced.

In summary, roll-over privileges would provide the Amendment 80 sector the ability to take advantage of excess halibut from previous seasons. It would also treat the Amendment 80 sector like all other sectors, in terms of roll-overs. If the Amendment 80 sector were able to modify their fishing patterns by delaying deep-water fisheries until later in April or May PSC rates could be reduced (e.g., fishing deep-water species after halibut migrate to shallower water). This is currently unlikely as a result of the competition between the catcher vessels and the Amendment 80 fleet for deep-water halibut during the second season. Reducing PSC usage rates may result in more target groundfish species catches for the Amendment 80 sector and potentially for the overall trawl fleet. Increased harvesting flexibility may provide some opportunity for the Amendment 80 sector to increase their fishing activity in the GOA, particularly in the fifth season, which could result in less halibut PSC available for other participants.

Potential risks to other sectors are decreased by not altering the deep-water and shallow-water complex structure for the five seasonal sideboards. Increased flexibility of rolling Amendment 80 sideboards may also help that sector respond more efficiently to recent changes to GOA groundfish management that includes GOA cod sector splits, the Central Gulf rockfish program, Chinook salmon PSC limits, and potentially reduced halibut PSC limits. Likewise, it may also help the sector respond to changes in BSAI management.

Suboption 3.3 allows available trawl halibut PSC in the second season deep water and shallow water complexes to be aggregated and made available for use in either complex from May 15th through June 30th. Halibut PSC sideboards for the Amendment 80 and AFA sectors would continue to be defined as deep water and shallow water complexes for the entire second season. **The Council must also select a method for determining how to account for unused halibut after the second season.** From May 15 through the end of June, the deduction for halibut PSC could either be from:

1) the species fishery where it was used, or
2) the species fishery where it was initially available.

NOAA Fisheries staff has indicated that Option 1 is the only method that would not require the agency to revise their catch accounting system. Revising the catch accounting system would require funds that are currently not budgeted for that purpose. Given the budget constraints that the agency is currently operating under, they have indicated a preference that Option 1 be selected. Depending on the method selected, an overage of the second season PSC limits could significantly decrease the amount available for the third season and later fisheries. An example of the halibut PSC deducted from the species fishery where it was used (option 1) would be if the deep-water fisheries close on their second season halibut PSC limit, 400 mt in 2012, prior to May 15. As of May 15, the shallow-water fisheries have 100 mt of halibut PSC limit remaining. The trawl fleet starts fishing deep-water species on May 15 instead of waiting until the third season halibut PSC allocation becomes available July 1[6]. All 100 mt remaining in the shallow-water fisheries PSC limit is caught by participants targeting deep-water fisheries. This would reduce the third season deep-water fishery halibut PSC limit by 100 mt to 81 mt instead of 181 mt (400 mt minus 191.4 mt allocation and 27.4 mt set-aside for the Rockfish Program). For this example, no programming changes would be necessary in the catch accounting system.

Applying the example above to option 2 would reduce the third season shallow-water fishery halibut PSC limit by 100 mt (even though it was used in deep-water complex targets). For this example, programming changes would be necessary in the catch accounting system to deduct the May 15 to July 1 halibut PSC from the shallow-water species fishery instead of the deep-water fishery where it was actually caught.

In conclusion, the halibut PSC during May 15 to July 1 must accrue to either the deep-water species fishery or the shallow water species fishery since NMFS must continue to manage the halibut PSC limits by these species fisheries from July 1 to October 1. Any underage or overage for the second season would need to be added or subtracted from the species fishery where it was used or initially available. Depending on where it is deducted it will impact the amount of halibut available for use in that complex in the 3rd (rockfish fisheries in the deep-water complex) and 4th season (primarily when shallow-water fisheries occur for Pacific cod and pollock).

Selecting suboption 3.3 would give members of the trawl industry increased flexibility to utilize their halibut PSC during the second season. Increased flexibility could provide some sectors with the ability to reduce halibut PSC rates by fishing target fisheries at times of year when the PSC rates are lower and halibut PSC is not available. The deep-water complex is typically closed because the halibut PSC limit in late April. The shallow-water complex typically does not close during the second season. Because the shallow-water complex has remained open after May 15th, halibut PSC assigned to the shallow-water complex could be used by vessels to target species in the deep-water complex.

Because of when the deep-water complex closes, there are no recent data on halibut PSC usage rates in the GOA deep-water trawl flatfish fisheries in May or June. Since quantitative data are unavailable, the analysis of this option is primarily based on qualitative information. Adult halibut are thought to migrate annually from shallow summer feeding grounds to deeper areas to spawn from November to March (St-Pierre, 1984). Halibut movement into shallow-water during warmer months may result in lower halibut usage in the deep-water complex after May 15th. At a minimum, having both the shallow-water complex and deep-water complex either open or closed during the second half of May and June provides the trawl fleet's greater flexibility regarding the best use of the limited halibut PSC.

A retrospective analysis of the amount of shallow-water complex halibut PSC available under each of the options indicates that from 2009 forward, between 126 mt and 330 mt of shallow-water complex halibut was estimated to be available on May 15th, depending on the year used and the option selected. Even after all the shallow-water complex used in the second season is considered, at minimum of 34 mt remained unused in 2010 and 173 mt was unused in 2011.

Selecting May 15th as the date to remove the deep-water and shallow-water halibut PSC restrictions allows a cooling-off period before the deep-water complex is anticipated to reopen. The time between closing and

[6] Except Central GOA Rockfish Program participants who would be utilizing their halibut PSC allocation.

reopening the fisheries is estimated to be between three and four weeks, using historic data. For vessels that are not dependent on flatfish or local to the GOA, this gap in fishing opportunities may cause the vessels to leave for other fisheries or ports. It was also suggested that closing the flatfish grounds may have the beneficial effect of allowing flatfish to reaggregate.

Fleets operating under sideboards will continue to be constrained by their deep-water and shallow water sideboard limits for the entire second season. Amendment 80 catcher processors and non-exempt AFA catcher vessels will benefit from the undesignated halibut PSC in that they may utilize any unused PSC after May 15th to harvest deep-water species if they have room under their deep-water sideboard limit.

Implementation

Table ES- 12 depicts the most likely timeline for implementation of the Council's preferred alternative, now that final action is anticipated to occur in either April 2012 or June 2012. This time line suggests that mid-2013 implementation of revised PSC limits under Alternative 2 is unlikely.

Table ES- 12 Schedule for analytical, GOA FMP, and harvest specification revision process necessary to support change to the GOA halibut PSC limits mid-season.
(Source: NMFS AKRO SF)

Action	Jan-2012	Feb - May	June	Jul – Mar 2013	Apr - Oct
Initial review of FMP amendment to set GOA Halibut PSC and Council selects preliminary preferred alternative (January 2012)					
Final action of FMP amendment to set GOA Halibut PSC					
NMFS prepares and publishes proposed rule					
NMFS prepares and publishes file rule and revised harvest specifications for PSC limit apportionments					

Industry Tools to Reduce PSC and Fleet Responses

The analysis provides a discussion of the recent Council actions taken and the industry programs that have to been used to limit halibut PSC. Members of industry have provided public testimony that they are currently developing or have tried to utilize the tools available to them to reduce halibut PSC. They indicated that some efforts were unsuccessful because of the race for halibut PSC that occurs in the GOA fisheries and their inability to control the behavior of individuals unwilling to comply with the proposed tools (e.g., stand downs). Efforts to refine other tools are still underway but will require additional time and expense to determine if they can be effective solutions. They have stressed that there are no simple measures that they are aware of that have not been considered or tried.

Halibut avoidance measures and their effects will differ across gear and operation types. The analysis considered both the potential for measures to be effective in the various area and target fisheries and the potential for interactions between those fisheries to affect the propensity of participants to adopt avoidance measures.

Hook and line catcher processors

Under the recent action dividing the GOA Pacific cod TAC among different gear and operation types, the catcher processor longline sector and catcher vessel longline sector each receives not only a portion of the Pacific cod TAC, but also an apportionment of halibut PSC. Because of the almost complete overlap of the sector's participants in the BSAI with participants in the GOA Pacific cod fisheries and the relatively few participants in the sector – fewer than 20 vessels participate each year, members of the catcher processor sector have been able to extend their cooperative agreement from the BSAI fishery to a less formal agreement in the GOA fisheries. Despite the lack of a sector allocation, the sector agreed to a variety of measures intended to reduce the chance that its halibut PSC results in a fishery closure. Beginning in 2012, the sector will receive an allocation of Pacific cod and a halibut PSC limit that are not accessible to any other sector. Under its agreement, the hook and line catcher processor sector has agreed to individual limits on halibut PSC. These contractual limits operate as an additional constraint on cooperative members, who also must stop fishing any time regulators announce a fishery closure based on its determination that a hook and line halibut PSC limit will be reached, regardless of whether a member's cooperative limit is reached. Since these non-member vessels are not limited by the agreement, the cooperative must assume those vessels could take a disproportionate share of the available PSC, effectively imposing a disproportionate cost of the PSC limit on the cooperative's members. In practice, participants in the cooperative have historically consolidated their cooperative limits on few vessels that have prosecuted the GOA Pacific cod fishery.

In addition to establishment of member PSC limits based on the current total hook and line halibut PSC limit, the cooperative has also adopted a variety of other measures to reduce halibut mortality. In general, these efforts are focused on avoiding fishing in areas and at times of relatively high mortality rates. Information pooled under this effort is used to manage the cooperative limits, but also result in some degree of peer pressure for vessels with high rates. The fleet is also using informal, on-the-grounds communication among captains. Also under the terms of the agreement, vessels moving into a new area are limited in the amount of gear that may be set, until it is determined that halibut rates are below an acceptable level. The effectiveness of these measures to further reduce PSC is uncertain, as the fleet already uses a variety of measures to reduce halibut mortality.

Hook and line catcher vessels

The GOA hook and line catcher vessel sector uses halibut PSC primarily in the target Pacific cod fishery, along with some catches in the rockfish target fisheries. The hook and line catcher vessel sector has many more participants than the hook and line catcher processor sector, with hundreds of vessels participating annually. A core group of approximately 100 vessels make up the primary fleet, with most of the other vessels making only a few trips in a target fishery subject to the halibut PSC limits. Organization of such a large fleet to divide the PSC limit is unlikely, as vessels may perceive an opportunity to gain an advantage by remaining outside of the agreement. Despite this potential advantage, some catcher vessels currently undertake efforts to avoid halibut through informal arrangements. Under these arrangements vessels share on the grounds information concerning halibut mortality rates, helping vessels to avoid areas with relatively high halibut rates. Measures adopted by the hook and line catcher vessels are unlikely to extend beyond these informal arrangements (or to more costly measures, such as stand downs that delay fishing) under any of the proposed reductions, because of the potential for persons outside the agreement to realize gains by increasing their share of total halibut mortality.

Trawl vessels

The shared seasonal apportionments of the halibut PSC limits may affect the propensity of a vessel operator to avoid halibut, since the usage of halibut mortality is shared with a large fleet (including both catcher vessels and catcher processors) fishing in multiple target fisheries and over a large area (including multiple management areas). These conditions can be a barrier to formation of agreements among participants to address halibut mortality, as participants may have a variety of competing interests and little historical relationship. In addition, policing any agreement would be complicated by the diversity of the fleets and the geographic distribution of their activities. Despite these circumstances, in some cases agreements have been reached and practices adopted to avoid halibut mortality among segments of the fleets.

Section 4.6.6.3.2 provides a more detailed breakdown the catcher vessel sector. Information in that section describes the AFA catcher vessels and non-AFA catcher vessels. It also provides a discussion of catcher vessels by community where deliveries are made. Additional information on catcher vessels by owner's reported residence is provided in Appendix 7.

Trawl catcher processors

Most of the trawl catcher processors that fish in the GOA are also qualified for the Amendment 80 program. All but one of these Amendment 80 vessels is limited by sideboards. Amendment 80 cooperative members communicate halibut mortality rates to cooperative managers. These reports are compiled by the cooperative manager and reported to the fleet on a weekly basis. Occasionally, halibut mortality hot spots are identified through these reports. In addition, cooperative members may use small tows when beginning fishing in a new location to assess whether halibut rates are acceptably low and will move from areas of relatively high halibut rates. Most of the vessels in the Amendment 80 fleet that fish in the GOA flatfish and Pacific cod fisheries use halibut excluders originally developed for the fleet's use in the Bering Sea. These excluders are believed to be more effective in the GOA, as halibut tend to be larger there than in the Bering Sea. Excluders, however, are not believed to be fully effective and are not used on all vessels at all times. In addition, the effectiveness of the excluder will depend on fishing practices, which may reduce target species catch rates. The incentive to adopt practices reducing the effectiveness of an excluder is likely greatest when the vessel operator believes the fleet is approaching a halibut prohibited species catch limit that will inevitably close the fishery.

Some trawl catcher processors would prefer to delay targeting of certain species during periods of known relatively high halibut mortality rates. These delays would likely result only in forgone catches of the target species, as other vessels (including those in other targets) may continue to fish. At times, Amendment 80 participants are likely to have an additional incentive to fish during periods of high halibut mortality rates, as Amendment 80 halibut PSC sideboard limits that are unused in a season do not rollover to the next season.

Given the number of vessels eligible for GOA trawl fisheries, the adoption of halibut avoidance measures (which often reduce target catch rates) are likely to reduce a vessel's revenues from the fisheries. The proposed PSC limit reductions alone are unlikely to induce any notable additional halibut avoidance by trawl catcher processors. Most vessels participating in an Amendment 80 cooperative are likely to continue to communicate with other members of that cooperative concerning halibut mortality rates and continue to use informal arrangements to reduce halibut mortality. These measures are instigated largely by the Amendment 80 sideboards, rather than halibut PSC limits that apply to the trawl fleet, as a whole.

Trawl catcher vessels

Trawl catcher vessels also face substantial competition for the available halibut PSC limits for prosecuting their target fisheries. While this competition creates a disincentive for the adoption of halibut avoidance measures, catcher vessels have adopted a variety of such measures in recent years. These measures are generally adopted at the prompting of NOAA Fisheries, who are likely unable to manage the fleet effort to remain within the halibut prohibited species catch limit in the absences of the measures.

The Pacific cod fisheries (in the Central GOA and Western Gulf) are the fisheries of the greatest value that are likely to be subject to closures because of the halibut PSC limit being reached. As may be expected, these fisheries also draw substantial numbers of the eligible participants. In the mid-2000s, managers had difficulty managing halibut PSC during the Pacific cod B season, primarily because of the rate at which the fleet prosecuted the fishery and the delay in processing observer data reports. To address this difficulty, managers moved to a system of short openings (of 12 hours and 24 hours), after each of which halibut PSC data would be processed and reviewed. If halibut PSC remained available an additional opening would be announced. This change successfully addressed the immediate problem of managing halibut PSC. Yet, short openings, several days apart made fishing less efficient for participants. To address this loss of efficiency, the fleet has worked with NOAA Fisheries managers to develop several measures to avoid halibut and improve the timeliness of observer data coming available to managers. These efforts have allowed managers to extend the B season Pacific cod openers to a few days.

In addition, participants in the Pacific cod fishery worked to develop a halibut excluder that can be used on the smaller trawl vessels that participate in the GOA fisheries. Although the excluder tests had mixed results, some participants believe it effectively reduces halibut prohibited species catch without unacceptable decreases in target catch (particularly in the Pacific cod fishery). Currently, the Central GOA trawl catcher vessel fleet shares halibut PSC information that is used both for identifying hot spots and for releasing weekly reports of halibut mortality by vessel. Reports identifying vessels with high PSC may create peer pressure to reduce their rates.

In the Western Gulf, halibut avoidance is less well coordinated in the fleet. A few factors likely contribute to this difference. The Western GOA fleet primarily delivers into two locations, Sand Point and King Cove; whereas, the Central GOA fleet delivers almost exclusively into Kodiak. In addition, the Western GOA fleet tends to be smaller vessels than Central gulf vessels and operate with a greater degree of independence. Few of the Western GOA participants have any experience with cooperative programs. Halibut avoidance in the Western GOA has generally consisted of moving from areas of high halibut mortality. To some degree, vessels exchange information concerning areas of high mortality to aid in these efforts. While these practices are likely to continue, the potential for substantially greater effort to avoid halibut arising from this action is limited. It is possible that this action together with other aspects of the trawl catcher vessel fisheries and their management may collectively lead to more coordinated efforts to limit halibut mortality and achieve greater returns from the fisheries.

Community Analysis

For the purposes of community analysis, a two-pronged approach to analyzing the community or regional components of changes associated with the implementation of proposed Gulf halibut PSC revisions was utilized. First, tables based on existing quantitative fishery information for the period 2003-2010 (inclusive) were developed to identify patterns of participation, by community, in the various components of the relevant fisheries. There are, however, substantial limitations on the data that can be utilized for these purposes, based on confidentiality restrictions. The second approach involved selecting a subset of Alaska communities shown in the data as most heavily engaged in the relevant Gulf groundfish fisheries for characterization to describe the range, direction, and order of magnitude of social- and community-level engagement and dependency on those fisheries, and a series of profiles were compiled for those communities, which included Anchorage, Chignik Lagoon, Homer, Juneau, King Cove, Kodiak, Petersburg, Sitka, and Sand Point. A number of other Alaska communities are substantially engaged in the potentially affected Gulf groundfish fisheries, but none have the range and/or level of engagement of the communities profiled, particularly in terms of steady local fleet participation, especially in the last few years, although Cordova, Akutan, and Unalaska/Dutch Harbor shore-based processors have been steadily engaged in Gulf groundfish processing over the 2003-2010 period. The locally owned fleet of Chignik was identified as relatively dependent on hook-and-line Gulf groundfish fisheries participation compared to other Alaska communities not included in the series of community profiles; no Alaska community outside of those profiled was identified as substantially engaged in the relevant Gulf groundfish fisheries through trawl participation on the part of the locally owned fleet.

In general, it is not possible to quantitatively differentiate potential impacts of the different Gulf halibut PSC reduction alternatives on an individual community basis. Qualitatively, however, it is possible to anticipate the communities where adverse impacts, if any, would most likely take place, along with the nature, direction, and at least rough order of magnitude of those impacts. Adverse impacts would likely be felt at the individual operation level for at least a few vessels in a number of Alaska communities due to increased costs and/or a drop in revenues associated with either changing fishing patterns and/or practices to reduce halibut bycatch or because of season-ending closures based on a particular gear- or species-based sector hitting a (revised) halibut PSC limit earlier in the season than would have been the case under previous/existing (higher) halibut PSC thresholds. Additionally, recent community and social impact assessments for North Pacific fishery management actions suggest that as locally operating vessels experience adverse impacts, indirect impacts are also soon felt by at least some local support service providers to the degree that those individual enterprises are dependent upon customers who participate in the specific fishery or fisheries affected (and the relative dependence of those customers on those specifically affected fisheries). Given the

scope of overall impacts anticipated to result from any of the management alternatives assessed for the proposed Gulf halibut PSC revisions, however, community-level impacts would likely not be discernible for most of the engaged communities. The three communities where community-level impacts are a greater possibility are King Cove, Sand Point, and Kodiak, based on the relative involvement with the trawl sector, both on a local fleet and processing basis.

Potential mitigating factors for possible adverse impacts in King Cove and Sand Point, however, include the specific gear, species, and seasonal nature of the Gulf groundfish trawl-related efforts in those communities, such that any Gulf halibut PSC revisions that affected any season other than the cod "A" season (January 1 through June 9) in the Western Gulf would have minimal impacts to King Cove and Sand Point.

Kodiak, however, is substantially engaged in a wide range of Gulf groundfish fisheries in terms of spatial and seasonal distribution of effort, species targeted, and gear types utilized with respect to its local fleet, and Kodiak processing operations are very much the center of Gulf groundfish shore-based processing. Kodiak would be especially more likely to experience any adverse impacts related to Gulf groundfish trawl fisheries in the later part of the year, particularly with respect to flatfish-related operations. A potential mitigating factor for adverse community-level impacts in Kodiak is that the community is substantially engaged in and dependent upon a wide range of fisheries, not just the Gulf groundfish fisheries, and multiple gear types within the Gulf groundfish fisheries. For the local Gulf groundfish fleet, exvessel gross revenues are roughly comparable for the fixed gear and trawl segments of the fleet. For processing operations, a lack of flatfish toward the end of the year in particular could create a range of challenges with respect to continuity of operations and processing labor issues. For Kodiak shore-based processors, flatfish (year-round) accounted for roughly 10 percent of combined flatfish and other groundfish first wholesale gross revenues on an annual average basis in recent years and roughly 5 percent of first wholesale gross revenues for all species combined.

In general, adverse community-level impacts are not likely to be significant for any of the involved communities and the sustained participation of these fishing communities would not be put at risk by any of the proposed Gulf halibut PSC revision alternatives being considered. For some individual operations, however, especially within the Gulf groundfish trawl sector in Kodiak and those processing operations in Kodiak substantially dependent upon Gulf groundfish trawl deliveries of flatfish in particular, adverse impacts may be felt at the operational level, particularly if the fleet cannot effectively modify behavior to reduce historical halibut PSC rates.

Additionally, there is the potential for community-level beneficial impacts to result from the proposed Gulf halibut PSC reductions. Within the community analysis, it is assumed that direct halibut fisheries would potentially benefit from the proposed Gulf halibut PSC revisions relative to the degree that the Gulf halibut stock itself would potentially benefit from these proposed actions. In both the quantitative indicators and community profile summaries, information is presented on community engagement in the commercial halibut, sport halibut, and subsistence halibut fisheries. The communities profiled as most heavily engaged in the relevant Gulf groundfish fisheries, however, are not always the communities most centrally engaged in/dependent upon the various Gulf halibut fisheries; therefore, the individual communities that have the potential to experience the greatest adverse impacts to the groundfish fisheries may or may not be the same communities as those that have the potential to experience the greatest beneficial impacts to the halibut fisheries. In general, the potential beneficial impacts to the various halibut fisheries, especially the commercial and subsistence halibut fisheries, would be more widespread among communities than the potential adverse impacts to the groundfish fisheries, although potential beneficial impacts to individual halibut fishery participants may be modest compared to potential negative impacts to individual groundfish fishery participants likely to be directly affected by the proposed Gulf halibut PSC reductions. This potential differential distribution of adverse and beneficial impacts among communities is primarily addressed in the quantitative indicators discussion, but engagement in the different halibut fisheries is also discussed in each of the community profiles, where potential negatively affected and positively affected populations are most likely to overlap.

Raw Fish Taxes

There are three fisheries taxes that are levied on GOA groundfish catch/landings by the State of Alaska. A Fisheries Business Tax is levied on persons who process or export fisheries resources from Alaska. The tax is based on the price paid to commercial fishers or fair market value when there is not an arms-length transaction. The tax rate varies by the type of processor and whether the species being delivered is classified as established or developing. A Fishery Resource Landing Tax is levied on fishery resources processed outside the 3-mile limit and first landed in Alaska or any processed fishery resource subject to sec. 210(f) of the American Fisheries Act. The tax is based on the unprocessed value of the resource, which is determined by multiplying a statewide average price (determined by the Alaska Department of Fish and Game (ADF&G) data) by the unprocessed weight. The Fishery Resource Landing Tax is collected primarily from factory trawlers and floating processors which process fishery resources outside of the state's 3-mile limit and bring their products into Alaska for transshipment. The tax rate is 3% for established species and 1% for developing species (as designated by ADF&G). A Seafood Marketing Assessment is levied at a rate of 0.5% of the value of seafood products processed first landed in, or exported from Alaska.

The statewide tax foregone by reductions in groundfish harvests and tax increases from halibut harvests were calculated. The two estimates are not directly comparable because of the different methodologies used to calculate revenue foregone in the groundfish fishery and increase in revenue in the guided sport and commercial IFQ fishery. Alaska statewide average prices used to determine tax liability (2010) were used for both halibut and groundfish. Under Alternative 2 Option 1 (a 5 percent reduction in halibut PSC), the 2010 tax revenues were projected to increase by the amount of the tax applied to halibut landings. This is due to the fact that under the 5 percent reduction in halibut PSC, the groundfish fishery was estimated not to forego any revenue in 2010 (2010 was a low halibut PSC year). No ex-vessel revenues foregone in the groundfish fishery and $30,000 increase in halibut tax revenues were estimated under the 5 percent reduction. When the PSC limit was reduced by 10 percent the state tax was estimated to have increased by $59,000 from halibut landings. The linear calculation for the change in halibut tax liability resulted in an increase of $89,000 in taxes at when the 15 percent reduction to the PSC limit was applied. Statewide taxes forgone from groundfish were estimated to be $17,000 (10 percent reduction in PSC) and $114,000 (15 percent reduction in the PSC limit).

Community level taxes are also impacted by changes in landings. King Cove was the only city to charge a Fisheries Impact Tax which is set at a flat rate of $100,000. The Fisheries Impact Tax is levied against the local processor to help pay for city resources used by the plant. The cities of King Cove, False Pass, and Sand Point impose a 2% fish tax in addition to the 2% fish tax imposed by the Aleutians East Borough. Chignik imposes a 2% fish tax on vessels and a 1% fish tax on processors. Unalaska imposes a 2% fish tax. Estimates of the city fish taxes cannot be reported because less than three groundfish processors are located in each community. Several communities where GOA groundfish are landed do not charge a raw fish tax.

Instead of a raw fish tax, the Kodiak Borough imposed a severance tax of 1.05% on harvested natural resources, including commercial fishing, timber sales, sand or gravel extraction, and mining activities that was in place during 2010. In June 2011, Kodiak lawmakers increased the Borough's severance tax rate to 1.25%. In general, the reductions in raw fish taxes assessed by municipalities would, potentially, have the greatest impact on the community of Kodiak. Under this proposed action, their groundfish tax revenues would be reduced by changes in the halibut PSC limit. Increases in halibut tax revenue may partially or completely offset these decreases.

ROADMAP TO THE DOCUMENT

The document begins by describing the purpose for this proposed action (Section 1.1) and a description of the alternatives considered (Section 2.1). Section 3 contains the Environmental Assessment. Section 3.2.1 describes the Pacific halibut resource and fisheries and the biological impacts analysis of proposed alternatives on halibut. Section 3.3 describes the groundfish resources and fisheries and the biological impacts analysis of proposed alternatives on groundfish. It describes how fleet behavior may change as a result of the alternatives. Status of, and effects of the proposed action on, marine mammals (Section 3.4), seabirds (Section 3.5), habitat (Section 3.6) and the ecosystem (Section 3.7) are addressed. The cumulative

effects section is provided under Section 3.8. The NEPA summary is provided under Section 3.8.5. Section 4 contains the Regulatory Impact Review, which evaluates the economic and socioeconomic impacts of the proposed action. It summarizes information on potential effects of the proposed action on GOA coastal communities, which is included in greater detail under Appendix 7. The community impact analysis was expanded through field work conducted in early 2012, based on recommendations by the Council which incorporated comments by the Scientific and Statistical Committee, Advisory Panel, and public testimony. The Initial Regulatory Flexibility Analysis evaluates the impact of the action on small businesses. Section 6 reviews the alternatives with respect to the requirements of the Magnuson-Stevens Act and other analytical considerations. Section 5 presents the IRFA. Section 6 covers FMP and MSA requirements, including the National Standards. Section 7 discusses the environmental impacts of the proposed action and alternatives. Section 8 contains a list of contributors to this analysis.

Modifications have been made throughout the EA and RIR to reflect changes in the proposed alternatives being considered by the Council since it was reviewed in February 2012. Editorial changes, clarifications, and corrections have also been made.

Major revisions to the EA since February 2012 include the following:

- Information already included in the Initial Review Draft of the EA was reorganized to strengthen sections addressing the Purpose and Need and Cumulative Effects;
- The suite of alternatives and option was revised to reflect Council action;
- The timeline for implementation was revised to no sooner than 2014;
- New IPHC bluebook information and CEY from the 2012 annual IPHC meeting, including expanded discussion on a) the methods and assumptions used in the lost yield and migration models that are briefly described within the analysis; and b) the methods used by IPHC staff to apportion bycatch among the U26, O26-U32, and O32" size categories; and
- Joint NPFMC/IPHC Halibut Bycatch Workshop description and agenda was included. The meeting summary will be provided to the Council separately.

Major revisions to the RIR since February 2012 include the following:

- New information on the status of the Pacific halibut stock;
- Removing the suboption to take the entire trawl halibut PSC reduction from the fifth season;
- Add suboption 3.2 to allow the Amendment 80 sector to roll unused halibut PSC from one season to the subsequent season (similar to the non-Amendment 80 sectors). See Section 4.6.3.6.6;
- Add Suboption 3.3 to allow available trawl halibut PSC in the second season deep water and shallow water complexes to be aggregated and made available for use in either complex from May 15th through June 30th. Halibut PSC sideboards for the Amendment 80 and AFA sectors would continue to be defined as deep water and shallow water complexes in the second season. See section 4.6.3.6.7.
- Revise the hook-and-line sector PSC limits that were implemented under the GOA Pacific cod sector splits (see Section 4.6.3.2);
- A more detailed discussion of the treatment of the CG Rockfish Program halibut program allocation was included (see executive summary);
- Provide additional information on the estimated gross revenue reductions at the ex-vessel level.
- Additional analysis of the trawl catcher vessel fleet. (see Section 4.6.6.3.2)
- The community impacts section was updated to reflect additional information requested by the Council (Appendix 7), including the addition of a Kodiak field methodology discussion and an expansion of the Kodiak processing labor discussion. Appendix 7 was also updated to include data for 2010 for shore-based groundfish processing, halibut sport charter permits and harvests, and halibut subsistence fishery participation and harvest levels.

PART 1

Questions the Council should address for the record at final action

Trawl PSC Limits:

1) Specify the reduction (in MT and Percent)

   Confirm the approach in the analysis that the reduction applies to the trawl PSC limit minus the 191.4 rockfish allocation and 27.4 mt PSC reduction previously taken. (If a different interpretation is desired, further analysis would have to be provided in a subsequent draft.) Based on Council direction in June 2011, the Rockfish Program allocation of 191.4 MT would not be subject to any reduction. The reduction would be applied to all other fisheries.

2) If the Council selects the option to remove deep- and shallow-water complex PSC designations for the remainder of the second season - after May 15. Should halibut PSC used during that period be deducted from:

   a. The fishery complex in which it was used. (e.g., if one complex exceeds the second season PSC limit, the overage is deducted from the 3rd season limit for that complex). (This option would not require modifying the catch accounting system). OR

   b. The fishery where the PSC limit was originally designated for use. (NOAA Fisheries has indicated that selecting this option would require revising the catch accounting system. Implementing this option may not be possible with current funding)

   Note: any unused PSC will be rolled-over to the fisheries where it was initially assigned.

3) Specify the actual tonnage associated with its Preferred Alternative option for the total halibut trawl PSC limit for the record.

Hook-and-Line PSC Limits

1) Set the halibut PSC limit for the demersal shelf rockfish in the Southeast Outside District. Status quo is 10 mt. Are proposed reductions to be applied to the DSR PSC limit?

2) Set the halibut PSC limit for non-DSR hook-and-line fishery. Status quo is 290 mt.

   a. Any proposed reduction applied to the CV and/or CP sectors would not be available for use as hook-and-line PSC (i.e., it lowers the cap).

   b. If the same percentage reduction is applied to both sectors then the overall non-DSR hook-and-line fishery PSC limit (290 mt) would be reduced.

   c. However, if *different* percentage reductions are applied to the CV and/or CP sectors then the 290 mt non-DSR hook-and-line fishery PSC limit would remain in regulation and the reduction would be applied after the current Pacific cod split formula is applied to the overall limit.

3) Under Alternative 2, Option 2, confirm that the sideboard percentages for Amendment 80/AFA/GOA rockfish would not change but would be applied to a revised trawl halibut PSC limit by season and fishery category, where applicable.

4) Specify the actual tonnage associated with the Preferred Alternative option for the total halibut hook-and-line PSC limit for the record.

Supplemental Table. GOA halibut PSC usage by gear, sector, and category for 2003-2011.

	Hook-and-Line			Trawl																	
				Sideboarded PSC Usage									Total PSC Usage								
				Non-exempt AFA CVs*			Am 80			Rockfish Program (July)				Catcher Vessels			Catcher Processors			Trawl Total		
Year	Catcher Processor	Catcher Vessel	Total	Deep	Shallow	Total	Deep	Shallow	Total	Deep	Shallow	Total	Rockfish Program Allocation Deep	Deep	Shallow	Total	Deep	Shallow	Total	Deep	Shallow	Total
PSC Limit	117**	173**	290	56	302	420	418	137	555	50	2	52	191.4	N/A			N/A			N/A		2,000
2003	107	179	287	4	23	27								193	1,041	1,233	750	102	852	943	1,143	2,085
2004	123	171	294	0	9	0								572	1,099	1,671	303	470	773	876	1,569	2,444
2005	43	164	207	0	9	9								441	1,127	1,568	392	146	538	833	1,274	2,106
2006	141	192	333	0	0	0								571	1,001	1,572	342	70	412	913	1,071	1,984
2007	105	185	290	11	47	58				47	71	118	41	445	1,250	1,695	226	24	249	671	1,274	1,945
2008	101	395	496	4	26	32	285	22	307	67	100	167	36	440	1,163	1,604	311	39	350	751	1,203	1,954
2009	95	183	278	2	8	18	245	53	298	58	22	80	27	390	1,103	1,494	247	87	335	638	1,191	1,828
2010	122	104	226	0	8	8	284	24	308	31	46	77	62	546	762	1,308	210	119	329	755	881	1,637
2011	130	111	242	4	25	34	288	25	313	38	11	49	72	542	794	1,336	426	84	510	968	878	1,846

Source: AKFIN summary of NOAA Catch Accounting System data (*except non-AFA CV data was taken from Catcher Vessel Intercooperative annual reports)

** Will change annually based on the Pacific cod TACs in the Western and Central GOA

N/A means not applicable because of roll-overs and the 5th season allowance is not defined as deep or shallow water complex and PSC is not divided between CVs and CPs

The 191.4 MT Rockfish Program allocation is divided such that CVs are allocated 117.3 MT and CPs are allocated 74.1 MT.

PART 3

Estimated PSC limits based on 1,973 MT cap

Reducing the overall trawl PSC limit to 1,973 MT from 2,000 MT and using that amount to determine the seasonal and fishery limits results in minor changes to those apportionments relative to those reported in the analysis. It does not change the overall PSC limits that were presented. A series of tables depicting the trawl PSC limits as well as trawl sideboard limits are presented in this paper. If the Council were to select this methodology to modify trawl PSC limits, these are the halibut PSC apportionments that would be anticipated, if the seasonal and fishery allowances were not modified during the annual harvest specifications process.

Table 1 shows how the 1,973 MT PSC limit would be divided among the trawl seasons and fishery complexes, if the current percentages for each are maintained. Note that summing the seasonal totals may not equal the total allowance due to rounding. In each case the seasonal apportionment is within 8 MT of when they were based on the 2,000 MT PSC limit. After the seasonal limits are divided among the shallow-water and deep-water complexes, the maximum difference between the current status quo limit and applying the 1,973 MT limit is 6 MT.

Table 1 Trawl halibut PSC limits based on an overall limit of 1,973 MT.

	Total allowance**	1st season January 20 to April 1	2nd season April 1 to July 1	3rd season* July 1 to September 1	4th season September 1 to October 1	5th season October 1 through December 31
Total Allowance						
seasonal share		27.5 percent	20 percent	30 percent	7.5 percent	15 percent
Status quo	1,973	543	395	592	148	296
Deep-water complex						
seasonal share		12.5 percent	37.5 percent	50 percent*	0 percent	
Status quo	789	99	296	203 (or 395)		NA
Option 1 - 5 % reduction	759	94	281	193 (or 385)	0	
Option 2 - 10% reduction	729	89	266	183 (or 374)		
Option 3 - 15% reduction	700	84	252	173 or (364)		
Shallow-water complex						
seasonal share		50 percent	11.1 percent	22.2 percent	16.7 percent	
Status quo	888	444	99	197	148	NA
Option 1 - 5 % reduction	843	422	94	187	141	
Option 2 - 10% reduction	799	400	89	177	133	
Option 3 - 15% reduction	755	377	84	168	126	
Undesignated						
seasonal share						100 percent
Status quo	296					296
Option 1 - 5 % reduction	281			NA		281
Option 2 - 10% reduction	266					266
Option 3 - 15% reduction	252					252

All values are metric tons, except where noted as percentages.

* Number in bracket is total allocation plus 191.4 metric ton rockfish program halibut PSC allocation.

** The current 2,000 MT limit is reduced by the 27.4 MT Rockfish Program halibut PSC reduction.

^ PSC available: Status quo (1,973 MT), 5% reduction (1,884 mt), 10% reduction (1,795 mt), 15% reduction (1,706 MT)

Because sideboard limits are calculated based on either the current 2,000 MT limit or seasonal apportionments, reducing the 2,000 MT limit to 1,973 MT as the starting point for the calculations requires adjusting the sideboard limits. Table 2 presents the Amendment 80 halibut PSC sideboard limits. Overall the largest change is associated with the 3rd season deep-water limit. That PSC limit changed by 2 MT from the current amount, prior to applying any of the proposed percentage reductions to the overall limit.

PART 3

Table 2 Amendment 80 halibut PSC sideboard limits

	Total sideboard	1st season January 20 to April 1	2nd season April 1 to July 1	3rd season* July 1 to September 1	4th season September 1 to October 1	5th season October 1 through December 31
Deep-water complex						
Status quo (assumes 1,973 MT)	414	23	212	103	3	73
Option 1 - 5 % reduction	394	22	201	98	3	70
Option 2 - 10% reduction	371	20	190	93	2	66
Option 3 - 15% reduction	350	19	180	87	2	62
Shallow-water complex						
Status quo (assumes 1,973 MT)	135	9	37	29	15	45
Option 1 - 5 % reduction	128	9	35	27	14	43
Option 2 - 10% reduction	122	9	34	26	13	40
Option 3 - 15% reduction	114	8	32	24	12	38

All values are metric tons, except where noted as percentages.

* Note: excludes rockfish program halibut PSC allowance and usage.

The rockfish program sideboard limits applied to catcher processors are listed in Table 3. The deep-water allowance was reduced by 1 MT using the 1,973 MT limit instead of 2,000 MT. The shallow-water sideboard limit was unchanged, due to the small initial allocation to that species grouping.

Table 3 Rockfish Program CP sideboards for the month of July

		3rd season PSC allowance*	July sideboard	
			tonnage	As percent of 1,973 MT
Deep-water complex				
Status quo		203	49	2.50%
Maintain current sideboard percentage	Option 1 - 5 % reduction	193	47	2.50%
	Option 2 - 10% reduction	183	44	
	Option 3 - 15% reduction	173	42	
Maintain current sideboard tonnage	Option 1 - 5 % reduction	193	50	2.67%
	Option 2 - 10% reduction	183		2.82%
	Option 3 - 15% reduction	173		2.98%
Shallow-water complex				
Status quo		197	2	0.10%
Maintain current sideboard percentage	Option 1 - 5 % reduction	187	2	0.10%
	Option 2 - 10% reduction	177	2	
	Option 3 - 15% reduction	167	2	
Maintain current sideboard tonnage	Option 1 - 5 % reduction	187	2	0.11%
	Option 2 - 10% reduction	177		0.11%
	Option 3 - 15% reduction	167		0.12%
* Excludes rockfish program halibut PSC allowance and deduction.				

Table 4 reports the estimated sideboard limits for the AFA non-exempt catcher vessel fleet. Recall that AFA sideboard limits are calculated as a percentage of the seasonal apportionments and not the overall limit. The greatest change occurred in the 1st season shallow-water allowance. That limit was reduced by 2 MT, before percentage reductions were applied, compared to the current limit. Most limits were not changed or only changed by 1 MT. Note that the third season AFA PSC limit used 395 MT as the basis for the calculation.

PART 3

Table 4 AFA non-exempt catcher vessel sideboard limits.

	Total sideboard	1st season January 20 to April 1	2nd season April 1 to July 1	3rd season July 1 to September 1	4th season September 1 to October 1	5th season October 1 through December 31
Deep-water complex						
Status quo (assumes 1,973 MT)	56	7	21	28	0	NA
Option 1 - 5 % reduction	53	7	20	26		
Option 2 - 10% reduction	50	6	19	25		
Option 3 - 15% reduction	47	6	18	24		
Shallow-water complex						
Status quo (assumes 1,973 MT)	302	151	34	67	50	NA
Option 1 - 5 % reduction	287	143	32	64	48	
Option 2 - 10% reduction	272	136	30	60	45	
Option 3 - 15% reduction	257	128	28	57	43	
Undesignated						
Status quo (assumes 1,973 MT)	61	NA				61
Option 1 - 5 % reduction	58					58
Option 2 - 10% reduction	55					55
Option 3 - 15% reduction	52					52

All values are metric tons, except where noted as percentages.

PART 4

Applying Different Halibut PSC Percentage Reductions to the Hook-and-Line CV and CP Fleets

The Council has included the option of applying a different halibut PSC reduction percentage to the hook-an-line gear catcher vessel and catcher processor fleets. This is possible given the current PSC regulations for the two sectors, but it would require a two-step process to apply the reductions, rather than simply reducing the overall (non DSR) hook-and-line PSC limit of 290 mt. Reducing the overall PSC limit, similar to the approach used for the trawl fleet, may be done if the same percentage reduction is applied to both sectors. To explain the issues associated with applying different percentage reductions, the method of dividing the PSC limit implemented under Amendment 83 must be discussed.

Amendment 83 was implemented at the start of the 2012 fishing year. That amendment set gear and seasonal apportionments for the GOA Pacific cod fisheries. It also implemented formulas to divide the hook-and-line halibut PSC limit among catcher vessels and catcher processors annually, based on their respective Pacific cod allocations and the annual Pacific cod TACs in the Western GOA and Central GOA. Those formulas are presented below and are taken from Federal Regulations at § 679.21(d)(4)(iii)(B). The formulas provide each sector (e.g., catcher processors and catcher vessels) with a share of the available halibut PSC equal to its share of the combined hook-and-line TACs in the Central and Western Gulf. In other words, in a year when the hook-and-line catcher processors receive 41 percent of the combined Central and Western Gulf hook-and-line TACs, that sector would also receive 41 percent of the hook-and-line halibut PSC apportionment.

Catcher vessels using hook-and-line gear will be apportioned part of the GOA halibut PSC limit in proportion to the total Western and Central GOA Pacific cod hook-and-line allocations, where X is equal to the annual area TAC, as follows:

$$CV\ apportionment = Total\ HAL\ PSC\ limit\ mt \cdot \frac{(1.4\%(X_{WGOA}) + 21.3\%(X_{CGOA}))}{((19.8\% + 1.4\%)(X_{WGOA})) + ((5.1\% + 21.3\%)(X_{CGOA}))}$$

Catcher/processors using hook-and-line gear will be apportioned part of the GOA halibut PSC limit in proportion to the total Western and Central GOA Pacific cod allocations, where X is equal to the annual area TAC, as follows:

$$CP\ apportionment = Total\ HAL\ PSC\ limit\ mt \cdot \frac{(19.8\%(X_{WGOA}) + 5.1\%(X_{CGOA}))}{((19.8\%+1.4\%)(X_{WGOA}))+((5.1\%+21.3\%)(X_{CGOA}))}$$

No later than November 1, any halibut PSC limit (described above) that is projected by the Regional Administrator to not be used by one of the hook-and-line sectors during the remainder of the fishing year will be made available to the other sector.

Because fluctuations in the Pacific cod TACs determine the distribution of the 290 mt halibut PSC for catcher vessels and catcher processors, only the formulas are fixed in regulation. The percentage and amount each sector is apportioned varies from year-to-year and is therefore not fixed in regulation. The current analysis shows the distribution of PSC in 2012 only, and thus applies the Council's options to reduce PSC to each sector to the PSC amounts that resulted for 2012. Because the PSC limits to each sector can vary annually, a 5%, 10%, or 15% reduction in PSC would equate to a different amount (mt) each year.

Table 1 shows the estimated PSC apportionments of halibut PSC that would have occurred if the current apportionment method was in place during each year 2002 - 2012. The data in the table indicates that the maximum difference in the PSC apportionment among years would have been 17 MT, from 2007 to 2012. Catcher vessels would have had their largest apportionment in 2012 (173 MT) and smallest in 2007 (156 MT). Because a total limit is shared by the two sectors, the catcher processors would have experienced the largest apportionment in 2007 (117 MT) and the smallest apportionment in 2012 (134 MT).

PART 4

Table 1 Estimated apportionment of halibut PSC to hook-and-line catcher vessels and catcher processors from 2002 through 2012 using current apportionment methodology under GOA Am 83.

	Pacific cod		PSC MT		PSC %	
Year	WG TAC	CG TAC	CV	CP	CV	CP
2012	21,024	42,705	173	117	59.7%	40.3%
2011	22,785	40,362	167	123	57.6%	42.4%
2010	20,764	36,782	167	123	57.6%	42.4%
2009	16,175	23,641	158	132	54.4%	45.6%
2008	19,449	28,426	158	132	54.4%	45.6%
2007	20,141	28,405	156	134	53.8%	46.2%
2006	20,141	28,405	156	134	53.8%	46.2%
2005	15,687	25,086	162	128	55.9%	44.1%
2004	16,957	27,116	162	128	55.9%	44.1%
2003	15,450	22,690	158	132	54.5%	45.5%
2002	16,849	24,790	158	132	54.5%	45.5%
Average	18,675	29,855	162	128	55.9%	44.1%
Maximum	22,785	42,705	173	134	59.7%	46.2%
Minimum	15,450	22,690	156	117	53.8%	40.3%

Source: NOAA Fisheries TAC and Federal Regulations

Applying the Council's options for PSC reductions to the two sectors, results in the estimated apportionments presented in Table 2. The columns labeled PSC MT are the status quo apportionments. Reductions to the status quo are presented in the columns to the right of the status quo.

Table 2 Estimated sector PSC reductions (2002 through 2012) based on Council options

	PSC MT		CV			CP		
Year	CV	CP	5%	10%	15%	5%	10%	15%
2012	173	117	164	156	147	111	105	99
2011	167	123	159	150	142	117	111	105
2010	167	123	159	150	142	117	111	105
2009	158	132	150	142	134	126	119	112
2008	158	132	150	142	134	126	119	112
2007	156	134	148	140	133	127	121	114
2006	156	134	148	140	133	127	121	114
2005	162	128	154	146	138	121	115	109
2004	162	128	154	146	138	121	115	109
2003	158	132	150	142	134	125	119	112
2002	158	132	150	142	134	125	119	112
Average	162	128	154	146	138	121	115	109

PART 4

To apply different percentage reductions to the different hook-and-line sector's PSC limits, the overall PSC limit of 290 MT must remain in regulation. After each sector's apportionment is determined using the formula above, the PSC percentage reduction could be applied to each sector. Those numbers would be reported annually as the PSC apportionment for each sector. It should be noted that in sector' PSC limits may vary by year depending on the distribution of the Pacific cod TAC between the Central GOA and Western GOA, the 290 mt would remain in regulation as the total (non-DSR) hook-and-line PSC limit, but the entire 290 MT would no longer be-allocated to the two sectors in total, For example, if a 5% reduction was established for the CV sector and 10% for the CP sector, the approach would be as follows. First, use the current calculations under Am. 83 to determine the portion of the 290 mt that is allocated to the hook-and-line CP sector and CV sector. Upon establishing those amounts, reduce the CV PSC limit by 5% and reduce the CP PSC limit by 10%. Thus, while the overall limit continues to be 290 mt, the full 290 mt is not allocated each year.

The tables below show how the PSC limits could vary each year under the Council's options, based on three example TAC scenarios. The total hook-and-line PSC limit for each option based on the 2007, 2012, and average (2002 - 2012) TAC distribution are presented in Table 3. Information presented in the table indicates that Pacific cod TAC distributions in the Central GOA and Western GOA from 2002 through 2012 could change the hook-and-line PSC limit by as much as 2 MT when different percentage reductions are applied to the two sectors.

Table 3 Total hook-and-line halibut PSC available under each Council option for three example years.

CV / CP PSC allowances based on 2002-2012 average

		CV		
		5%	10%	15%
CP	5%	276	267	259
	10%	269	261	253
	15%	263	255	247

CV / CP PSC allowances based on 2012 (largest CV allowance)

		CV		
		5%	10%	15%
CP	5%	276	267	258
	10%	270	261	252
	15%	264	255	247

CV / CP PSC allowances based on 2007 (largest CP allowance)

		CV		
		5%	10%	15%
CP	5%	276	268	260
	10%	269	261	253
	15%	262	254	247

Retrospective Analysis of Current Allocation Formula:

Applying the current methodology for allocating halibut PSC and Pacific cod among hook-and-line CVs and hook-and-line CPs to past fishing years is presented in this section. Data from the 2003 through 2011 fishing years analyzed. Reported catch in the Pacific cod target fishery and halibut PSC usage for the Central and Western GOA were used to estimate a halibut PSC usage rate for each sector by area. A weighted average halibut PSC rate was then calculated using the Central and Western GOA rates and prorating them by the percentage of the Pacific cod TAC the sector is allocated from each area. Dividing the sectors halibut PSC limit by the weighted PSC rate yields the estimated amount of catch in the Pacific cod target fishery the PSC limit would support. These estimates are provided for the status quo and each PSC reduction the Council is considering. Estimates of the Pacific cod allocation are presented in the column to

the right of the weighted average. This estimate was generated using the current Pacific cod distribution formula.

The highlighted cells indicate that the halibut PSC limit would constrain the sector's Pacific cod harvests, at that year's halibut PSC usage rates. Neither the CP nor CV sectors are estimated to have been constrained during the 2010 through 2011 fishing years under any PSC reduction option. This is due to the relatively low PSC usage rates relative to earlier years. So, even though the Pacific cod allocation was relatively high those years, low PSC usage would allow their allocation to be harvested before PSC closed the fishery. During the years 2004 through 2007 both the CV and CP fleets were estimated to be constrained by the new allocation of Pacific cod and halibut PSC.

Table 4 Retrospective analysis of HAL CP and CV Pacific cod allocations and potential catch under the proposed halibut PSC limits

		CG (Reported Catch)			WG (Reported Catch)					Max Catch at W.A. Rate For Each Option			
Vessel Type	Year	Halibut PSC	Total Weight	Rate	Halibut PSC	Total Weight	Rate	Wt. Avg. Rate	Pacific cod Allocation	Status Quo	5%	10%	15%
CP	2011	38	3,306	0.011	92	5,676	0.016	0.015	6,570	8,080	7,676	7,272	6,868
CP	2010	46	3,421	0.014	74	4,923	0.015	0.015	5,987	8,310	7,894	7,479	7,063
CP	2009	11	1,169	0.010	83	3,900	0.021	0.019	4,408	6,968	6,620	6,271	5,923
CP	2008	40	1,817	0.022	61	3,100	0.020	0.020	5,301	6,558	6,230	5,902	5,574
CP	2007	33	1,435	0.023	72	2,778	0.026	0.025	5,437	5,291	5,026	4,762	4,497
CP	2006	46	1,021	0.045	91	2,533	0.036	0.038	5,437	3,556	3,385	3,207	3,029
CP	2005	5	241	0.022	33	700	0.048	0.043	4,385	3,008	2,857	2,707	2,557
CP	2004	26	1,496	0.017	97	2,870	0.034	0.030	4,740	4,204	3,989	3,783	3,573
CP	2003	10	1,447	0.007	95	4,126	0.023	0.020	4,216	6,683	6,349	6,015	5,681
CP	Average	28	1,706	0.019	78	3,401	0.027	0.026	4,600	5,573	5,294	5,016	4,737
CV	2011	83	6,681	0.012	14	869	0.016	0.013	8,916	13,206	12,545	11,885	11,225
CV	2010	62	5,689	0.011	28	1,736	0.016	0.011	5,220	14,822	14,081	13,340	12,599
CV	2009	120	5,415	0.022	51	2,280	0.022	0.022	8,125	7,106	6,750	6,395	6,040
CV	2008	371	6,270	0.059	20	455	0.044	0.058	5,262	2,743	2,607	2,470	2,306
CV	2007	162	6,530	0.025	22	674	0.033	0.025	6,327	6,172	5,864	5,556	5,247
CV	2006	172	6,611	0.026	15	343	0.045	0.027	6,332	5,749	5,462	5,174	4,887
CV	2005	158	4,298	0.037	6	236	0.027	0.036	6,332	4,500	4,275	4,050	3,825
CV	2004	166	5,458	0.030	2	152	0.015	0.029	5,563	5,523	5,246	4,970	4,694
CV	2003	75	3,244	0.023	4	257	0.017	0.023	6,013	6,956	6,608	6,261	5,913
CV	Average	161	5,439	0.029	19	767	0.027	0.029	5,049	6,693	6,358	6,023	5,689

Source: AKFIN summaries of NOAA Fisheries catch accounting data and current HAL Pacific cod and halibut PSC allocation formulas

Conclusions:

If the Council wants to select a different percentage reduction of the PSC apportionment for the hook-and-line catcher vessels and catcher processors, the current 290 MT limit must remain in regulation. The PSC reductions would be taken after the current formula to apportion halibut PSC is applied to the 290 MT limit. Because the percentage of the total apportioned to the catcher vessel and catcher processors may vary annually, the overall amount of PSC that may be used by the two sectors (the overall PSC limit) may also vary annually. Based on historical catch information reported in Table 2, a 15 percent catcher processor reduction from the status quo would likely range from 18 to 20 mt, while a catcher vessel reduction of 15 percent would likely range from 23 to 26 mt (based on 2002-2011 data). A 5 percent reduction to the catcher processor sector from the status quo would likely range from 6 to 7 mt and a 5 percent reduction of catcher vessel sector PSC would range from 8 to 9 mt. The amount of difference in these reductions is minimal and likely beyond the precision of our current management system.

The retrospective analysis indicates that the low halibut PSC usage rates in 2010 and 2011 would have allowed both the CV and CP fleets to harvests their Pacific cod allocation under the current allocation formula. In earlier years, the halibut PSC limit was estimated to have often constrained harvest.

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Community Analysis Errata

During the final production process for the May 2012 revised version of the document, it was discovered that the hook-and-line GOA groundfish vessel data reported in the community analysis inadvertently contain pot and jig data as well as hook-and-line data. These data also contain hook-and-line data from GHL fisheries that are under the management authority of the State of Alaska and not subject to the federal halibut PSC limits. This error has the effect of overstating community fleet engagement in, and relative dependency on, the GOA groundfish hook-and-line sector. This error, however, does not change any of the conclusions reached in this analysis, as no substantial community impacts associated with the hook-and-line sector were identified (even with a reported level of revenue potentially forgone that was substantially higher than it should have been due to the inclusion of GOA groundfish catch that is not limited by halibut PSC).

This error was uncovered too late in the process to correct in the current version of the document; the error will be corrected in the Secretarial Review draft of the document, if final action is taken at this meeting. Data for GOA groundfish trawl fisheries were not affected, nor were GOA groundfish shore processor data included in the analysis. Similarly, data associated with the halibut fisheries, including the commercial, sport charter, and subsistence halibut fisheries, were not affected by the error in data reporting for the GOA groundfish hook-and-line fisheries.

Tables 1 and 2 provide updated information for GOA groundfish hook-and-line vessels, by community of ownership,[1] that would be potentially directly affected by the proposed management action. Pot and jig gear data have been removed, as have groundfish data associated with targeted halibut and sablefish fisheries and those associated with efforts targeting state waters or state-managed fisheries (none of which would be directly affected by the proposed GOA halibut PSC revisions). This has the practical effect of excluding all GOA groundfish data except for data associated with the targeted Pacific cod hook-and-line fishery in federal waters of the Gulf.

As shown in Table 1, the GOA groundfish hook-and-line fleet ownership within Alaska is highly concentrated in Homer and Kodiak, with over two-thirds of annually participating Alaska-owned vessels coming from those two communities alone. Although the number of vessels is substantially smaller in the corrected dataset, the relative concentration of vessels in these two communities is greater than shown in the current version of the report. Both Homer and Kodiak have, on average, more than 20 hook-and-line vessels participating in the fishery each year; no other community averages five participating vessels per year, and only four other communities average at least two vessels participating each year.

Table 2 provides information on GOA groundfish exvessel gross revenues for the hook-and-line vessels enumerated in Table 1. As noted in the analysis, the level of gross revenue forgone for hook-and-line vessels would have been approximately 0.9 percent under the maximum GOA halibut PSC reduction alternative (15 percent reduction). To take the example of Kodiak-owned vessels, of the approximately

[1] Because only vessels with ownership in the communities listed are included in the data, the totals will not equal the total number of hook-and-line vessels that participated in federal groundfish fisheries.

$1.3 million total annual average gross revenue for these vessels, the total exvessel gross revenue forgone would be about $12,000 per year for the community-owned fleet, which spread across 22 vessels in an average year would equal about $550 of exvessel gross revenue forgone per vessel per year. This compares to a figure of about $700 per vessel given in the current version of the report.

Table 1. Individual GOA Groundfish Hook-and-Line Vessels (all) by Community of Vessel Owner, 2003-2010 (number of vessels)

Community	Total Unique Vessels 2003-2010	Number of Vessels by Year								Annual Average Vessels 2003-2010
		2003	2004	2005	2006	2007	2008	2009	2010	
Homer	59	27	23	28	26	35	29	36	35	29.9
Kodiak	67	17	20	23	23	24	26	21	19	21.6
Delta Junction	6	2	4	5	5	6	6	5	5	4.8
Anchor Point	12	5	3	5	0	2	5	3	2	3.1
Willow	5	3	2	2	3	4	3	3	3	2.9
Nikolaevsk	7	3	3	2	1	2	2	1	3	2.1
Petersburg	7	3	0	0	1	1	2	3	5	1.9
Cordova	5	0	0	0	2	3	4	2	3	1.8
Seward	5	0	0	0	0	1	5	1	2	1.1
Sitka	9	4	2	0	0	0	0	1	2	1.1
Wasilla	5	0	1	1	0	2	4	1	0	1.1
Sand Point	5	1	0	0	0	1	1	3	1	0.9
Sterling	1	1	1	1	0	1	0	1	1	0.8
Anchorage	3	0	1	0	0	0	2	2	0	0.6
Dutch Harbor	3	0	0	2	0	1	2	0	0	0.6
Eagle River	2	0	0	0	0	1	1	2	0	0.5
Yakutat	4	0	0	0	0	0	4	0	0	0.5
Juneau	2	0	0	0	1	0	0	1	1	0.4
Douglas	2	0	1	0	0	0	1	0	0	0.3
King Salmon	1	0	0	1	1	0	0	0	0	0.3
Unalaska	2	1	1	0	0	0	0	0	0	0.3
Adak	1	0	0	0	0	0	0	0	1	0.1
Kasilof	1	0	0	0	1	0	0	0	0	0.1
King Cove	1	0	0	0	0	0	0	0	1	0.1
Larsen Bay	1	0	1	0	0	0	0	0	0	0.1
Seldovia	1	0	0	0	0	0	1	0	0	0.1
Alaska Total	**217**	**67**	**63**	**70**	**64**	**84**	**98**	**86**	**84**	**77.0**
Oregon Total	**6**	**0**	**1**	**0**	**2**	**2**	**3**	**1**	**0**	**1.1**
Washington Total	**44**	**18**	**16**	**11**	**19**	**20**	**22**	**21**	**19**	**18.3**
Other States Total	**7**	**3**	**3**	**2**	**2**	**3**	**3**	**1**	**2**	**2.4**
Grand Total	**246**	**88**	**83**	**83**	**87**	**109**	**126**	**109**	**105**	**98.8**

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Table 2. GOA Groundfish Hook-and-Line Exvessel Gross Revenues by Community of Vessel Owner, 2003-2010 (dollars)

Community	Total Unique Vessels 2003-2010	Exvessel Gross Revenues by Year								Annual Average Exvessel Gross Revenues 2003-2010**
		2003	2004	2005	2006	2007	2008	2009	2010	
Homer	59	$1,074,339	$1,485,389	$1,144,394	$2,026,717	$2,970,154	$2,556,513	$2,124,874	$1,854,399	$1,904,597
Kodiak	67	$664,930	$852,317	$801,936	$2,019,937	$1,922,066	$2,575,015	$970,939	$872,929	$1,335,009
Delta Junction	6	*	$274,269	$307,831	$657,793	$735,561	$1,021,351	$503,197	$514,412	$573,488
Anchor Point	12	$105,111	*	$218,976	$0	*	$230,884	*	*	*
Willow	5	*	*	*	*	$179,379	*	*	*	*
Nikolaevsk	7	*	*	*	*	*	*	*	*	*
Petersburg	7	*	$0	$0	*	*	*	*	$3,378,066	*
Cordova	5	$0	$0	$0	*	*	$195,975	*	*	*
Seward	5	$0	$0	$0	$0	*	$138,853	*	*	*
Sitka	9	$377	*	$0	$0	$0	$0	*	*	*
Wasilla	5	$0	*	*	$0	*	$44,524	*	$0	*
Sand Point	5	*	$0	$0	$0	*	*	*	*	*
Sterling	1	*	*	*	$0	*	$0	*	*	*
Anchorage	3	$0	*	$0	$0	$0	*	*	$0	*
Dutch Harbor	3	$0	$0	*	$0	*	*	$0	$0	*
Eagle River	2	$0	$0	$0	$0	*	*	*	$0	*
Yakutat	4	$0	$0	$0	$0	$0	$2,790	$0	$0	*
Juneau	2	$0	$0	$0	*	$0	$0	*	*	*
Douglas	2	$0	*	$0	$0	$0	*	$0	$0	*
King Salmon	1	$0	$0	*	*	$0	$0	$0	$0	*
Unalaska	2	*	*	$0	$0	$0	$0	$0	$0	*
Adak	1	$0	$0	$0	$0	$0	$0	$0	*	*
Kasilof	1	$0	$0	$0	*	$0	$0	$0	$0	*
King Cove	1	$0	$0	$0	$0	$0	$0	$0	*	*
Larsen Bay	1	$0	*	$0	$0	$0	$0	$0	$0	*
Seldovia	1	$0	$0	$0	$0	$0	*	$0	$0	*
Alaska Total	217	$3,019,395	$3,089,039	$2,760,464	$5,527,134	$7,269,801	$8,716,585	$5,359,826	$7,565,900	$5,413,518
All Other States	56	$6,397,988	$5,932,252	$1,665,678	$7,108,375	$9,439,175	$10,781,469	$7,677,317	$9,707,770	$7,338,753
Grand Total	246	$9,417,383	$9,021,292	$4,426,143	$12,635,509	$16,708,977	$19,498,054	$13,037,142	$17,273,670	$12,752,271

* = suppressed value due to data confidentiality considerations

** Note: Delta Junction average shown is for 2004-2010 rather than 2003-2010

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Table 3 provides a graphic representation of engagement by sector for the Alaska communities profiled in the document, revised to reflect the corrected hook-and-line sector engagement. The scale of the sector has been adjusted in the figure key to account for a lower overall level of engagement, which allows for parallel engagement groupings for both trawl and hook-and-line groundfish sector community engagement.

Table 3. Graphic Representation of Annual Average Engagement in Potentially Affected Gulf Groundfish and Halibut Fisheries for Profiled Alaska Communities

Community	Relative Community Size	Gulf Groundfish Engagement			Gulf Halibut Engagement	
		Locally Owned Vessels		Shore-Based Processing Location	Local Commercial Halibut Quota Share Holders	Local Sport Charter Permit Holders
		Trawl Sector	Hook-and-Line Sector			
Anchorage	●	•	•	•	○	●
Chignik Lagoon	•	none	none	none	•	none
Homer	○	•	●	○	●	●
Juneau	●	•	•	•	○	○
King Cove	•	○	•	○	•	none
Kodiak	○	●	●	●	●	●
Petersburg	○	○	○	○	●	•
Sand Point	•	●	•	○	•	none
Sitka	○	none	○	●	●	●

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Key for Table 3

Type/Level of Engagement	•	○	●
Community Size	2010 population = less than 1,000	2010 population = 1,000 – 10,000	2010 population = greater than 10,000
GOA Groundfish Trawl Participation	2003-10 annual avg. = 0.1 – 0.9 vessels	2003-10 annual avg. = 1.0 – 9.9 vessels	2003-10 annual avg. = 10.0 or more vessels
GOA Groundfish Hook-and-Line Participation	2003-10 annual avg. = 0.1 – 0.9 vessels	2003-10 annual avg. = 1.0 – 9.9 vessels	2003-10 annual avg. = 10.0 or more vessels
GOA Groundfish Shore-Based Processing Participation	2003-10 annual avg. = 0.1 – 0.9 plants	2003-10 annual avg. = 1.0 – 1.9 plants	2003-10 annual avg. = 2.0 or more plants
GOA Commercial Halibut Participation	2003-10 annual avg. = 0.1 – 49.9 QS holders	2003-10 annual avg. = 50.0 – 199.9 QS holders	2003-10 annual avg. = 200 or more QS holders
GOA Sport Charter Halibut Participation	2011 (only) = 1 – 19 permit holders	2011 (only) = 20 – 39 permit holders	2011 (only) = 40 or more permit holders

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INTERNATIONAL PACIFIC HALIBUT COMMISSION

ESTABLISHED BY A CONVENTION BETWEEN CANADA

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AGENDA C-1(b
Supplemental
JUNE 2012

May 31, 2012

Mr. Eric Olsen, Chair
North Pacific Fishery Management Council
605 West 4th Avenue, Suite 306
Anchorage, AK 99501-2252

Re: June 2012 NPFMC meeting, Agenda item C-1(b)

Dear Chairman ~~Olsen~~ Eric

The staff of the International Pacific Halibut Commission (IPHC) provides the following comments and recommendations regarding your scheduled decision on revisions to the Gulf of Alaska (GOA) Pacific halibut Prohibited Species Catch (PSC) limits. The basis for the Commission staff's comments is the biological and conservation aspects of the issue, i.e., how the halibut resource is affected by bycatch. We also wish to clarify some misconceptions regarding juvenile halibut abundance in the GOA and relationship of the stock status to the female spawning biomass reference points.

As we have previously stated to the Council, bycatch has a significant biological impact on the halibut stock. This occurs through impacts on the female spawning biomass (FSBio) and on overall stock productivity (yield or CEY). The magnitude of these impacts is driven by the size of the fish when it is taken as bycatch. As our 2011 analysis (Hare et al., 2012; Appendix 5 to the EA/RIR/IRFA) demonstrated, the impacts are either immediate, in the case of the larger O26 halibut, or delayed, for the smaller U26 halibut. The mortality of the U26 fish, and the subsequent delayed impact on CEY and FSBio, is particularly important to the health and potential for recovery of the stock from the current low level of exploitable biomass. Our analysis showed that for every pound of PSC reduction, 2.155 pounds of FSBio would be gained, primarily from the savings on U26 mortality. It is important to note that the FSBio multiplier is larger than 1.00 not only because growth outpaces mortality for juveniles but because females also spawn more than once during their lifetimes, contributing to the stock over a number of years. Directed fishing on this size of fish would not be contemplated in halibut harvest policy because it would clearly constitute growth overfishing, as well as including the negative aspects of fishing sexually immature fish. As such, we believe that reducing mortality on the U26 component will provide opportunity for the stock to rebuild through increased survival of juvenile recruits, a greater female spawning biomass, and increased yield to directed fisheries.

Under several likely migration scenarios, analysis by the IPHC staff shows that the impact of O26 bycatch is primarily in the area in which the bycatch is taken, whereas the impact of U26 bycatch is felt more downstream, Migration is a dynamic process, one that changes with stage of life history, area, and time of year. It is perhaps further driven by environmental factors, such as

availability of prey, competition for space and food, water temperature and related conditions, or other factors. The difficulty of precisely estimating migration rates does not mean that downstream impacts do not occur and the impacts on the coastwide stock have been described to the Council in previous IPHC reports and presentations. The Council can expect that PSC reductions would extend to 'downstream' areas, as is described in Section 3.2.3.1 (pages 26-33) in the EA document, and as was also described by IPHC staff at the April NPFMC/IPHC workshop.

An additional concern is the potential underestimation of halibut bycatch in GOA groundfish fisheries. It is widely acknowledged that current observer coverage requirements are inadequate for providing accurate estimates of bycatch, but the true level of mortality on the juvenile portion of the stock may never be known. We believe a proper management response to inaccurate estimates is to follow a precautionary principle on bycatch management, which justifies both a reduced set of PSC limits and coincident improvements in bycatch estimation. In other jurisdictions and in the Bering Sea, the operating standard for observer coverage has been at the 100% level, as well as including specific tools (individual bycatch quotas) to allow individual harvesters to control and benefit from bycatch reductions.

Summary of impacts – From discussions with agency staffs, stakeholders, and others, it is apparent that some are confused regarding the magnitude and type of impact which bycatch imposes on the resource. The table below, extracted from Dr. Steven Hare's presentation at the recent NPFMC/IPHC Workshop, summarizes the impact of one pound of bycatch mortality on lost CEY and lost FSBio.

	CEY(lb)			*FSBio (lb)*
Gear	*O26*	*U26*	*Total*	*Total*
Trawl	*0.625*	*0.427*	*1.052*	*2.155*
Hook-and-Line	*0.752*	*0.226*	*0.978*	*1.208*

Some primary conclusions:

- Bycatch mortality affects both the available yield (CEY) and the female spawning biomass (FSBio).
- These impacts differ by gear type, which is driven by the size composition of the bycatch for each gear type.
- The impacts are both immediate, in the case of the O26 component of the bycatch, and long term, in the case of the U26 component.
- Increases to FSBio accrue entirely from the U26 component of bycatch and would be cumulative over 30 years.
- There would be an immediate increase in CEY equaling 62.5% of any reduction in the trawl PSC limit, and 75.2% of any reduction in the hook-and-line PSC limit.
- Cumulative increases in FSBio would amount to 2.155 times the amount of any trawl PSC limit reduction. Although not shown in the table, the cumulative increase in FSBio

would be 5.7 times the amount of any PSC limit reduction relative to the current amount of U26 in the bycatch.

- Cumulative increases in FSBio would amount to 1.208 times the amount of any hook-and-line PSC limit reduction. Although not shown in the table, the cumulative increase in FSBio would be 4.9 times the amount of any PSC limit reduction relative to the current amount of U26 in the bycatch

For these reasons, the IPHC staff supports a 15% reduction in the GOA PSC limits for all sectors (Alternative 2, Option 2, Suboptions 1-3 (c)). We have no position on the sub-options for apportionment of the trawl PSC limit.

Juvenile halibut abundance. Recently, there has been commentary that the abundance of juvenile halibut has been increasing and is currently quite high. While the basis for these statements is unknown, our review and analysis of NMFS bottom trawl survey results does not support these claims for the GOA (see Fig. 1, attached). Results for the Bering Sea surveys conducted on the southeastern flats, which encompasses Areas 4A and 4CDE, do show such an increase; however, a similar increase has not occurred for IPHC regulatory areas in the GOA (3B, 3A, and 2C).

Female spawning biomass. Female spawning biomass (FSBio) is estimated on a coastwide basis, i.e., for the entire stock. IPHC harvest policy employs the approach of avoidance of dropping below the minimum historic level of FSBio. As such, the policy identifies two biological reference points of FSBio at which action is taken to reduce harvest rates: a threshold reference point, and a limit reference point. The former has been established as B_{30}, or 30% of unfished FSBio, whereas the latter is B_{20}, or 20% of unfished FSBio. The IPHC staff currently estimates the coastwide FSBio at B_{42}, or 319 Mlbs, for 2012. Recent analyses of our assessment have shown that FSBio was likely overestimated during 2006-2009, in part because the threshold and limit points are dynamic, being re-estimated annually, and potentially because of a retrospective bias in the stock assessment. Thus, although we currently estimate the stock is at B_{42}, future analyses may show the FSBio is actually at a lower point, which places increased importance on taking a conservative position on bycatch as it affects future FSBio.

Status of the Pacific halibut stock. The EA contains a summary of the most recent IPHC assessment and a review of the harvest policy (EA Section 3.2.4, pages 34-42). The summary accurately discusses the decline in coastwide exploitable biomass (EBio), which has been driven by the weaker recruiting classes of 1989-1997, as well as a continuing decline in size at age. The recruiting classes since 1998 are potentially much stronger than 1989-1997, and higher than average (EA Fig. 3-24, page 39), which is a positive sign. We stress that the year class strength, however, won't be known for certain until after those year classes have fully recruited. However, any recovery by the resource is going to depend on strong incoming recruit classes, so we believe that protection of the juveniles is necessary. The size-at-age issue is being monitored through our fishery and survey sampling, and research into our otolith archives for similar occurrences in earlier time periods. The cause of the size-at-age decline is the subject of much discussion, as occurred at the April NPFMC/IPHC workshop, and will be an area of ongoing

IPHC research. However, it is unlikely that any simple management action will provide a rapid solution to this problem.

Thank you for the opportunity to provide these comments. Gregg Williams and I plan to attend the Council's upcoming meeting in Kodiak and will be prepared to answer any questions the Council may have.

Sincerely yours,

Bruce

Bruce M. Leaman
Executive Director

cc: Commissioners

Attachment

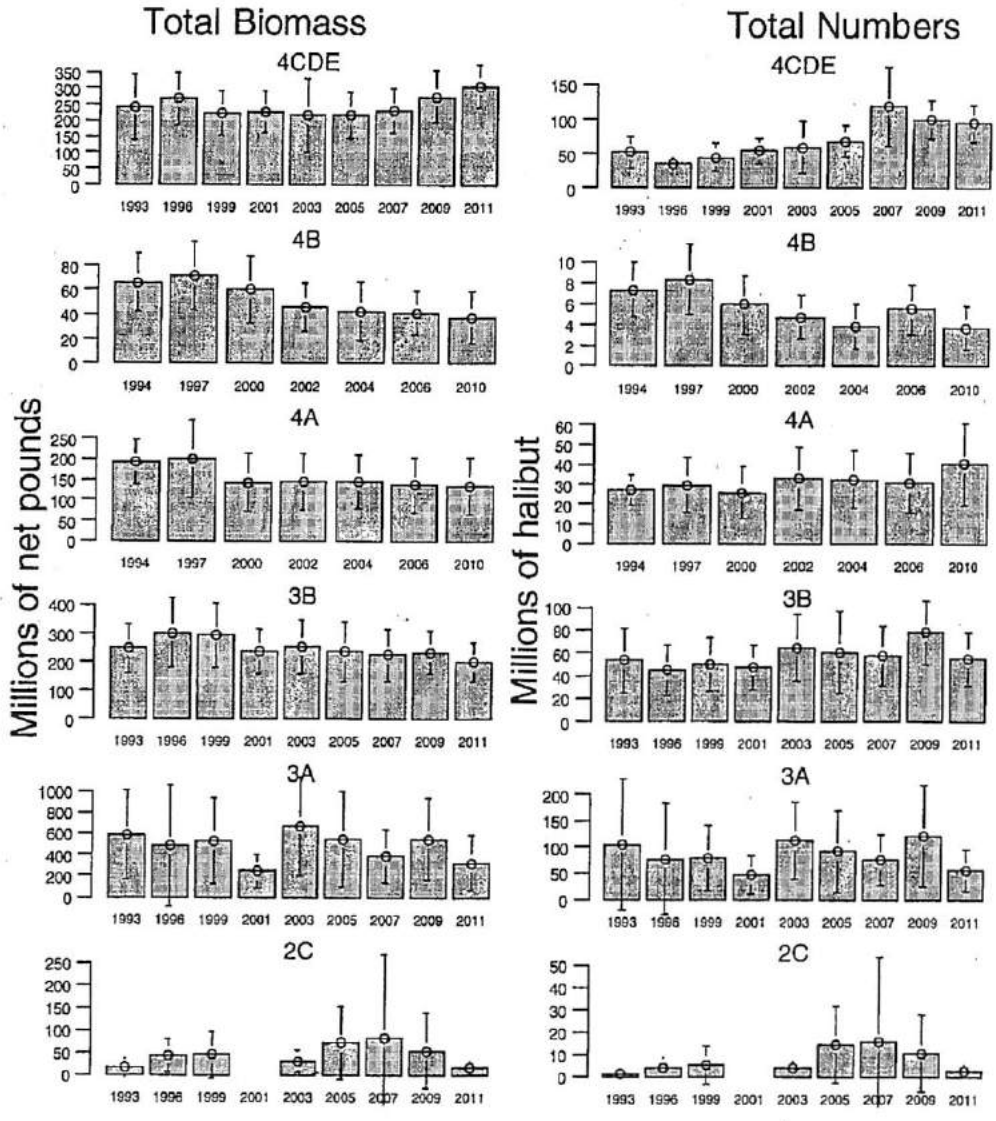

Figure 1. Estimates of the abundance and total biomass of Pacific halibut in the Gulf of Alaska (GOA) and Bering Sea based on NMFS bottom trawl surveys since 1993/1994. Note differences in Y-axes across areas.

C1(b) Staff Supplemental to RIR

GHL Ex-vessel: Low value

GOA		Trawl PSC (1000 lbs) 3307	3142	2976	2811
HAL PSC (1000 lbs)	496	$ -	$ 298	$ 597	$ 895
	471	$ 54	$ 352	$ 651	$ 949
	446	$ 107	$ 406	$ 704	$ 1,003
	422	$ 161	$ 459	$ 758	$ 1,056

3A		Trawl PSC (1000 lbs) 3307	3142	2976	2811
HAL PSC (1000 lbs)	496	$ -	$ 222	$ 444	$ 666
	471	$ 20	$ 242	$ 464	$ 686
	446	$ 40	$ 262	$ 484	$ 706
	422	$ 60	$ 282	$ 504	$ 726

2C		Trawl PSC (1000 lbs) 3307	3142	2976	2811
HAL PSC (1000 lbs)	496	$ -	$ -	$ -	$ -
	471	$ 0	$ 0	$ 0	$ 0
	446	$ 1	$ 1	$ 1	$ 1
	422	$ 1	$ 1	$ 1	$ 1

3B		Trawl PSC (1000 lbs) 3307	3142	2976	2811
HAL PSC (1000 lbs)	496	$ -	$ 77	$ 153	$ 230
	471	$ 33	$ 110	$ 186	$ 263
	446	$ 67	$ 143	$ 220	$ 296
	422	$ 100	$ 176	$ 253	$ 330

GHL: High ex-vessel va

GOA		Trawl PSC (1000 lbs) 3307	3142	2976	2811
HAL PSC (1000 lbs)	496	$ -	$ 690	$ 1,380	$ 2,070
	471	$ 124	$ 814	$ 1,504	$ 2,194
	446	$ 247	$ 937	$ 1,627	$ 2,318
	422	$ 371	$ 1,061	$ 1,751	$ 2,441

3A		Trawl PSC (1000 lbs) 3307	3142	2976	2811
HAL PSC (1000 lbs)	496	$ -	$ 515	$ 1,029	$ 1,544
	471	$ 46	$ 561	$ 1,075	$ 1,590
	446	$ 92	$ 607	$ 1,121	$ 1,636
	422	$ 139	$ 653	$ 1,168	$ 1,682

2C		Trawl PSC (1000 lbs) 3307	3142	2976	2811
HAL PSC (1000 lbs)	496	$ -	$ -	$ -	$ -
	471	$ 1	$ 1	$ 1	$ 1
	446	$ 2	$ 2	$ 2	$ 2
	422	$ 3	$ 3	$ 3	$ 3

3B		Trawl PSC (1000 lbs) 3307	3142	2976	2811
HAL PSC (1000 lbs)	496	$ -	$ 176	$ 351	$ 527
	471	$ 76	$ 252	$ 428	$ 603
	446	$ 153	$ 328	$ 504	$ 680
	422	$ 229	$ 405	$ 580	$ 756

FLAWED ACTION IN SEVERAL ASPECTS

1) NO PROVISION FOR RISING AGAIN WHEN ABUNDANCE RISES. AS ABUNDANCE

2) EQUITY FRAMEWORK IS NOT A LEVEL PLAYING FIELD, STRUCTURE FOR ENGAGEMENT BY NON-DIRECTED HARVESTERS IS UNCLEAR, LEAVING THEM DISADVANTEGED IN AFFECTING PARAMETERS THAT CONTROL THEIR DESTINY, SUCH AS DEFINITION OF CEY.

3) HARD CAPS ON NON-RATIONALIZED FISHERY ARE A VERY INEFFICIENT WAY TO MANAGE BYCATCH

4) ASSUMPTION THAT SMART, TALENTED FOLKS LIKE TRAWLERS CAN DO BETTER IF WE JUST FIND THE RIGHT PUNITIVE INCENTIVES JUST DOESN'T HOLD UP. I'm a MARINERS FAN, IF THAT ASSUMPTION WERE VALID, THEY'D BE IN FIRST OR SECOND IN THE AL WEST.

5) THIS ACTION WILL MAKE IT HARDER, NOT EASIER, TO CRAFT TOOLS. WILL WEAKEN THE KODIAK TRAWL FLEET, KODIAK PROCESSORS, COMMUNITY

Mr. Chairman,

I am in support of the Council's motion. As you are aware, this has been a difficult and contentious issue for the Council and for me to wrestle with personally. Halibut PSC savings will impact multiple user groups all across the Gulf of Alaska. Yet, the trawl halibut PSC reductions to the trawl fleet impact, primarily, fishermen that deliver their catch to Kodiak. (Not to discount the impacts to trawl fishermen in the Western Gulf but this is, comparatively, a Kodiak issue.) As you are aware Mr. Chairman, I am a lifelong resident of Kodiak and, Lord willing, I expect to die in this community. I other words, I'm vested in the well being of this community and this issue in both personal and professional. It is with this in mind that I have reviewed the analysis, and the appendices and the supplements and read all of the Public's written testimony, and now listened attentively to all of the public oral testimony. (In some ways, Mr. Chairman we have information overload and could easily miss, with this package, the forest for the trees.) The preverbal "forest" Mr. Chairman is the mandate to reduce bycatch to the extent practicable, the representation to the Canadian government to reduce bycatch stalled since about 2000, and the constant halibut bycatch rates for the trawl fleets since 1986 or 1989 and for the LL fleet since about 1995. Without discussion of the biological issues, which are important and without dwelling on the equity issues which are equally important, the Council still has to seriously consider whether a constant bycatch amount for more than 25 years is responsive to National Standard 9? This motion shows that the North Pacific Fisheries Management Council is willing to address a hard issue and act on behalf of the public's ownership interests to reduce bycatch.

As previously mentioned, National Standard 9 must be balanced and others have balanced this directive with National Standard 1. I would like to address how NS 9 is balanced with NS 8. You will note with National Standard 8 has a preamble: "consistent with the conservation requirements of this act", none of the other NS have this preamble and, I think, this highlights the importance of biological and/or resource concerns when considering Community provisions. We know that Trawl Halibut bycatch has both an immediate and a proximate impact on halibut stocks in the Gulf of Alaska. The IPHC letter summarizes this well, and I quote (Quote Letter)

Now we have heard some advocated, perhaps a small minority, who have espoused that it would benefit the overall halibut population for the trawl fleet to continue catching small halibut as bycatch. This is not, as far as we know now, a valid argument. First, the trawl fleet doesn't "just" catch small halibut and second, there is no information that correlates less small halibut with halibut growth rates, survival rates or eventual fecundity. Instead, from the best available science.

So, Mr. Chairman, at the outset in National Standard 8, I believe this action is consistent with the conservation requirements of the act.

The community protection measures under NS I are twofold. First, the Council should work to provide for the sustained participation of a fishery dependant community(s) in the fishery and second, the Council, to the extent practicable, needs to work to minimize adverse economic impacts on the fishery dependant community. I don't believe, with this action, there is any question that Kodiak will continue its participation in both the directed halibut fishery and the groundfish trawl fishery and the longline fisheries. The questions then centers on whether or

not the Council, to the extent practicable, has worked to minimize the economic impacts of the community while at the same time staying consistent with the conservation requirements of the MSA.

As I have reviewed the document, appendix and written materials, Mr. Chairman I have concluded that we have worked, at several junctures, to minimize economic impact on the community of Kodiak by this motion. The first type of impact is the potential lost revenue to the trawl fleet. (I would note that although I am using Appendix 7's impact numbers and methodology, the appendix clearly cautions that these numbers do not consider any change in fishing behaviors.) Table 41 on page 121 of appendix 7 indicates that a 15% reduction would result in a 5.9% gross revenue reduction to the trawl fleet. Given average gross revenue, page 103, of $60,152,008 this could amount to a fleet loss of about $3.5 million dollars annually. The Kodiak portion of this, based on the residency listing of vessel owners (15) comes out to about $40,000 per vessel or about $600,000. This is mitigated by the gains to the directed halibut fleet. Given a one to one ratio in the first year of halibut bycatch savings and an increased CQY, the halibut fleet's savings of approximately 650,000# of halibut amounts to approximately $3.9 million dollars. The analysis shows that approximately 35% of the halibut landings come to Kodiak (it may be higher this year) so the local exvessel value from the halibut on a one to one basis is about $1.9 million dollars. The increase in the value of the halibut landed to Kodiak is not only significantly higher than the exvessel loss; it is likely to mitigate many of the other community impacts.

(1)

Some have argued that the loss of the bedrock community is primarily a loss of "habitat volume access to rock" as well as a loss of processing abs. Again, the analysis projects these possible values on the assumption of no changed behavior and the values are large — yet this notion minimizes these projections at the outset by anticipating changes in fishing behavior thereby providing unused habitat across species and seasons. Consequently, much of the information we have available regarding lost volume and for seasonal processing jobs won't be accurate.

Nevertheless there is likely to be community impacts and these are most likely to be in the 5th season and in the Aberdeen Harbor City.

(2) working with the various tables & found this impact could have a 2-5% impact 1st wholesale value - (See 4-98 mm p 229 + bycatch value tables) but is difficult to assess processed $$ loss.

With this in mind, Mr. Clarren, the ~~regs~~ action mitigates the implementation of the PSC reductions by the 3 year phase in which will allow the fleet to gradually adjust to less halibut PSC and therefore mitigate loss in value + $$s.

Further, possible harm to employment in the community is mitigated, perhaps only in a small way by increased opportunities in the Sport charter sector.

the processing Sector is further mitigated by

(3) increase opportunities in the Sport Charter Sector

given a GHL or Catch Share management approach, an increase

of @ 600,000# to the CQY will then

provide additional employment opportunities for charter

operators and Support industries. – Although this is hard to quantify

So, in summary, Mr. Chairman as I review

National Standard 8 in Concert with the

application and balancing of National Standards 9

and 1, I see that this motion does attempt,

to the extent practicable, to mitigate adverse

economic impacts on the Community of Kodiak & other Alaska dependent Communities. It does not eliminate

possible impacts, it does not under estimate the impacts,

but it does mitigate those impacts.

Mr. Chairman I also Support this motion

~~for other reasons related to the national Standards~~

while remaining Consistent to the Conservation measures of the act.

Record, and ~~treatment~~ of the waste, while this issue has allocative aspects, it also is based (4) in ~~of~~ fairness criteria and a sharing of responsibility to maintain & re-establish a healthy billfish resource. I think these values is encompassed in NS. 4, Further Mr. Chairman, I think our action in adopting NS. 2 and is based on the best scientific information available. The SAFMC is the resource the Council relies on for making on habitat assessment information and the staff of the SAFMC has remarked that that PSC has had a negative impact on the resource and they have recommended the SAFMC that reduction. Is this Section perfect? No. Is it the best available? I believe it is.

(5) ~~and I believe with the review and~~

~~analysis now going on it will become~~

To set aside IPHC concerns creates a slippery slope & poor precedent

~~better. However, As of now, as a Council~~

member ~~I believe I have to~~ rely on

the IPHC's information ~~— not in an~~

~~alternative way but in an substantive way.~~

Mr. Chairman, in supporting this motion I

am well aware of the magnitude of this

decision and the impact of the decision to

Gulf of Alaska fishermen and the community of

Kodiak. I suspect, Mr. Chairman, that I will

long be remembered as the Council member from

Kodiak that supported substantial halibut PSC

reductions to the trawl & L.L. fleets. ~~I have not~~

~~supported this motion~~ ~~though this one~~ It is with

(6) the burden of responsibility that I have reflected and considered this motion as in the end, Mr. Chairman, I have concluded it is my responsibility, as in response to the MSA Directors, out of concern for the resource, because of an effective blocking of the Conservation Garden and ~~because of a need to~~ with long term Community interests in mind to support the Council's motion.

Council motion
June 8, 2012
C-1 (b) Final action on GOA Halibut Prohibited Species Catch (PSC)

The Council adopts the following preferred alternative:

Alternative 2. Amend the GOA Groundfish FMP to remove setting GOA halibut PSC limits from the annual groundfish harvest specifications process. GOA halibut PSC limits would be established (and amended) in federal regulation.

Option 2. Revise the current GOA halibut PSC limits and write the new limits into regulation

Suboption 1. Reduce the halibut PSC limit for hook and line gear CP sector by:
c) 15%

Suboption 2. Reduce the halibut PSC limit for hook and line gear CV sector by:
c) 15%

(Combined, a 15% reduction to the non-DSR hook and line sectors is 44 mt.)

Suboption 3. Reduce the halibut PSC limit for trawl gear sector by:
c) 15% (267 mt)

The PSC limit for HAL demersal shelf rockfish in SE Outside District would also be reduced by 15% to 9 mt (1 mt reduction).

Twist

The 15% reduction for the trawl and non-DSR hook-and-line sectors would be phased in over ~~three~~ 4 years, as follows: 7% (first year); additional 5% (~~second year~~ 3rd); and additional 3% (~~third~~ 4th year). All reductions are reflected in the attached tables. In the ~~third~~ 4th year and after, the revised total non-DSR hook-and-line halibut PSC limit would be 246 mt and the total trawl limit would be 1,705 mt.

Suboption 3.1 AFA/Am 80/Rockfish Program sideboard limits will be:
a) Applied as percentage against the GOA halibut PSC limit

Suboption 3.2.
Allow the Amendment 80 sector to roll unused halibut PSC from one season to the subsequent season (similar to the non-Amendment 80 sectors).

Suboption 3.3
Allow available trawl halibut PSC in the second season deep water and shallow water complexes to be aggregated and made available for use in either complex from May 15th through June 30th. Halibut PSC sideboards for the Amendment 80 and AFA sectors would continue to be defined as deep water and shallow water complexes in the second season.

NMFS will accomplish this by re-specifying halibut between the deep and shallow water complexes after the second season is complete to capture actual use.

Note: Any unused PSC will be rolled over to the complex to which it was initially assigned.

Trawl PSC limits resulting from the motion (phased in approach)

	Total allowance**	1st season January 20 to April 1	2nd season April 1 to July 1	3rd season* July 1 to September 1	4th season September 1 to October 1	5th season October 1 through December 31
Total Allowance						
seasonal share		27.5 percent	20 percent	30 percent	7.5 percent	15 percent
Total Allowance (7% Reduction)	1,848	508	370	554	139	277
Total Allowance (12% Reduction)	1,759	484	352	528	132	264
Total Allowance (15% Reduction)	1,705	469	341	512	128	256
Deep-water complex						
seasonal share		12.5 percent	37.5 percent	50 percent*	0 percent	
Option - 7% reduction	739	92	277	178 (or 370)		
Option - 12% reduction	704	88	264	160 (or 352)		
Option 3 - 15% reduction	682	85	256	150 (or 341)		
Shallow-water complex						
seasonal share		50 percent	11.1 percent	22.2 percent	16.7 percent	
Option - 7% reduction	832	416	92	185	139	
Option - 12% reduction	791	396	88	176	132	
Option 3 - 15% reduction	767	384	85	170	128	
Undesignated						
seasonal share						100 percent
Option - 7% reduction	277					277
Option - 12% reduction	264					264
Option 3 - 15% reduction	256					256

All values are metric tons, except where noted as percentages.

* Number in bracket is total allocation plus 191.4 metric ton rockfish program halibut PSC allocation.

** The current 2,000 MT limit is reduced by the 27.4 MT Rockfish Program halibut PSC reduction.

Complex and seasonal amounts are based on 2012 division of the overall amount

Hook-and-line PSC limits resulting from motion (phased in approach). Based on 2012 CP/CV division of total

	Total allowance	1st season January 1 to June 10	2nd season June 10 to September 1	3rd season* September 1 through December 31
Total Allowance				
seasonal share		86 percent	2 percent	12 percent
Total Allowance **(7% Reduction)**	270	232	5	32
Catcher Vessels (based on 2012)	161	138	3	19
Catcher Processors (based on 2012)	109	94	2	13
Total Allowance **(12% Reduction)**	255	219	5	31
Catcher Vessels (based on 2012)	152	131	3	18
Catcher Processors (based on 2012)	103	89	2	12
Total Allowance **(15% Reduction)**	247	212	5	30
Catcher Vessels (based on 2012)	147	126	3	18
Catcher Processors (based on 2012)	99	86	2	12

A80 sideboard limits

	Total sideboard	1st season January 20 to April 1	2nd season April 1 to July 1	3rd season* July 1 to September 1	4th season September 1 to October 1	5th season October 1 through December 31
Deep-water complex						
Option - 7% reduction	387	21	198	96	3	69
Option - 12% reduction	368	20	189	92	2	65
Option 3 - 15% reduction	357	20	183	89	2	63
Shallow-water complex						
Option - 7% reduction	126	9	35	27	14	42
Option - 12% reduction	120	8	33	26	13	40
Option 3 - 15% reduction	117	8	32	25	13	39

All values are metric tons, except where noted as percentages.

* Note: excludes rockfish program halibut PSC allowance and usage.

Rockfish sideboard limits

	July sideboard tonnage	
	Deep-water Complex	Shallow-water Complex
Option - 7% reduction	46	2
Option - 12% reduction	44	2
Option 3 - 15% reduction	43	2

* Excludes rockfish program halibut PSC allowance and deduction.

AFA non-exempt catcher vessel sideboard limits

	Total sideboard	1st season January 20 to April 1	2nd season April 1 to July 1	3rd season July 1 to September 1	4th season September 1 to October 1	5th season October 1 through December 31
Deep-water complex						
Option - 7% reduction	51	6	19	25	0	
Option - 12% reduction	50	6	18	25	0	
Option 3 - 15% reduction	48	6	18	24	0	
Shallow-water complex						
Option - 7% reduction	283	141	31	63	47	
Option - 12% reduction	269	135	30	60	45	
Option 3 - 15% reduction	261	130	29	58	44	
Undesignated						
Option - 7% reduction	57					57
Option - 12% reduction	54					54
Option 3 - 15% reduction	52					52

All values are metric tons, except where noted as percentages.

DRAFT ADVISORY PANEL MINUTES
North Pacific Fishery Management Council
June 4-7, 2012
Kodiak, Alaska

The following (21) members were present for all or part of the meetings:

Kurt Cochran	Jeff Farvour	Matt Moir
Craig Cross	Becca Robbins Gisclair	Theresa Peterson
John Crowley	Jan Jacobs	Ed Poulsen
Julianne Curry	Alexus Kwachka	Neil Rodriguez
Jerry Downing	Craig Lowenberg	Lori Swanson
Tom Enlow	Chuck McCallum	Anne Vanderhoeven
Tim Evers	Andy Mezirow	Ernie Weiss

C-1(a) Halibut Workshop Report

The AP heard a report on the NPFMC/IPHC Halibut Workshop held in April 2012 from Jane DiCosimo (NPFMC) and Gregg Williams (IPHC).

C-1 (b) GOA Halibut PSC

The AP recommends the Council take final action to reduce halibut PSC limits in the GOA groundfish fisheries.

Preferred Alternative. Amend the GOA Groundfish FMP to remove setting GOA halibut PSC limits from the annual groundfish harvest specifications process. GOA halibut PSC limits would be established (and amended) in federal regulation.

Option 2. Revise the existing 2,000 mt trawl and 300 mt hook and line halibut PSC limits and write them into regulation

Suboption 1. Reduce the halibut PSC limit for hook and line gear CP sector by:
c) 15%

Suboption 2. Reduce the halibut PSC limit for hook and line gear CV sector by:
c) 15%

Suboption 3. Reduce the halibut PSC limit for trawl gear sector by:
c) 15% (267 MT)

All reductions are reflected in Table 1, Part 3 of the supplemental, option 3 – 15% reduction. Reductions are applied to the sideboard limits as reflected in Tables 2, 3 and 4, in Part 3 of the supplemental, option 3 – 15% reduction (see Attachment 1).

Suboption 3.1.
a) Applied as percentage against the GOA halibut PSC limit

Suboption 3.2
Allow the Amendment 80 sector to roll unused halibut PSC from one season to the subsequent season (similar to the non-Amendment 80 sectors).

Suboption 3.3

Allow available trawl halibut PSC in the second season deep water and shallow water complexes to be aggregated and made available for use in either complex from May 15th through June 30th. Halibut PSC sideboards for the Amendment 80 and AFA sectors would continue to be defined as deep water and shallow water complex in the second season.

The halibut PSC used during that period will be deducted from where the PSC limit was originally designated for use. NMFS will accomplish this by re-specifying halibut between the deep and shallow complex halibut complexes after the fishery is complete to capture actual use.

Note: Any unused PSC will be rolled over to the fisheries where it was initially assigned.

PSC limit for HAL demersal shelf rockfish in SE Outside District: status quo of 10 mt.

Motion passed 12-9.

Minority Report on C-1(b), GOA Halibut PSC: A minority of the AP opposed cutting PSC levels in the GOA by 15%, for the following reasons:

The proposed PSC reduction is allocative and responsive to political concerns, not scientifically based, and does nothing to address wastage in the directed halibut fishery. Reduced size at age, the cause of decline is exploitable biomass, is not remedied by bycatch reduction. Reducing target catch of competing species may exacerbate the problem. Age 8+ total biomass and abundance coastwide is high, with strong year classes anticipated in the next several years. If this is an equity issue, PSC levels should be restored as Ebio increases.

Both hook and line CP and all trawl sectors have already experienced significant reductions in PSC caps (1995 longline split; cod sector split; rockfish program off-the-top and rollover reductions). The HAL CP fleet has developed a voluntary coop with internal and external review, 100% observer coverage, careful release, and other measures to minimize bycatch. The diversity between trawl sectors (WGOA, CGOA, CP and CV) precludes that option for trawlers, and realistic reductions under a race for fish have already been implemented. The community of Kodiak and the Nation as a whole will be significantly harmed by reduced bottom trawl deliveries and lost processing jobs under a 15% cap reduction. Rationalization of the fishery will provide tools for more significant PSC reductions, as demonstrated in other programs, and will result in increased observer coverage and possible further increases in PSC limits. The revised observer program will provide much better data on actual catch, bycatch and wastage.

Signed by: Kurt Cochran, Craig Cross, Jerry Downing, Tom Enlow, Jan Jacobs, Matt Moir, Neil Rodriguez, Lori Swanson, Anne Vanderhoeven

C-1 (c) GOA Comprehensive Halibut Bycatch Amendments

The AP recommends that the Council schedule a specific agenda item for the October meeting that begins the process of developing a catch share program for bycatch tools and reductions for the Central Gulf of Alaska trawl groundfish fishery. The Council should develop a purpose and need statement with goals and objectives for a new fishery management system at that time. *Motion passed 20 -1.*

C-1 (d) BSAI Halibut PSC Limits

The AP heard a report on the discussion paper from Marcus Hartley with Northern Economics.

	Total allowance**	1st season January 20 to April 1	2nd season April 1 to July 1	3rd season* July 1 to September 1	4th season September 1 to October 1	5th season October 1 through December 31
Total Allowance						
seasonal share		27.5 percent	20 percent	30 percent	7.5 percent	15 percent
metric tons	1,707	461	336	532	126	252
Deep-water complex						
seasonal share		12.5 percent	37.5 percent	50 percent*	0 percent	NA
Option 3 - 15% reduction	700	84	252	173 or (364)	0	
Shallow-water complex						
seasonal share		50 percent	11.1 percent	22.2 percent	16.7 percent	NA
Option 3 - 15% reduction	755	377	84	168	126	
Undesignated						
seasonal share						100 percent
Option 3 - 15% reduction	252					252

All values are metric tons, except where noted as percentages.

* Number in bracket is total allocation plus 191.4 metric ton rockfish program halibut PSC allocation.

** The current 2,000 MT limit is reduced by the 27.4 MT Rockfish Program halibut PSC reduction.

^ PSC available: 15% reduction (1,706 MT)

Maintaining current percentages

A80 sideboards all amounts are tonnages

	Total sideboard	1st season January 20 to	2nd season April 1 to July 1	3rd season* July 1 to	4th season September 1 to	5th season October 1
Deep-water complex						
Option 3 - 15% reduction	350	19	180	87	2	62
Shallow-water complex						
Option 3 - 15% reduction	114	8	32	24	12	38

All values are metric tons, except where noted as percentages.

* Note: excludes rockfish program halibut PSC allowance and usage.

Rockfish Sideboards

	July sideboard tonnage
Deep-water complex	
Option 3 - 15% reduction	42
Shallow-water complex	
Option 3 - 15% reduction	2

* Excludes rockfish program halibut PSC allowance and deduction.

AFA non-exempt catcher vessels

	Total sideboard	1st season January 20 to April 1	2nd season April 1 to July 1	3rd season July 1 to September 1	4th season September 1 to October 1	5th season October 1 through December 31
Deep-water complex						
Option 3 - 15% reduction	47	6	18	24	0	NA
Shallow-water complex						
Option 3 - 15% reduction	257	128	28	57	43	NA
Undesignated						
Option 3 - 15% reduction	52					52

All values are metric tons, except where noted as percentages.

PUBLIC TESTIMONY SIGN-UP SHEET

Agenda Item: C-1(b) Halibut PSC WORKSHOP REPORT?

	NAME *(PLEASE PRINT)*	TESTIFYING ON BEHALF OF:
1	Vikki Kennedy (Halibut by-catch)	Self
2	Steele Davis bycatch	Self
3	Joe Macinko	self
4	PETER LONGRICH	SELF
5	Bill Avery	LUCKY EIGHT
6	Chris Doniech	Homer Charter Assoc.
7	Hallvard Vanpelt	AK Charter Assoc
8	Daniel Miller	self
9	Darius Kasprzak	self F/V Maruna
10	Tim Greene	Nanwelek IRA Council
11	Robert Alverson	FVOA - Seattle WA
12	Jon Warrenchuk	Oceana
13	Peter Allan	Self
14	George Hutchings	myself
15	DAVE KUBIAK	SELF
16	Paul Olson	The Boat Company (an organization)
17	Heather E. Hilyard	SEA60
18	MIKE LONGRICH	HALIBUT FISHERMAN / SELF
19	Frank Miles	Self
20	Kylee Mulenburg	self
21	KJ Herman	SELF
22	Eric Taber	self
23	Mako Haggerty	Kenai Peninsula Borough
24	Bruce Lozekar	self
25	MARK Leverson	Self

NOTE to persons providing oral or written testimony to the Council: Section 307(1)(I) of the Magnuson-Stevens Fishery Conservation and Management Act prohibits any person " to knowingly and willfully submit to a Council, the Secretary, or the Governor of a State false information (including, but not limited to, false information regarding the capacity and extent to which a United State fish processor, on an annual basis, will process a portion of the optimum yield of a fishery that will be harvested by fishing vessels of the United States) regarding any matter that the Council, Secretary, or Governor is considering in the course of carrying out this Act.

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PS 2

PUBLIC TESTIMONY SIGN-UP SHEET

Agenda Item: C-1 HALIBUT PSC (a+b) Halibut Workshop - GOA PSC Limits

	NAME *(PLEASE PRINT)*	TESTIFYING ON BEHALF OF:
1	JASON GHANDLER	SELF
2	~~CLARK CLAM~~	SELF
3	PATRICK O'DONNELL	MYSELF & FAMILY
4	NORA AGMATA	SELF
5	IVER MALUTIN	SUN'AQ TRIBE KODIAK
6	Don Lane	NPFA
7	Peggy Parker	H.A.N.A.
8	~~Global Seafoods~~ Nik MIROZOV	Global Seafoods
9	John Gauvin	Alaska Seafood Coop
10	PETER IVANOFF ①	SELF
11	CLIFTON IVANOFF ②	SELF
12	IAN IVANOFF ③	SELF
13	MIKE FALCERO	SELF
14	PETER THOMPSON	SELF
15	HALEY THOMPSON	SELF
16	Kenny Down	Freezer Longline Coalition
17	Kurt Cochran	
18	Jeff Stephan	UFMA
19	JEFF FARVOUR	self
20	~~Andy Mezek~~	SEAD CHARTERBOAT ASSN
21	~~Jim Cuma~~	SELF
22	Julianne Curry	Petersburg Vessel Owners
23	Chuck McCallum	Gulf of Alaska Coastal Comm. Coalition
24	~~Blue Pointer~~	F/V Tradition
25	Frankie Brown	F/V Vanguard

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PUBLIC TESTIMONY SIGN-UP SHEET

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Agenda Item: C-1. Halibut PSE

	NAME *(PLEASE PRINT)*	TESTIFYING ON BEHALF OF:
1	~~Stoian~~ Stoian Iankov	F/V Michelle Renee
2	Susan Robinson	Fishermen's Finest
3	Yolanda Tuboy, Pedro Iraheta	Pacific Seafood - Kodiak
4	Ernie Cadiboo	Trident - ~~Seafood~~ Stow of Kodiak
5	Virgina Servida 3)	ISA Processors
6	Violeta Ladislae	
7	Curt Waters	F/V Mar Del Norte
8	~~Rob Langdon~~	F/V Laura
9	~~Dennis Eggers~~	F/V Dusk
10	~~[illegible]~~	~~[illegible]~~
11	Chum Johnson	F/V Walter N
12	Tom Enich	F/V Karen Enich
13	Mike Alfieri	F/V Ocean Storm
14	Jeremie Pikus	F/V Polar Star
15	Shawn Dochtermann	F/V Isanotski Crewmans assn.
16	Nancy Bilstrand	Pioneer Alaskan Fisheries Inc.
17	DAVID DAHL	F/V ROSELLA
18	Enrique Perez	Western Alaska Fisheries
19	Bob Krueger	AK Whitefish Trawlers Assoc.
20	Lyn Dochtermann	F/V North Point F/V Storm Bird
21	BRENT PAINE	UCB
22	Becca Robbins Gisclair	self
23	Stephen Taufen	Groundswell Fisheries Movement
24	Scott Hickman	F/V Pacific Storm
25	Chris + Ken Holland	F/V Point Omega

NOTE to persons providing oral or written testimony to the Council: Section 307(1)(I) of the Magnuson-Stevens Fishery Conservation and Management Act prohibits any person " to knowingly and willfully submit to a Council, the Secretary, or the Governor of a State false information (including, but not limited to, false information regarding the capacity and extent to which a United State fish processor, on an annual basis, will process a portion of the optimum yield of a fishery that will be harvested by fishing vessels of the United States) regarding any matter that the Council, Secretary, or Governor is considering in the course of carrying out this Act.

PUBLIC TESTIMONY SIGN-UP SHEET

Agenda Item: C-1(a+b) Halibut PSC

	NAME *(PLEASE PRINT)*	TESTIFYING ON BEHALF OF:
1	Marilyn Nelson	charter halibut bycatch
2	Tom Miller	halibut bycatch
3	Bob McGarry	Glacier Bay
4	John McCarthy	FV Pacific Star
5	Paul MacGregor	APA
6	Julie Bonny	AGDB
7	STEVE STEIN	SELF
8	Dan Ashley	Gold Rush
9	Bert Ashley	Gold Rush
10	Linda Behnken	ALFA
11	JULIE MILLER	SELF
12	~~SEAN CAPOE~~	SELF
13	Theresa Peterson	AMCC
14	Mila Hullgre	FV Kawka
15	~~Cormac McCarthy~~	FV Stellar
16	Ryan Johnson	F/V Castle Cape
17	Alexis Kwiatkka	Self
18	RHONDA HUBBARD	
19	Darren Muller	Onzenkie
20	~~James Skonberg~~ (c)	
21	Hermann Squartsoff i Gene Anderson (c)	
22	~~Josh Young~~	
23		
24		
25		

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Freezer Longline COALITION

C-1 (b) Halibut Bycatch, Final Action on GOA Halibut PSC

North Pacific Fishery Management Council
June 2012

Dear Chairman Olson and members of the North Pacific Fishery Management Council,

The Freezer Longline Coalition represents 28 fishing vessels with LLP's licensed to harvest in the GOA Pacific cod fishery. This represents all but one of the freezer longliners operating in the Gulf of Alaska. The FLC supports final action being taken at this meeting on *Revising the Halibut Prohibited Species Catch Limits in the GOA*. Please consider the following when making your final decision.

The present analysis includes two alternatives and several options including options that would reduce the present PSC caps by 5%, 10% or 15% in the hook and line sector. I will concentrate my comments on the hook and line sector with primary focus on Alternative 2, Suboption1 dealing with reducing the present PSC caps for the CP hook-and-line fleet. We do not believe the current analysis or previous Council actions conclude that cuts to this fleet are equitable at this time.

The following is offered supporting our request that when the proposed reductions are applied, consideration be given to the hook-and-line fleets and previous halibut limit reductions and ongoing effort to reduce the use of PSC by this fleet.

Why Shouldn't the Council apply reductions of 5/10/15 percent to the GOA CP hook-and-line fleet halibut PSC limit apportionments?

The non-IFQ hook-and-line fleet has been operating under what has proved to be a very constraining cap since 1995. The response by the fleet to operate effectively under this and the new 2012 cap has been admirable to say the least. Indeed bycatch management in the GOA hook and line fishery in 1995 took a decidedly different turn compared to previous years. With the advent of the sablefish (and halibut) IFQ programs, industry and mangers believed that most halibut which were taken as bycatch in the sablefish fishery in past years would now be retained as a directed commercial catch. Thus, halibut bycatch mortality limits could be set lower than the 750 mt annually during 1990-1994, but exactly how much lower was uncertain. The limit was then set at 300 mt for all other fixed gear fisheries, which turned out to be an extremely low cap, case in point; the first year under the new cap (1995) actual halibut DMR was 380 mt. In more recent years, referring to the analysis Table 4-32 (See attachment # 5) shows that from 2000-2008 five years resulted in closures to the hook-and-line fishery as a result of the cap.

Although p.157 of the analysis mentions that the hook-and-line fishery has not been closed by PSC limits since 2008, no explanation of why is given. In fact this was the direct result of years of efforts by the hook-and-line fleet to find partnerships, reduce halibut DMR's, and operate under informal cooperatives that culminated in the ability of the fleet to operate under the 300 mt cap. In contrast the overall trawl fishery has not taken any reduction since 1986.

Efforts executed by the GOA Hook-and-Line fleet to reduce halibut PSC use

- Beginning in 1991, all FLC vessels participated in a program developed by Fisheries Information Services (FIS), to analyze halibut by-catch data collected by the Observer Program. This included inseason monitoring of incidental catch rates (1991) and halibut condition rates (related to viability) in 1994. As a result of these long-term and continued efforts the GOA HAL P cod fleet observed mortality rate has continued to decrease. The IPHC in 2010 set a new rate in the GOA P cod fishery based on a ten year average that lowered our mortality from 14% to 12%, more than a 13% reduction! (See attachment # 4). This is directly due to our careful release program, 100% observer coverage, and cooperative efforts combined, and are just some of the many ways the fleet has led in the care for the resource. Overall Halibut Mortality by the Hook and Line fleet has fallen from 17% to 12% or a **nearly 30% reduction** (Again see Attachment # 4 i.e table 4-29 in document). During the same time period the trawl fleet has reduced their halibut DMR in the P cod fishery 1.6% (from 63% to 62%).

- The GOA HAL P cod fleets gear is much more selective for larger fish than trawl gear. Future contributions from small (U26) halibut are much greater than their weight when taken as bycatch (See Page 58 of the analysis). Distinguishing between the over-26 (O26) inch and under-26 (U26) inch components is important. The U26 component of ground fish bycatch, is 37.5% of trawl bycatch and 24.8% of hook-and-line bycatch mortality. In other words 75.2% of hook and line halibut bycatch mortality (by weight) is O26. The larger size halibut in fixed gear bycatch results in much less of an impact on future CEY and future spawning biomass. The hook-and-line fishery uses less U26 halibut, the most uncertain and vulnerable portion of the stock (pg 108 of the analysis). As the document states in its conclusion of the Appendix Page 45, Increases to the FSBio would accrue entirely from the U26 component of the mortality and would be cumulative over 30 years. Because the total PSC limit also includes O26 halibut, the cumulative increases in FSBio resulting from any PSC limit reductions amount to just greater than 215% of any trawl PSC reductions and a bit over 125% of any hook-and-line PSC limit reduction.

- The FLC GOA HAL CP's have lead in gathering observer data; in all recent years the FLC fleet has voluntarily been carrying 100% observer coverage in the GOA. In other words the portion of the 117 mt (258,000 pounds) 2012 cap used in this fleet will be based on observed catch. According to a NMFS report (Percent Observed Catch in Alaska Groundfish Fisheries, 2004-2006 Jennifer Hogan, NOAA Fisheries, Juneau, Alaska) Half of all GOA observed P-cod catch is provided by the Freezer Longline fleet. The bycatch numbers in this fleet are well known and well estimated in a way not seen in the overall fishery.

- Since 2006 the FLC GOA HAL CP's have been operating under a informal cooperative to reduce halibut PSC. In 2006 the first "informal" coop (where halibut caps were assigned to each boat) operated in the Gulf of Alaska; this and subsequent Gulf coops in every year since are monitored by the FLC, FIS, and Sea State Inc (See page 222 industry programs, page 225 Gulf FLC coop, and page 221 coops) "If all the operations in a targeted groundfish fishery worked to limit their PSC, the fishery could operate longer and produce larger volumes of fish. Currently, the only fisheries in the GOA operating under a system where individuals directly benefit from constraining their halibut PSC are the Rockfish Program fisheries, in which cooperatives each have a specific halibut PSC allowance, and the GOA Longline CP Pacific cod fishery, in which members have agreed to a division of the available halibut PSC.

Recent reduction in hook-and-line CP PSC limits

The bottom line for the GOA P. cod longline fleet as a whole is that the halibut PSC cap is already fairly low (290 mt). Under GOA sector Split action just implemented this year this cap was split between CV and CP with CP receiving a proportion less than historical average. (See attachment # 1 and # 2). The CP hook-and-line fleet was the only fleet at this action that had its cap reduced. In other words, **what is anticipated in this action (a reduction of 5-15%) has already taken place for the hook and line CP sector.**

Not only was the overall hook-and-line cap reduced in 1995, but more importantly for the CP hook-and-line fleet, we just took a cut in sector splits that reduced our cap to far less than historical averages. The current action proposes an overall cut in percentage, in that respect the CP hook-and-line fleet just this year took a 15% cut (See attachment # 1). Even comparing actual use (not what this action is proposing) the CP hook-and-line fleet just took a more than 9% cut (See attachment # 2). Again see attachments # 1 & # 2. The CP hook-and-line fleet has not had a chance to operate a full year under the new constraints. It would clearly be inequitable and unwarranted to take another cut in halibut PSC to this fleet without letting the fleet operate under the new cap for even one full season.

Tools to reduce halibut PSC are already in place in the CP hook-and-line fleet

While other fleets hopefully are able to add tools to operate within the new caps anticipated by this action, as mentioned in the foregoing and in the analysis, many if not most all of the tools available to industry to reduce halibut PSC usage are already in place in the CP hook-and-line fleet. Nearly all, if not all of these tools were the result of cuts the fleet saw coming and direct results of the actual cuts in 1995 and 2012. These management measures were organized, developed and implemented by the hook-and-line fleet in each case ahead of regulatory requirements. These tools have indeed allowed the CP hook-and-line fleet to operate cleaner and more effectively in the GOA but in most years the new cap was still constraining (See attachment # 5). While we intend to continue to refine the tools we have and come in as far below the new PSC cap of 117 mt we are seeking recognition of the actual cuts the fleet has taken to date and great contribution to resource management this fleet has shown as well.

These include:

- ✓ Development and implementation of the careful release program
- ✓ Voluntary cooperatives in every year since 2006
- ✓ Individual vessel PSC use caps
- ✓ Private agreements to maintain low encounter rates with small sets prior to setting more gear
- ✓ Voluntarily carrying 100% observer coverage, even though many of the GOA vessels in this fleet require only 30% coverage
- ✓ Outside monitoring by FIS since 1991, including real time hot spot advisories
- ✓ Outside monitoring by SeaState Inc in 2010
- ✓ Internal fleet manager, monitoring bycatch and remaining in contact with the fleet operators

Precedence for this request

Precedence for this request exists. Consider that at the June 2011 Council meeting the Council indicated that when the proposed reductions would be applied, the CGOA Rockfish Program trawl halibut PSC limit apportionments were to be exempt from the proposed reductions of 5/10/15 percent. The Council's rationale was that the Rockfish Program participants already had their halibut PSC limit apportionment reduced by 27.4 mt and the roll-over of the unused portion of the 191.4 mt would be reduced by 45 percent. The hook-and-line fleet is simply asking for this same consideration.

Thank you for allowing us to comment on this important proposed amendment, we hope that the information we have presented is helpful to NPFMC and other industry halibut users.

Kenny Down
Executive Director
Freezer Longline Coalition
http://freezerlonglinecoalition.com/

Attachment # 1
Hook-and-Line CP Comparison (a)
Pre GOA Sector Split and new 2012 PSC allocation

Halibut PSC allocations to HAL CVs and CPs CV Allocation	CP Allocation	CV amount (mt)	CP amount (mt)
59.7	[redacted]	173	[redacted]

Table Below From:
GOA Pacific Cod Sector Split
Final Action 12/12/2009

TABLE 2-56 some of the potential halibut PSC allocations to hook-and-line catcher vessels and catcher processors based on Component 7 Option 2

Period	CV ALLOCATION	CP ALLOCATION	CV amount (mt)	CP amount (mt)	
1995-2005: Best 7 years	52.0%	48.0%	150.7	139.3	290
1995-2005: Best 5 years	52.7%	47.3%	152.7	137.3	290
2000-2006: Best 5 years	52.8%	47.2%	153	137	290
2000-2006: Best 3 years	50.9%	[redacted]	147.5	142.5	290
2002-2007: Best 5 years	53.1%	46.9%	153.9	136.1	290
2002-2007: Best 3 years	52.9%	47.1%	153.5	136.5	290
2002-2008: Best 5 years	53.6%	46.4%	155.3	134.7	290
2002-2008: Best 3 years	53.0%	47.0%	153.8	136.2	290

* Based on 290 mt of non-DSR halibut PSC apportioned to GOA hook-and-line vessels [redacted]

Attachment # 2
Hook-and-Line CP Comparison (b)
Pre GOA Sector Split and new 2012 PSC allocation

Table Below From:
GOA Pacific Cod Sector Split
Final Action 12/12/2009

TABLE 2-57 HALIBUT PSC use by hook-and-line CPs and CVs in the Pacific cod target, 1995-2008

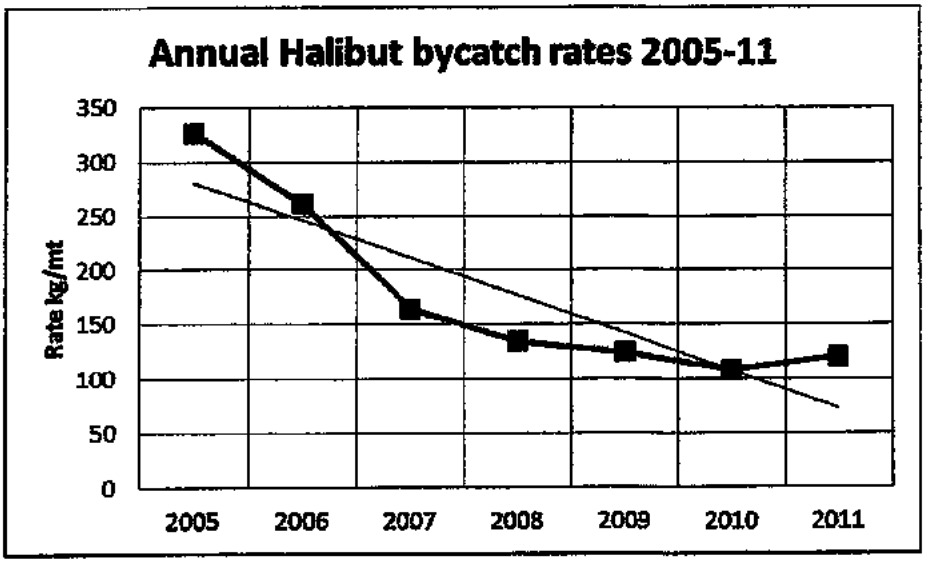
	WESTERN GOA		CENTRAL GOA		EASTERN GOA	TOTAL CP	TOTAL CV
YEAR	HAL CP	HAL CV	HAL CP	HAL CV	HAL CV*		
1995	88	0	17	254	5	104	259
1996	37	1	18	94	2	56	97
1997	41	1	*	70	4	*	75
1998	34	1	17	212	16	51	230
1999	142	0	*	168	22	*	190
2000	84	1	4	165	5	88	171
2001	122	0	*	144	2	*	146
2002	100	0	63	75	1	163	77
2003	98	1	11	75	1	109	77
2004	99	0	26	166	3	125	169
2005	34	6	*	158	0	*	164
2006	104	2	46	172	1	149	176
2007	85	9	33	162	5	119	175
2008	60	18	40	284	11	101	313

128 mt average from 2002-2008, 117 mt 2012 allocation from final action at Sector Split was a more than 9% reduction from our average PSC use on 128 mt

Attachment # 3
Hook-and-Line CP
GOA Halibut PSC Encounter Rate Reduction
(Resulting from fleet efforts)

Provided by FIS from inseason data

YEAR	Groundfish mt	Halibut kg	Rate Kg/mt	HLBT Mort. Mt
2005	1,078	351,924	327	46
2006	4,395	1,148,712	261	149
2007	5,176	847,632	164	119
2008	5,384	719,111	134	101
2009	6,083	753,442	124	105
2010	9,786	1,057,294	108	127
2011	9,079	1,086,849	120	130



Attachment # 4
Hook-and-Line CP
GOA Halibut PSC Discard Mortality Rate Reduction
(Resulting from fleet efforts)

	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
Directed Fishery	**Hook-and-Line Gear**											
Other Fisheries	0.12	0.12	0.14	0.14	0.14	0.13	0.13	0.13	0.14	0.14	0.14	0.17
Pacific Cod	0.12	0.12	0.14	0.14	0.14	0.13	0.13	0.13	0.14	0.14	0.14	0.17
Rockfish	0.09	0.09	0.10	0.10	0.10	0.08	0.08	0.08	0.08	0.08	0.08	0.11
	Trawl											
Arrowtooth flounder	0.72	0.72	0.69	0.69	0.69	0.68	0.69	0.69	0.62	0.62	0.62	0.55
Atka Mackerel			0.60	0.60	0.60	0.60	0.60	0.60	0.70	0.70	0.70	0.57
Deep-water flatfish	0.48	0.48	0.53	0.53	0.53	0.57	0.57	0.57	0.60	0.60	0.60	0.56
Flathead sole	0.65	0.65	0.61	0.61	0.61	0.62	0.62	0.62	0.58	0.58	0.58	0.57
Non-pelagic pollock	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.61	0.61	0.61	0.61
Other fisheries	0.62	0.62	0.63	0.63	0.63	0.61	0.61	0.61	0.61	0.61	0.61	0.66
Pacific cod	0.62	0.62	0.63	0.63	0.63	0.61	0.61	0.61	0.61	0.61	0.61	0.63
Pelagic pollock	0.76	0.76	0.76	0.75	0.76	0.75	0.75	0.75	0.72	0.72	0.72	0.75
Rex sole	0.64	0.64	0.63	0.63	0.63	0.62	0.62	0.62	0.61	0.61	0.61	0.53
Rockfish	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.69	0.69	0.69	0.66
Sablefish	0.65	0.65	0.65	0.65	0.65	0.62	0.62	0.62	0.66	0.66	0.66	0.71
Shallow-water flatfish	0.71	0.71	0.71	0.71	0.71	0.68	0.68	0.68	0.69	0.69	0.69	0.69
	Pot											
Other Fisheries	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.17	0.14	0.14	0.14	0.14
Pacific cod	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.17	0.14	0.14	0.14	0.14

Attachment # 5
Hook-and-Line CP and CV totals and years closed on PSC Caps

Note that 2005 we only had a Gulf A season

Table Error! No text of specified style in document.-1 **Status quo non-DSR hook-and-line PSC limit (cumulative) and the cumulative halibut PSC (mt), 2003-2011**

Year	1st Season			2nd Season			3rd Season			Annual
	CP	CV	Total	CP	CV	Total	CP	CV	Total	Pcod TAC
PSC Limit	101	149	250	103	152	255	117	173	290	
2003	87	134	221	89	165	254	107	179	286	40,540
2004	74	121	195	74	122	195	123	171	294	48,033
2005	17	82	99	17	82	99	43	164	207	44,433
2006	35	106	142	35	107	142	141	192	333	39,090
2007	68	105	173	68	105	173	105	185	290	52,264
2008	73	130	202	73	131	204	101	395	496	50,269
2009	64	136	201	64	137	202	95	183	278	41,807
2010	59	77	136	59	77	136	122	104	226	59,563
2011	35	46	81	35	46	81	130	111	242	73,719

Source: AKFIN summary of NOAA Catch Accounting Data and NOAA Fisheries Specification Tables for the GOA 2003 through 2011.

Franke L. Brown
Great Alaska Fisheries
P.O. Box 275
Kodiak, Alaska 99615
907-942-9359 cell

June 6, 2012

Eric Olson
North Pacific Fisheries Management Council
605 W. 4th Suite 306
Anchorage, AK 99501

Dear Chairman Olson,

As a concerned fisherman and Kodiak resident of 25 years I am stating my opposition to the proposal which cuts halibut PSC levels in the Gulf of Alaska.

These are the reasons I oppose cutting halibut PSC levels;

1. The proposed reduction is not scientifically based.
   The proposed reduction is politically motivated and an attempt to reallocate between user groups. There are no scientific facts which show that a reduction in by-catch for trawlers will improve the health of halibut; reducing bycatch will not cause halibut to grow faster. The Council should be more proactive than reactive in its solutions for PSC. A straight halibut cap reduction is not a reasonable or creative approach to reducing bycatch. If the Council continues to re-allocate based on politics the trawl fleet will be put completely out of business which isn't good for coastal communities such as Kodiak. The current observer program that the fisheries are working under has shown it is flawed.

   We recommend not making changes to PSC cuts until we have a functional observer program that shows all sectors bycatch and wastage especially the unobserved longline halibut fleet.

2. The trawl fishery in the Gulf has no tools to mitigate the impact of a halibut PSC reduction. There is no individual accountability and no way to coordinate amongst a diverse fleet.
   With the AFA fishery in the Bering Sea and current co-op management structure which I'm involved with, we have had an abundance of tools to manage and minimize bycatch (i.e. wastage). For example we have been able to use excluder devices, trawl test cameras, and established areas to avoid salmon and halibut while fishing. These are just a few methods used. In the Gulf under the CQ rockfish program we have used a selective fishing gear type, excluders, and specifically avoid "hot spots" where salmon or halibut may be. Another very important consideration used in the CQ rock fish coop has been to focus on local canneries, employment and the overall Kodiak economy.

   We recommend not making changes to halibut PSC until we have the individual accountability tools to make changes to our fishing practices to minimize negative consequences to us and the local economy.

3. The incentive to reduce bycatch (i.e. wastage) already exists; over 300,000 tons of ground fish TACs are already unharvested because of halibut PSC restrictions.

We need halibut PSC's to have any chance of prosecuting this 300,000 tons of ground fish. It doesn't make sense to leave more unharvested fish on the grounds. Can you imagine what that would mean to the bottom line of the local economy in Kodiak if we were given the opportunity and the tools to make this happen? This seems hopeless in the current fisheries system we are currently using, but it is even more hopeless every time the halibut PSC's are cut.

The Council has already sent a message to the trawl fleet "that good fishing practices are going to be penalized for PSC savings". An example would be the rock fish program; while using cooperative fishing tools that we were given to conduct the rockfish fishery we were able to save halibut bycatch (i.e. wastage) in an effort to prosecute more fish. The Council then penalizes responsible fisherman for doing exactly what you want us to do by further reducing our halibut PSC. The Council should reward us for being responsible and proactive not penalizes us.

It's time to throw us a bone, **ZERO Cuts.**

Thank you for your time and consideration.

Franke L. Brown

Patrick Odonnell

North Pacific Fishery Management Council
605 W. 4th, Suite 306
Anchorage, AK 99501-2252
npfmc.comments@noaa.gov

June 7, 2012

Re: Agenda Item C-1(b) – Final action GOA Halibut PSC
Testifier: Patrick O'Donnell, F/V Caravelle

2002 Apportionment of Pacific halibut PSC trawl limits between the deep-water species and the shallow-water species complex.			
Season	Shallow-water	Deep-water	Total
1 (Jan. 20-Apr. 1)	450	100	550
2 (Apr. 1-Jul. 1)	100	300	400
3 (Jul. 1-Sep. 1)	200	400	600
4 (Sep. 1-Oct. 1)	150	Any rollover	150
5 (Oct. 1-Dec.31)	Undesignated		300
Total	900	800	2,000

North Pacific Fishery Management Council
605 W. 4th, Suite 306
Anchorage, AK 99501-2252
Fax (907) 271-2817
npfmc.comments@noaa.gov

May 29th 2012

Re; Agenda item C-1(b) - Final action GOA Halibut PSC

Dear Chairman Olsen and Members of the Council:

My name is Patrick O'Donnell. I own the 85 foot trawler Caravelle, and am one of the 40 or so vessels that will be directly affected by the reduction in the GOA Halibut PSC. This reduction will directly affect four families who rely on my vessel for their income. Indirectly it will affect the processing plant and the cannery workers where I deliver my fish, as there will be a huge loss in processing days due to a lower delivery rate of trawl groundfish to the plant.

I have been trawling in Kodiak for what is now my 23rd season, my 19th as skipper and my 11th as a boat owner. When I first started trawling here in Kodiak in 1990, it was the first time that I had ever dealt with an observer. After talking with the observer and being made aware of what her needs were to complete her job, we went about our work on deck. It wasn't until the 3rd trip that we actually caught a halibut and were so excited that we had finally caught one, that we could present one to the observer so that she could weigh and measure it and then return it to the sea.

I started skippering in January 1994 and throughout the years have seen the abundance of halibut grow and grow. As a result we have made gear modifications, built excluders, changed our fishing patterns and tow slower to reduce the catch of halibut and still catch cod.

My concern for the last few years has been if the trend continues, and the biomass of small halibut continues to grow, where are we going to end up as far as our ability to harvest groundfish? We can only go so fast as far as gear development. There will come a time when we will not be able to fish groundfish due to a higher abundance of halibut.

We the trawlers have already seen a reduction in halibut in the rockfish program, and have yet to see what the impact that is going to have, as this is the first year of that program.

I think that all user groups have to take responsibility for the problems we are having in the GOA with halibut. With the restructuring of the observer program about to start in seven months from now, we will have better data flow across all user groups and better representative data fleet wide, and data from the actual user group the halibut IFQ fleet.

The IPHC and NMFS have to put time and effort into this problem as far as research goes. We have one of the most vibrant fisheries in the world in the GOA, yet the amount of research that goes into the fisheries here is a joke compared to other nations. We have a brand new research vessel (Oscar Dyson) that is lagging behind in its research using trawl gear that was designed 30 years ago for their survey data.

I believe that something has to be done as far as the problem with the halibut.
I also believe we need more scientific data to figure out what is affecting the stock, what is affecting the growth rate, and why the biomass is up yet the exploitable biomass is dropping.

I think we need reporting and recording of all halibut caught and retained by all user groups. This should include sports and subsistence. I also believe that Crucifiers and barbs on hooks should be considered and the affects these are having on the discarded halibut by-catch in the IFQ fishery. I do not support a reduction in halibut PSC until we have strong scientific data saying that it is in fact the problem.

Thank you,

Patrick O'Donnell
F/V Caravelle

Heath Hilyard

Alaska State Legislature

State Capitol
Juneau, Alaska
99801-1182

June 1, 2012

Eric Olson, Chair
North Pacific Fishery Management Council
Attn: Chris Oliver, Executive Director
604 West 4th Avenue, Suite 306
Anchorage, AK 99501

re: Comments on agenda item C-1

Chair Olson and Members of the Council:

We appreciate the opportunity to provide comments on agenda item C-1 regarding halibut bycatch under consideration at your June meeting in Kodiak.

Recently, we were briefed on this issue by a coalition of multiple user groups from areas 3A and 2C that provided us with background information on the scope of halibut bycatch and its potential effect on the status of the halibut resource.

In reviewing the information provided by the coalition, we note that commercial and sport fishermen have experienced dramatic cuts in their harvests over the last decade. However, the limit on halibut bycatch in the Gulf of Alaska, on the other hand, has not been significantly changed since 1989. Currently there is a halibut bycatch limit of 2,300 metric tons (mt) in the GOA—or just over 5 million pounds.

Beyond the interest of equity between the differing areas, sectors and gear groups are two other compelling points that not only justify final action on this proposed rule, but we believe necessitate it.

In the interest of resource conservation, we note that according to the International Pacific Halibut Commission (IPHC) that each halibut caught as bycatch is a direct loss to the spawning biomass, meaning that one pound of halibut caught as bycatch results in 1.5-1.7 pounds of lost spawning biomass.

In addition, National Standard 9 of the Magnuson-Stevens Act clearly mandates bycatch reduction as a significant component of the Act. Section 600.350(b) states:

> "First, bycatch can increase substantially the uncertainty concerning total fishing-related mortality, which makes it more difficult to assess the status

of stocks, to set the appropriate OY and define overfishing levels, and to ensure that OYs are attained and overfishing levels are not exceeded. Second, bycatch may also preclude other more productive uses of fishery resources."

For the reasons outlined above, we support adoption of the proposed rule regarding halibut bycatch, ask that the Council not delay action on this agenda item and encourage the adoption and implementation of the 15% reduction.

We thank you for the opportunity to comment on this important issue and appreciate your time and consideration.

Sincerely,

Sen Dennis Egan

Rep. Peggy Wilson

Rep. Beth Kerttula

Rep. Cathy Muñoz

Rep. Bill Thomas

Heath Ahlgard

Southeast Conference

June 1, 2012

Mr. Eric Olson, Chair
North Pacific Fishery Management Council
605 West 4th Avenue, Suite 306
Anchorage, AK 99501
npfmc.comments@noaa.gov

Re: GOA Halibut Prohibited Species Catch (PSC), agenda item C-1 (b)

Dear Chairman Olson,

Southeast Conference (SEC) is a regional, nonprofit corporation that advances the collective interest of the people, communities and businesses in Southeast Alaska. Members include municipalities, native corporations and village councils, regional and local businesses, civic organizations and individuals throughout the region. Our mission is to undertake and support activities that promote strong economies, healthy communities, and a quality environment for Southeast Alaska. We are the State-designated Alaska Regional Development Organization (ARDOR), the federally-designated Economic Development District (EDD), and the federally designated Resource Conservation and Development Council for Southeast Alaska. Each of these designations requires SEC to take an active role in regional resource management and economic development planning.

SEC is a strong supporter of maintaining and developing a strong economy in Southeast Alaska. Many in our region depend on halibut for food, sport, and livelihood. Through our Fisheries Committee, SEC has learned that commercial harvesters, charter operators, sport fishermen, processors, coastal residents and stakeholders in Southeast Alaska have agreed to present a united voice asking the NPFMC to take final action to reduce the halibut bycatch. As such, SEC advocates a 15% reduction in GOA Halibut PSC at the NPFMC June 2012 meeting.

Halibut stocks and catch limits have declined significantly over the past decade. Exploitable halibut biomass has dropped 58% in the Gulf of Alaska with catch limits for the directed halibut fisheries and the charter fleet enduring substantial reductions. 1,113 2C quota share holders, 1,420 3A quota share holders, 490 3B quota share holders, 274 individual charter permit holders in 2C, 317 individual charter permit holders in 3A, and countless sport and subsistence halibut harvesters have participated in meaningful collaborative efforts to maintain a viable halibut resource, a resource being directly impacted by the GOA Halibut PSC. Especially, since 1989 the GOA Halibut PSC has remained relatively unchanged. Therefore, SEC urges the Council to adopt a 15% reduction. This will help protect and conserve the halibut resource for the benefit of halibut quota share holders, crewmembers, processors, charter operators, sport harvesters, subsistence users, and coastal Alaskans that depend on halibut for food, sport and livelihood.

Southeast Conference

National Standard 9 of the Magnuson-Stevens Act clearly mandates bycatch reduction as a significant component of the Act. Section 600.350(b) states:

> "First, bycatch can increase substantially the uncertainty concerning total fishing-related mortality, which makes it more difficult to assess the status of stocks, to set the appropriate OY and define overfishing levels, and to ensure that OYs are attained and overfishing levels are not exceeded. Second, bycatch may also preclude other more productive uses of fishery resources."

Thank you for this opportunity to comment on this matter that is very important to the region of Southeast Alaska

Sincerely,

Gordy Wrobel
President, SEC Board of Directors

Shelly Wright
Executive Director

Area Closures

Reason	Where	Gear	When	Regulator	Comments
King crab	Eastside Kodiak Island	Non-pelagic	1986	NMFS	Type I and II
Bycatch	Southeast (area 650)	All trawl	1998	NMFS	
crab	Shelikof Strait - mainland	Non-pelagic	2000	BOF	
Bycatch	Cook Inlet	All trawl	?	NMFS	
King Salmon	Karluk River mouth	Non-pelagic	2011	BOF	
Bairdi Crab	Inner Marmot	Non-pelagic	2013 or 2014	NMFS	
SSL	Haulouts and Rookeries	All trawl	2001	NMFS	33% of area 620 & 23% of area 630
EFH	10 areas on the shelf break	Non-pelagic	2007	NMFS	

Seasonal Closures

Reason	From	Gear	To	When	Fisheries	Regulator	Comment
Bycatch	January 20	Pelagic & non	July 1	1992	Rockfish	NMFS	
Bycatch	January 1	Pelagic & non	Jan 20	1993	All trawl	NMFS	BS issue
SSL	4 seasons - Jan, June, July & August	Trawl	3 seasons - Jan, July, & Sept	1996	Pollock	NMFS	
SSL	3 seasons - Jan, July, & Sept	Trawl	4 seasons - Jan, Mar, Sept & Oct	2001	Pollock	NMFS	
SSL	January 20	Non-pelagic	Jan 20 & Sept 1	2001	cod	NMFS	
SSL	two week stand downs between A/B and C/D	Trawl	removed stand downs	2005	Pollock	NMFS	

PSC Management

Bycatch	Measure	From	To	When
Halibut	Hard Cap - one box	none	Annual	1989
Halibut	Hard Cap - 4 boxes	Annual	quarterly	1991
Halibut	Hard Cap - 7 boxes	Quarterly	Quarterly plus shallow/deep	1995
Halibut	Hard Cap - 9 boxes	Quarterly plus shallow/deep	Add fifth season	2002
Chinook	Hard Cap - one box	none	Annual	2012

Fishermen's Finest

Fishermen's Finest, Inc.

1532 N.W. 56th Street ▪ Seattle, WA 98107
TEL: (206) 283-1137 ▪ FAX: (206) 281-8681

June 6, 2012

Mr. Eric Olsen, Chairman
North Pacific Fishery Management Council
605 W 4th Avenue, Suite 306
Anchorage, AK 99501-2252

Re: Agenda Item C-1(b): Gulf of Alaska Pacific halibut prohibited species cap (PSC)

Dear Chairman Olson,

Fishermen's Finest operates two trawl catcher processors in the A80 sector. Both of the vessels have fished in the Gulf of Alaska since the mid to late eighties, targeting on various rockfish and flatfish species, as well as atka mackerel and cod. We continue to target groundfish fisheries in the Gulf, even though regulations over the past twenty years have reduced access to many target fisheries. We would like to take this opportunity to comment on the proposed Gulf of Alaska halibut PSC reductions.

Halibut sideboards for the Amendment 80 fleet are based on the fleet's history in the Gulf from 1998 through 2004. The A80 fleet has not been able to achieve its sideboard history due to premature fishery closures. Prior to 2004, catcher vessels had few markets for the DW flatfish on which the CPs targeted. The second seasonal apportionment of DW halibut used to stay open well into May. The fishery was spread out in terms of time and location, without CPs racing. As shoreside markets developed for DW flats in 2004, the increased effort added pressure on the halibut. DW flats closed within the month of April – forcing all vessels to fish starting April 1st when the fish are not well aggregated, and as such, halibut rates are higher. Reducing the halibut will only exacerbate the status quo, since there will be even less halibut in each seasonal apportionment. (See Tables 4-23, 4-32)

We strongly urge the Council to be more deliberate and strategic in its actions to reduce trawl halibut bycatch consumption. This can be done without roadblocking the fleet from responsible bycatch avoidance practices, without reducing revenues, and without increasing halibut rates.

For example, when the A80 fleet was given the Groundfish Retention Standard, the Council understood that the fleet could not increase retention without the tools to end the race for fish. The groundfish retention standard was implemented in 2007, and the A80 coop structure was implemented in 2008. This was a rational way to induce the fleet to improve its practices.

Fishermen's Finest, Inc. to NPFMC
Agenda Item C-1(b): Gulf of Alaska Pacific halibut PSC June 6, 2012

We strongly urge the Council to not reduce halibut to the trawl fleet until the fleet is given tools to manage the halibut more effectively – by way of either deck sorting to reduce mortality, individual bycatch accounts, PSC cooperatives, or full rationalization. There are several more reasons not to reduce halibut at this time:

- Halibut abundance, in terms of numbers, are very high, especially since the 1987 and later year classes. High abundance logically means increased chances of interception for our vessels. If there was less halibut, we would see less incidental catch; this is not the case.
- The decreasing size at age issue has not been linked, either directly or indirectly, to incidentally caught halibut. While it does result in a reduced CEY/GHL for the directed and charter fleets, the groundfish fleets experience the same reductions in catch and revenue when TACs and Directed Fishing Allowances are reduced. Incidental catch needs to the non-directed fishermen are not adjusted downward just because there is less target opportunity for the directed fishermen. We would like to tell the pollock fleet to catch less rock sole, but so far we just haven't gone there. This may serve as a good precedent though!
- Starting in 2007, the A80 fleet was mandated to retain almost all the flatfish it caught, without regard to market consequences. We have mandatory retention limits whether the flatfish are spawning are not. Directed halibut fishermen balk at retaining fish smaller than 32 inches, citing that buyers don't want smaller fish. The 2011 Statewide ex-vessel price for halibut is $6.50/lb – certainly not the high end of the price; there will be a market for 26 or 28 inch fish. Lowering size limits, and coincidentally increasing retention, for this fleet needs to be further explored.
- The imposition of halibut reductions disproportionately affects the observed fleets. CPs have 100 – 200% observers on board when in the Gulf. CVs have 30-100%. However, the directed halibut and sablefish users self-report discards and bycatch, without adequate or any observer coverage. The fleet that self reports discards, does not have observers on board, and hi-grades by regulation, should not dictate our incidental catch needs.
- Finally, one of the more frequently cited hypotheses for the smaller size at age is competition - both within the halibut species itself, and between halibut and arrowtooth. It seems counter intuitive then to reduce bycatch. Reducing bycatch leaves more small halibut in the water, which creates more competition between halibut and also reduces targeted arrowtooth, another competitor.

Fishermen's Finest, Inc. to NPFMC
Agenda Item C-1(b): Gulf of Alaska Pacific halibut PSC June 6, 2012

We would like to recommend the following options which the Council should take positive action:

- A80 sideboards should roll from season to season. This allows us to get back to the management status quo under which all other fleets operate.

- We are not opposed to the CVs having their DW and SW sideboards combined after May 15th, however we are extremely disappointed that the Council did not reinstate combined sideboards for A80 in the 5th season, like the other fleets have and we are used to. The CVs have a competitive advantage over the CPs in 5th and now in the 2nd seasons where deep and shallow water halibut can be combined. This is a large competitive loss for us, and further reduces access to our sideboard history.

The most important recommendation we have for the Council is not to take halibut reductions at this time. If the Council is pressured to do so, then the reductions should not take place until some sort of rationalization is in place. If that is not a procedurally viable option, then reductions should not go into place until 2016, or 2015 at a minimum.

We also recommend that the qualifying years for a rationalization program have an end date of 2012, as everyone is on notice that rationalization is on its way, and the race for history will commence, if it hasn't already.

Thank you for taking the time to consider these comments,

Susan Robinson

Susan Robinson

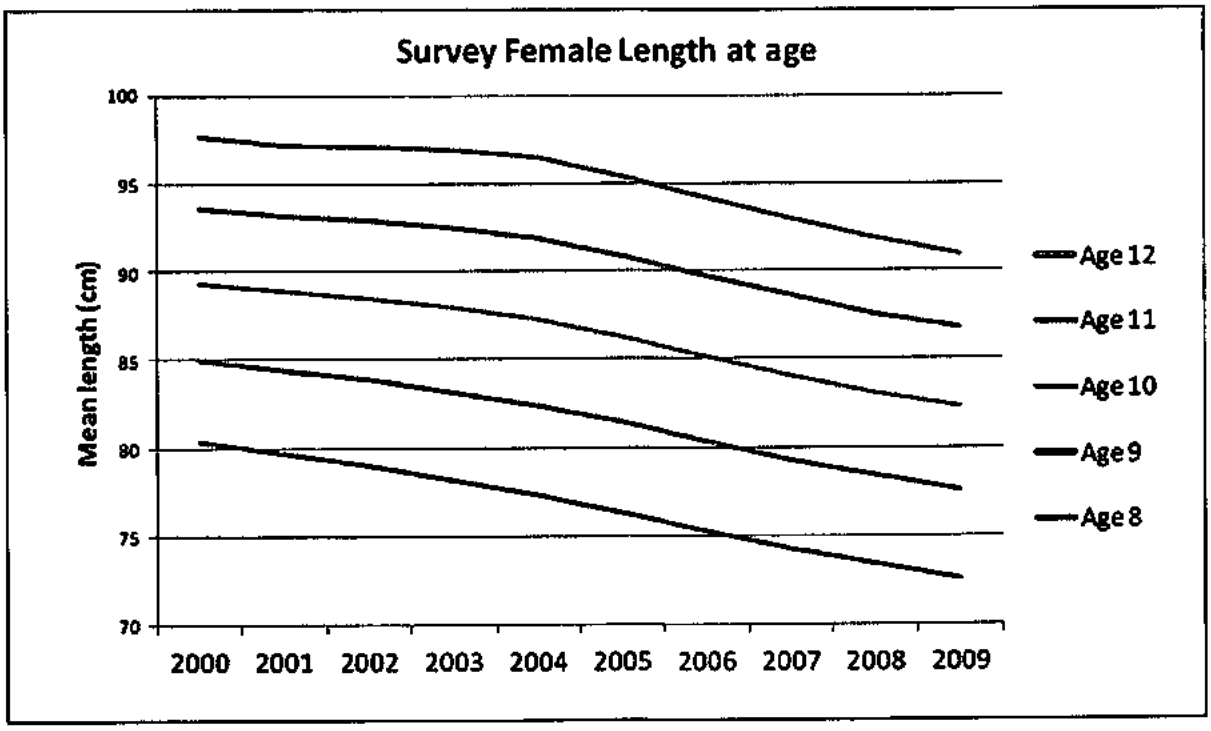
North Pacific Fishery Management Council
605 W. 4th, Suite 306
Anchorage, AK 99501-2252
npfmc.comments@noaa.gov

June 7, 2012

Re: Agenda Item C-1(b) – Final action GOA Halibut PSC
Testifier: Don Ashley, F/V Gold Rush

Changes in mean size-at-age have been observed over time, across age-classes and cohorts

Source: Size at age and growth of Pacific halibut: Process and mechanisms (Tim Loher, Halibut workshop, April 24-25, 2012).



North Pacific Fishery Management Council
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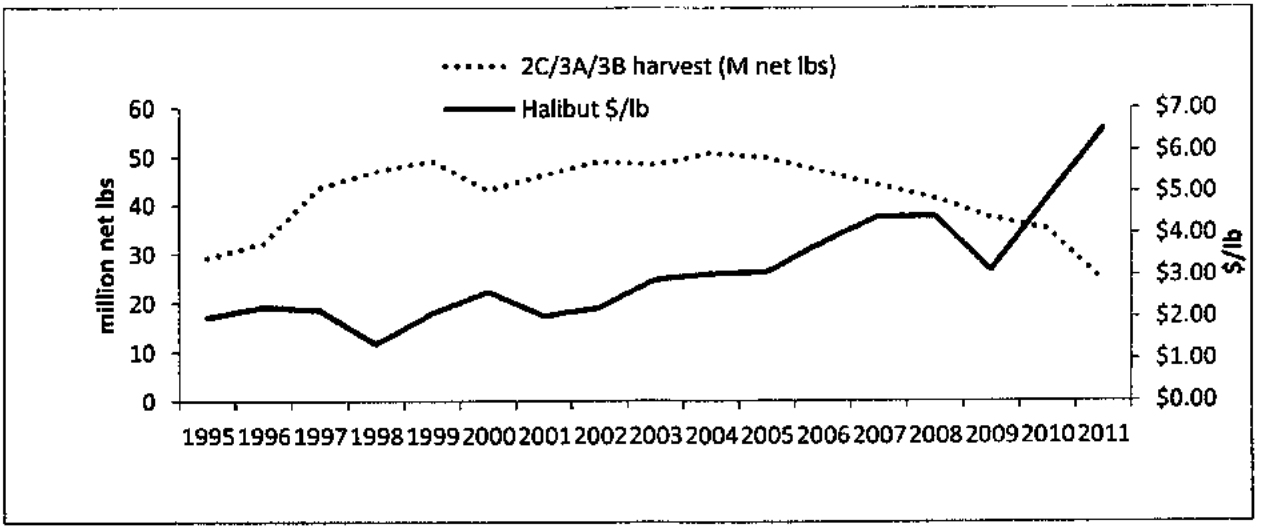
June 7, 2012

Re: Agenda Item C-1(b) – Final action GOA Halibut PSC
Testifier: Mike Helligso

million lbs, net weight (harvest)					
Year	2C	3A	3B	2C/3A/3B	$/lb
1995	7.766	18.336	3.125	29.227	$1.99
1996	8.871	19.693	3.663	32.227	$2.24
1997	9.916	24.637	9.062	43.615	$2.16
1998	10.196	25.698	11.161	47.055	$1.36
1999	10.143	25.316	13.835	49.294	$2.09
2000	8.445	19.273	15.413	43.131	$2.60
2001	8.403	21.539	16.336	46.278	$2.03
2002	8.602	23.131	17.313	49.046	$2.23
2003	8.412	22.754	17.223	48.389	$2.89
2004	10.234	25.167	15.46	50.861	$3.04
2005	10.625	26.033	13.171	49.829	$3.07
2006	10.492	25.714	10.791	46.997	$3.78
2007	8.473	26.493	9.249	44.215	$4.40
2008	6.206	24.521	10.748	41.475	$4.40
2009	4.955	21.755	10.779	37.489	$3.12
2010	4.486	20.503	10.114	35.103	$4.82
2011	2.431	14.533	7.351	24.315	$6.51
% Increase from 1995 to high year:	36.8%	44.5%	454.0%	74.0%	227.1%
High Year:	2005	2007	2002	2004	2011



Ivanoff - Kodiak Fisherman Comment on C-1 Halibut Bycatch

I strongly support that the council implement a fifteen percent reduction in the PSC for the trawl fisheries.

For the past 10 years, the halibut biomass in the Gulf of Alaska has decreased significantly, and is trending towards a collapse. During the same time period of the decline in halibut biomass no material action has been taken by the council to align the bycatch quantities with the condition of the halibut biomass. All science based evidence concludes that the halibut biomass is in trouble. IPHC has provided their stock assessment, and their recommendation of a 15% reduction in PSC. In addition, hundreds of letters were sent to the council confirming the status of the halibut stocks, and with support for 15% PSC reductions. However, the trawl fleet continues to falsely claim that the halibut biomass is healthy and reject the science, all in hopes to create delayed action through uncertainty. It is a fact, the large amounts of PSC are negatively impacting the halibut biomass. Lowering the PSC limits is essential in recovering the halibut biomass, and is the only effective means to modify fishing activities to minimize halibut bycatch.

What the council and trawl fleet must consider is the trend of the halibut biomass. If the trend continues and the halibut stocks collapse, drastic action will have to be taken. Entire fisheries will have to be closed while the halibut stocks rebuild, which would lead to businesses failing and unemployment in multiple sectors of the economy. Reference the actions taken for the Steller sea lion issue, fishing areas have been constrained and fisheries have been closed. If similar actions are needed to rebuild the halibut biomass the consequences will be much more severe than the efforts required to meet a 15% PSC reduction. The reality is that 15% is not a massive reduction.

Opponents of a 15 % reduction of PSC assert that the size of the fleet and the large area are prohibitive of fleet coordination to reduce PSC.

In two groundfish fisheries, arrowtooth and shallow water flatfish, 50% of all PSC is caught by 28 and 27 vessels respectively [1]. The notion that fleet size and area prevent coordination efforts to address the PSC issue are disingenuous and false. Although the information is not publicly available, the general rule of thumb for any system is the 80/20 rule. 80% of the fish is being caught by 20% of the boats. In addition, the same boats fish both species. Discussion with people close to the issue confirm that the majority of the flatfish landings are made by a small number of boats. Council members, please confirm these numbers with NMFS staff. The decisions and practices of a small number of skippers are causing the majority of the problem.

Opponents of a 15% reduction in PSC argue that the Trawl fleet should not have to reduce their bycatch because issues exist in IFQ fishery.

It is true, the IFQ fishery has several issues to address, wastage needs to be brought down, and an observer program must be implemented. For the Trawl Fleet to use the issues in the IFQ fishery as an excuse to not reduce the amount of halibut they destroy is a logical fallacy. Two wrongs do not make a right. All evidence clearly indicates the GOA halibut biomass is in a very poor condition. Trawler activities have a significant negative impact on the halibut biomass. For the long term viability and possibly the survival of the halibut fishery (recall Kodiak king crab) the biomass must be protected before it is too late.

Opponents of a 15% reduction in PSC claim that the unknowns of increased regulation placed on the the trawl fleet give reason to delay PSC reductions.

Without question the Trawl fleet has the biggest impact to other fisheries. As the cumalitive

impacts of trawling activities are better understood, and non target species continue to be impacted increased regulation is required. For Alaska to continue to be a leader in sustainable fisheries robust regulations need to be in place. The implementation of PSC reductions and other important regulations have been long overdue. A PSC reduction plan should have been initiated with small incremental drops over a number of years. However, resistance in the Trawl fleet has prevented this from happening. Unfortunately, we have waited until the point where a significant reduction must be made now to minimize the negative impacts trawling has on the stressed halibut biomass.

Opponents of a 15% reduction in PSC claim that shore based processors and communities will be severely impacted due to lower PSC limits.

The shore based processors in Kodiak are engaged in a wide range of fisheries, and the fisheries impacted most by a reduction in PSC only make up a minor part of the processors business.

- Flatfish fisheries account for 77% of PSC usage and are the most likely to be affected by lower PSC. However, on average flatfish fisheries only makes up 4.85% of Kodiak's total fishing revenues (Table 2).

- As Kodiak is the center of the GOA groundfish activity it will realize most of the losses from PSC reductions, from the analysis $8.16 million is projected to be lost in Kodiak at the first wholesale level (Table 1). However, When compared against the total 2011 fishing income of the $132 million [3] the loss is only a 6.22% of the total. Year on Year Kodiak regularly absorbs fluctuations in revenue of this magnitude due to multiple factors in the fishing industry.

- Processor laborers will not be severely impacted, to see this past fish landings should be examined. On average catcher vessel Flatfish landings are 25,000 metric tons[4]. Again, taking the worst case scenario that all flatfish is not caught the impact is comparable to the volume

fluctuations seen between 2008, and 2009 when landings were off 22,000 metric tons [4]. No dire social or economic fallout occurred as a result of this drop in landings, which is contrary to the predictions made by opponents of PSC reduction. It extremely important to note that with increased bycatch avoidance the trawl fisheries will remain open, the fish will be caught, and any processor and community impacts will be negated.

- Although PSC is not the sole cause of decreased halibut biomass, it is important to look at what is currently being lost due to the large reductions in halibut quota. Processor labor will lose $642,000 in earnings due to the drop in halibut quota from 2011 to 2012 (Table 5). This is a extremely significant loss in income, because the processor labor is a low income earning group mainly working for close to minimum wage.
- In terms of benefits to the nation the 2011 to 2012 drop in quota will result in a loss of $25.71 million. A material reduction in PSC is a critical step in the right direction to regain the lost halibut revenues.

Opponents of a 15 % reduction of PSC claim that Trawlers can not make improvements in halibut avoidance under the current fisheries management system.

Again, arrowtooth and shallow water flatfish account for 50% of all PSC, and is caught by 28 and 27 vessels respectively [1]. It is completely reasonable that this small number of individuals can implement the tools on their own without waiting for policy change. The owners and skippers could create a system of individual accountability to promote clean fishing through modified gear and fishing practices. For example, a concerted effort could be made by the flatfish trawl fleet to improve halibut discard mortality. Improving the discard mortality rate is very achievable and could possibly be the full solution to reduced PSC(Table 3). Discard mortality rates for the arrowtooth trawl fishery have increased 24% in the last 12 years. Resulting in a higher number a dead halibut being discarded. The increase in mortality is consistent across

all of the trawl fisheries [2]. As the lower mortality was once possible 12 years ago, it is clear that mortality rates can be improved to mitigate 15% lower PSC limits. However history shows, that no improvements will be made unless the trawl fleet is prompted. In the absence of a clear PSC reduction plan from the Trawl fleet, lowering the bycatch limits by 15% is the only way to prompt PSC reductions.

The time to align the PSC with the halibut biomass is long overdue. The halibut biomass has been on a steady decline for 10 years, and no material action has been taken to address the issue. I know of no management system where an aspect of a business or organization is allowed to decline for 10 years without taking any action. Significant material action needs to be taken now to address the bycatch issue.

1 - NMFC Environmental Assessment / Regulatory Impact Review / Initial Regulatory Flexibility Analysis To Rives Halibut Prohibited Species Catch Limits, Table 4-18, 4-22, 4-23

2 - NMFC Environmental Assessment / Regulatory Impact Review / Initial Regulatory Flexibility Analysis To Rives Halibut Prohibited Species Catch Limits, Table 4-29, 4-30

3 - Kodiak Chamber of Commerce, http://www.kodiak.org/images/stories/kodiak_economic_indicators_lg.pdf

4 - NMFC Environmental Assessment / Regulatory Impact Review / Initial Regulatory Flexibility Analysis To Rives Halibut Prohibited Species Catch Limits, Table 4 - 15

Table 1 - Comparison of Impacts to Kodiak Economy with 15% PSC from Analysis

GOA Halibut Ports That Account for Majority of Halibut Landings (1)	Lbs Per Ports
Cordova	879,334
Homer	5,602,096
Kodiak	5,841,101
Seward	3,503,326
Sitka	1,301,520
Petursburg	920,944
Total	18,048,323
Kodiak Portion	32.36%
Kodiak Gain (2)	$289,555
Kodiak Loss (3)	$8,160,345
Total Kodiak Fishing Industry Economy 2011 (4)	$132,000,000
Percentage Decrease in Fishing Economy Income	6.18%

(1) Halibut Landing & LBs Data from - http://www.fakr.noaa.gov/ram/ifqreports.htm#participants
(2) Revised Table ES-4, C1(b) Staff supplemental to RIR
(2) Table ES-9
(4) http://www.kodiak.org/currents/previous-issues/22-august-2011/190-economic-development-news.html

Table 2 - Community Impact Expressed in Ex-Vessel Revenue

	Pollock	Sablefish	Pacific Cod	Flatfish (77% of PSC)	Rockfish	Other
2010 $million Ex-Vessel CV & CP (1)	28.8	6.2	9.9	6.4	6.1	2
% of 2010 Total Ex-vessel 132 $million (2)	21.82%	4.70%	7.50%	4.85%	4.62%	1.52%

(1) Table 4-16 of the Analysis
(2) http://www.kodiak.org/currents/previous-issues/22-august-2011/190-economic-development-news.html

Table 3 - Potential PSC savings with Improved Mortality Rates

Fishery	2000-2011 % increase in Mortality (1)	2010 PSC mt Distribution	Distribution of 2000 mt PSC	PSC savings with return to 2000 mortality
Arrow flounder	24%	410	501	120
Atka Mackeral	19%	0	0	0
Deep-Water flatfish	20%	0	0	0
Flathead sole	12%	167	204	24
Non-pelagic pollock	3%	18	22	1
Other Fisheries	8%	0	0	0
Pacific Cod	3%	247	302	9
Pelagic Pollock	5%	14	17	1
Rex Sole	17%	248	303	52
Rockfish	4%	95	116	5
Sablefish	13%	3	4	0
Shallow-water Flatfish	4%	434	531	21
Total		1636	2000	233

(1) Table 4-30

(2) Table 4-18

Table 4 - Fluctuations in Landings and Revenue Absorbed by Trawl Fleet and Community

Year	CV Groundfish 1000mt (1)	Historic Fluctuations in CV Landings	CV Groundfish Ex- Vessel $ million (2)	Variance of CV Ex-Vessel $ million
2005	121	5.79%	38.4	-2.6
2006	121	5.79%	41.1	0.1
2007	105	-7.89%	42.9	1.9
2008	115	0.87%	49.2	8.2
2009	93	-18.42%	33.6	-7.4
2010	131	12.98%	49.3	8.3
2005 through 2010 Avg	114		41.0	
Projected Ex-Vessel Loss Revenue (3)				-3.15

(1) Table 4-15
(2) Table 4-16
(3) Table ES-10

Table 5 - Revenue Loss to Gulf communities from quota loss from 2011 to 2012

Area	2011 Lbs	2012 Lbs
2C	2,292,926	2624000
3A	14,268,031	11918000
3B	7,336,170	5070000
Total	23,897,127	19,612,000
Total Less lbs (2)		4,285,127

Total Lost Direct Revenue to all gulf communities (1)	$25,710,762
Total Lost income to Processor Labor costs ($0.15 per Lb)	$642,769

(1) Average ex-vessel price per pound for 2011 & 2012 $6.00
(2) Halibut Landing & LBs Data from - http://www.fakr.noaa.gov/ram/ifqreports.htm#participants
(3) Processor labor cost $0.15 per pound of H&G halibut

FISHING VESSEL OWNERS' ASSOCIATION
INCORPORATED

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SEATTLE, WASHINGTON 98199-1290
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SINCE 1914

May 29, 2012

Mr. Eric Olson, Chairman
North Pacific Fishery Management Council
605 West 4th, Suite 306
Anchorage, AK 99501-2809

RE: Agenda Item C.1b Final Action Halibut PSC Reduction GOA

Dear Chairman Olson:

The Fishing Vessel Owners' Association (FVOA) represents 98 family-owned longline vessels operating from Fort Bragg, California to the waters of the Bering Sea and Aleutians. FVOA members include both vessel owners and second generation quota share holders. All of our members participate in the directed halibut fishery in the Gulf of Alaska.

The members of the FVOA support a reduction in the Halibut Cap in the GOA of 15 percent. We support this reduction for the following reasons.

- The exploitable biomass – the portion of the halibut population that is available for commercial harvest, has declined 58% over the past decade. To conserve stocks, the Gulf of Alaska commercial catch limits have been reduced 60% and S.E. Alaska charter catch limits have been reduced 34%. The longline CAP has been reduced by 60% since 1995 with additional cuts to the freezer longline fleet. In order to help stabilize the Ebio, the trawl CAP should be reduced.

- National Standard 9 of the Magnuson Stevens Act requires that bycatch be reduced.

- The CAP in the GOA was established in 1989, 23 years ago. There have been significant advances in trawl gear design in order to avoid halibut. The bycatch of halibut in the Bering Sea, lower Pacific coast, and British Columbia has been reduced by significant amounts in all the areas. New trawl designs have been a part of achieving lower bycatch levels. These gear designs should be able to be deployed in the GOA with results that will meet a 15% reduction in the CAP. There is a presumption in the EIS that the trawl fleet will not change behavior with a reduced CAP. This would be unprecedented and is not a believable presumption given the federally approved halibut bycatch reduction test that has been ongoing for years. Therefore, the final inputs are not realistically calculated.

Examples of studies to reduce halibut bycatch include but are not limited to the following:

EFP 2012-1 to evaluate how various fishing and handling practices affect halibut mortality.
Application, October 2011

Final report for EFP 09-01 on a Halibut Bycatch Discard Survival Experiment for a Bering Sea, Non-pelagic Trawl Fishing North Pacific Fisheries Foundation, January 2011

Final report for EFP 09-02 to study methods for reducing halibut discard mortality in trawl fisheries by evaluating various fishing and handling practices, October 2010

Final Report for EFP 08-01 to continue assessment of an electronic monitoring system for quantifying at-sea halibut discards in the Central Gulf of Alaska rockfish fishery, September 2009

Final Report for an EFP to test the use of electronic monitoring to quantify at-sea halibut discards in the Central Gulf of Alaska rockfish fishery, May 2008

Halibut Excluder

EFP 06-03 to evaluate the effectiveness of a halibut excluder for the GOA trawl cod fishery

Application, May 2006
Final Report, May 2008

- The halibut QS program provides an exvessel value for halibut of close to $200,000,000 distributed to over 2400 halibut quota share holders. Ninety-nine percent of this value is landed in the State of Alaska ports resulting in $7 million in direct delivery taxes to the State of Alaska, $3.4 million in IFQ fees to NMFS, and in 2013, an additional $2.4 million for the new observer program. The health of the halibut resource is paramount in helping provide adequate observer coverage on many Groundfish vessels in the GOA. The trawl dollars generated in the GOA, based on the recent EIS for observer comments, do not cover trawl observer coverage costs. The higher valued halibut and sablefish are needed in order to help provide the needed coverage on longline vessels and the trawl fleet. Reducing the trawl halibut CAP will help stabilize the Gulf of Alaska halibut spawning biomass and contribute to the exploitable biomass for the area as well. A stabilized exploitable spawning biomass will stabilize many of the above funding dependencies that the halibut resource contributes to.

- The reduction in the CAP does result in positive contributions to the spawning biomass –

"Our current understanding of the delayed and prolonged effect on spawning biomass is consistent with what we know about the population dynamics of halibut and will occur in an approximate 2 to 1 ration of pounds of spawning biomass accrued per pound of bycatch reduction." *Bob Clark – Halibut Workshop*

"Dr. Hares Figure 21, which shows that on point of under 26" bycatch has a bigger impact on biomass, up to 5 pounds depending on the area." *Ms. Tory O'Connell – Halibut Workshop*

"Longer term benefits in the directed fisheries would accrue from under 26 inches (U26) halibut PSC. Benefits from these smaller halibut would occur as they recruit into the directed fishery." *EA/RIR Ex Summary*

What sectors should this CAP reduction apply to?

The original halibut CAPs in the Gulf of Alaska for all sectors was established in 1986. The longline CAP was originally 750 Mt. This was reduced in 1995 when the halibut/sablefish IFQ program was established. It was reduced to 300 Mt, or a 60% reduction. More recently, under the Council's action for Pacific cod sector allocations the Council reduced the freezer longline CAP by 15%. It would seem that it is now time for the trawl sector to provide some accommodations in halibut bycatch reduction. The longline fleet has significantly reduced its halibut bycatch since the original CAP in the GOA. FVOA therefore submits that the reduction in CAP should not include the longline fleet.

In summary, FVOA supports a CAP reduction of 15% applied to the trawl fleet in the GOA. Based on the revised EA/RIR, the fixed-gear fleet CAP has been reduced by 60% since 1986 by various means. The trawl CAP has remained at 2000 Mt for 23 years. It is reasonable that the reduction of 15% in the GOA CAP apply to the trawl sector.

Sincerely,

Robert D. Alverson
Manager

RDA:cmb

HALIBUT ASSOCIATION OF NORTH AMERICA
P.O. BOX 872
DEMING, WASHINGTON 98224
PHONE: 360-592-3116
WWW.HALIBUTASSOCIATION.COM

May 31, 2012

Mr. Eric Olsen, Chair
North Pacific Fishery Management Council
605 4th Avenue, Suite 306
Anchorage, AK 99501

Re: June 2012 NPFMC Meeting, Agenda item C-1
Halibut Bycatch

Eric,

Dear ~~Chairman Olsen~~,

HANA members are processors of Pacific halibut; their facilities are in Alaska, British Columbia, Washington, and Oregon.

Our members conduct business under fisheries management regimes ranging from full accountability for every pound of halibut caught to the current range of observer coverage in the Bering Sea and Gulf of Alaska. All of our members process other species, many of which are harvested with an attendant amount of halibut bycatch. Finally, most of our members have been involved with the International Pacific Halibut Commission's process and are aware of current research results and ongoing challenges.

It is with this background that HANA offers the following comments.

1. The issue before the Council is first, one of conservation, and second, allocation. To define it as one over the other disregards the serious impact the Council's decisions will have on the halibut stocks, and may create artificial frames of reference from which those decisions will be made.

   The IPHC has calculated that eliminating one pound of undersize (U26) halibut bycatch results in an increase of 5.7 pounds of female spawning biomass. The impacts of reducing bycatch by any amount are immediate and allocative for legal size (O32) halibut. Bycatch reductions of U26 will be eventual and will impact both conservation of the stock and allocation of the resource.

2. HANA members recognize that accurate accountability is critical for conservation goals and responsible management. Without better tools and systems for accurately counting the halibut bycatch in all fisheries, we will continue to manage the fishery with a tragic blind spot.

3. In addition to the obligation to meet National Standard 9, the U.S. (with Canada) agreed to lower halibut bycatch by 10% per year in 1991. Both countries instituted management measures to reach these goals. By 1997, Canada had succeeded in reducing bycatch mortality by 85%. In the U.S., bycatch mortality declined by 17% from 1993 to 2000, but has languished at current levels since then.

The recent NPFMC-IPHC joint bycatch workshop accomplished a long-needed outreach to non-directed halibut stakeholders. With few exceptions, most of the challenges presented were familiar to members of the directed fishery. More helpful would be finding areas of overlapping research needs of both the Council and the IPHC, to increase our understanding of the ecosystem that may be causing the size-at-age issue, affecting migratory patterns, and perhaps impacting other fisheries.

We urge the Council to act in concert with principals of conservation and, to accomplish that, allow management tools to the Gulf of Alaska fleets that will reduce bycatch with minimal constraint on their fishing activities.

Sincerely,

Peggy Parker
Executive Director

NIK MOROZOV

Re: Agenda Item C-1(b) – Final action GOA Halibut Prohibited Species Catch (PSC)

Dear Chairman Olson and members of the Council:

Kodiak typically ranks as the number three commercial fishing port in the United States in terms of value of seafood landed. More than one-third of the jobs in Kodiak are directly involved in the fishing industry, in either the harvesting or processing sectors, while the majority of other jobs are in the service sector directly linked to our fishery economy. Kodiak's fishery economy is strong because of the diversity of fish landings that come across our docks and the variety of vessel size classes and gear types that participate in the fisheries. We, Kodiak's resident processing workforce, depend on fish deliveries all year round. Our pay checks are directly linked to the number of hours that we work and high volume fisheries generate the most work hours for our workers. Flatfish deliveries especially keep us employed during times when other boats are idle. Any reduction in the halibut bycatch amounts the trawl and longline fleets need to bring groundfish to our plants will affect our employment, our paychecks and the Kodiak economy. We ask that you <u>not</u> reduce the halibut bycatch limits for our trawlers and longliners.

We, the undersigned, are concerned Kodiak fish processing and plant workers who urge the Council to not reduce the halibut prohibited species catch limits so necessary for the prosecution of our groundfish fisheries and stable, year-round employment in our community of Kodiak.

Printed Name	Signature	Kodiak Processor
NIK MOROZOV		GSNA
SERGEY MOROZOV		
SHOOG BUNGAY		
REX AGONOY		
ROMULO P. VILLONES		
ADELINO MANDAYAT JR		
JAMES BARTON		
MARVIN NOCON		
BERNARDO T FERNANDEZ		
RICK P. PABALAN		
RAY BALUYOT		
LUZON A. AGONOY JR		

Printed Name	Signature	Kodiak Processor
JEFFREY OPAO		DUCK CREW
ROLDAN G. ROLDAN		CAGE UP CREW
RUFINO FERNANDEZ		CAGE UP CREW
Ronald dela Cruz		
[illegible]		[illegible]
JUSTIN A.		
MAX		
BESSY		
RIC MANGUBANG		
RUBEN MANGUBANG		
CARLITO ESPINOSA		DUCK
JAGER ESPINOSA		CAGE UP
Primo Bautista		
JOES Bautista		
Jonnie Bautista		
Jovencio Vera		
Hegelio Romano		
[illegible]		
NESTOR ENCARNACION		
MARSHAL CRUZ		
Leandro Espinosa		Dock
Ronald Bernales		DOCK

Printed Name	Signature	Kodiak Processor
FERDINAND AGUILATH		
LORELLY JORNALIL		
JOSEFINE IBANEZ		
WILFREDO FRANCISCO		
VAL VEGA		
REDENTOR V PASION	Redentor V Pasion	
Beverly B. GERONIMO		
Ariel Sumalle		
Joseph Sumalle		
Alfiese Sumalle		
Fiona J Fernandez		
Kyle Pascua		
Catherine Mendoza		
Mary Jane Ilisay		
Janet Tiera		
Rona P. Dimaya	Rona P. Dimaya	
Jamilo M. dela Cruz		
HILDRESITO BAUTISTA		
ROBERT ORISOSTOMO		

Introduced by:	Haggerty, Smith, Mayor
Date:	05/01/12
Action:	Adopted
Vote:	9 Yes, 0 No, 0 Absent

KENAI PENINSULA BOROUGH
RESOLUTION 2012-039

A RESOLUTION URGING THE NORTH PACIFIC FISHERY MANAGEMENT COUNCIL TO ADOPT MEASURES THAT REDUCE THE HALIBUT PROHIBITED SPECIES CATCH IN THE GULF OF ALASKA GROUNDFISH FISHERIES

WHEREAS, limits on halibut bycatch, which is a Prohibited Species Catch, in the Gulf of Alaska groundfish fisheries have not been significantly changed since 1989; and

WHEREAS, currently there is a halibut bycatch limit of 2,300 metric tons in the Gulf of Alaska—or just over 5 million pounds; and

WHEREAS, a maximum reduction in the halibut Prohibited Species Catch limit of 15 percent is being considered by the North Pacific Fishery Management Council for final action in June 2012; and

WHEREAS, exploitable biomass, the portion of the halibut population that is available for harvest, has declined by 58 percent over the past decade; and

WHEREAS, every pound of halibut caught as bycatch results in a direct loss of yield and spawning biomass of the halibut resource; and

WHEREAS, cuts in catch limits have and will continue to have dramatic effects on Kenai Peninsula Borough fisheries, businesses, economies and communities that depend on the halibut resource; and

WHEREAS, halibut play a key role in the economy of the Kenai Peninsula Borough;

NOW, THEREFORE, BE IT RESOLVED BY THE ASSEMBLY OF THE KENAI PENINSULA BOROUGH:

SECTION 1. That the Kenai Peninsula Borough Assembly urges the North Pacific Fishery Management Council to take meaningful final action now by reducing Gulf of Alaska halibut bycatch by at least 15 percent.

SECTION 2. That copies of this resolution be provided to Governor Sean Parnell and all members of the North Pacific Fishery Management Council.

SECTION 3. That this resolution takes effect immediately upon its adoption.

ADOPTED BY THE ASSEMBLY OF THE KENAI PENINSULA BOROUGH THIS 1ST DAY OF MAY, 2012.

Gary Knopp, Assembly President

ATTEST:

Johni Blankenship, Borough Clerk

KENAI PENINSULA BOROUGH 1964

Yes:	Haggerty, Johnson, McClure, Murphy, Pierce, Smalley, Smith, Tauriainen, Knopp
No:	None
Absent:	None

CITY OF HOMER
HOMER, ALASKA

Lewis

RESOLUTION 12-034

A RESOLUTION OF THE CITY COUNCIL OF HOMER, ALASKA, URGING THE NORTH PACIFIC FISHERY MANAGEMENT COUNCIL TO ADOPT MEASURES THAT REDUCE THE HALIBUT PROHIBITED SPECIES CATCH IN THE GULF OF ALASKA GROUNDFISH FISHERIES.

WHEREAS, Halibut bycatch (prohibited species catch or PSC) limits in the Gulf of Alaska groundfish fisheries have not been significantly changed since 1989; and

WHEREAS, Currently there is a halibut bycatch limit of 2,300 metric tons (mt) in the Gulf of Alaska--or just over 5 million pounds; and

WHEREAS, A maximum reduction in the halibut PSC limit of 15% is being considered by the North Pacific Fishery Management Council for final action in June 2012; and

WHEREAS, Exploitable biomass--the portion of the halibut population that is available for harvest--has declined by 58% over the past decade; and

WHEREAS, Every pound of halibut caught as bycatch results in a direct loss of yield and spawning biomass of the halibut resource; and

WHEREAS, Cuts in catch limits have and will continue to have dramatic effects on our fisheries, businesses, economies and communities that depend on the halibut resource; and

WHEREAS, Halibut play a key role in the economy of the City of Homer;

NOW, THEREFORE, BE IT RESOLVED by the Homer City Council:

SECTION 1. That the Homer City Council urges the North Pacific Fishery Management Council to take meaningful final action now by reducing Gulf of Alaska halibut bycatch by at least 15%.

SECTION 2. That copies of this Resolution be provided to Governor Sean Parnell and all members of the North Pacific Fishery Management Council.

SECTION 3. That this Resolution takes effect immediately upon adoption.

PASSED AND ADOPTED by the City Council of Homer, Alaska, this 23rd day of April, 2012.

ATTEST:

JO JOHNSON, CMC, CITY CLERK

Fiscal Note: N/A

CITY OF HOMER

JAMES C. HORNADAY, MAYOR

North Pacific Fishery Management Council
605 W. 4th, Suite 306
Anchorage, AK 99501-2252
Fax (907) 271-2817
npfmc.comments@noaa.gov

June 6, 2012

Re: Agenda Item C-1(b) – Final action GOA Halibut PSC

Dear Chairman Olson and members of the Council:

The Kodiak Island fish processors depend on fishery landings year-round from all gear sectors. We support responsible fishing and management measures that promote sustainable fisheries. The Kodiak processors support management policies that allow for the continued harvest of all healthy fishery stocks. This is true for both halibut and groundfish. We continue to advocate for science-based management that is equitable and fair for all gear sectors. We believe this balanced approach is best for our fisheries-dependent communities.

The directed halibut fleets have seen their quotas drop significantly the last decade. We as processors buy and process less halibut because of the decline. Exploitable biomass estimates of halibut drive the annual setting of IPHC quotas for commercial halibut harvests (fish over 32 inches), and guided sport halibut catches. Exploitable biomass estimates have declined by 50 percent since the late 1990's. At the same time, estimates of total biomass of halibut have continued to increase and remain high.

Total biomass is up while exploitable biomass is down. Halibut growth rates have declined to levels that have not been seen since the 1920's. The larger (over 32-inch) fish are simply not being recruited into the fishery. According to the best available science, the main hypothesis is that halibut are growing more slowly due to intra-species competition for food (too many halibut in the system). They may also be competing with other flatfish species, especially Arrowtooth flounder, for resources.

Because the radical and continuing decline in size-at-age is the chief cause of the declining commercial halibut quotas, reducing halibut PSC is not going to appreciably change the halibut Constant Exploitable Yield (CEY) for directed halibut users. However, for groundfish harvesters there are more and more halibut to avoid – many of them (73.5 % by number for trawl and 46.7% by number for longline) undersize. At the same time, the biomass of other groundfish species continues to expand, especially Pacific cod, Arrowtooth, pollock and certain flatfishes.

The allowable amount of halibut PSC makes possible the harvesting of groundfish target species. Groundfish harvesters have always been constrained by halibut bycatch caps, which have closed some fisheries every year before the target TAC was reached. The new Rockfish Program put in place in 2012 will reduced the trawl 2000 mt halibut bycatch cap by approximately 4.25% on top of the reduction considered in this action.

Reducing halibut PSC further will constrain groundfish harvests even more. The minimum proposed reduction in halibut trawl and longline PSC will severely impact harvesters, and thus the entire community of Kodiak. This includes the processors, the processing workforce, vessel owners, operators and crews, and fishing service and numerous support businesses.

The analysis states: "*For some individual operations, especially within the Gulf groundfish trawl sector in Kodiak and those processing operations in Kodiak substantially dependent upon Gulf groundfish trawl deliveries of flatfish in particular, adverse impacts may be felt at the operational level…*"

For processing operations, a lack of flatfish toward the end of the year in particular could create a range of challenges with respect to continuity of operations and processing labor issues.

In general, the reductions in raw fish taxes assessed by municipalities would, potentially, have the greatest impact on the community of Kodiak.

Kodiak is the only multi-species trawl port in the GOA. Kodiak is also the largest delivery port for GOA longline-caught groundfish. The community of Kodiak and the Kodiak processors will be disproportionately disadvantaged by over-aggressive bycatch reduction. The economic pain will be substantial in exchange for very little gain.

We believe that any cut in halibut PSC is unwarranted from an economic and scientific perspective. Even the least proposed reduction will cause serious economic losses to the processing industry in Kodiak; yet there will be very little, if any, benefit to the other users of the halibut resource resulting from the reduction.

We recognize that directed halibut users have suffered cuts in their quotas. If the Council decides to make a reduction in halibut PSC caps, it should be no more than 5%, until there is a catch share program in place that provides the tools for individual vessel accountability for bycatch control and reduction.

We are certainly aware that development of a fair and equitable catch share program is complicated because of such a plan's impact on fishing vessels, processing plants and communities in the Gulf. We are especially concerned that investments we have made in these fisheries may be negatively impacted by any future catch share plan if it is not properly designed.

The Council is mandated to balance national standards (NS) 1 and 9: NS 1-- harvest optimal yield (as much as possible) of groundfish allocations; NS 9 -- reduce bycatch to the "extent practicable." Reducing bycatch caps any more than 5% without providing additional fishery management tools for the fleet does not meet the "extent practicable" standard.

Kodiak's fishery economy depends on all fisheries, vessel sizes and gear types. Each sector needs to be vibrant and healthy for the community of Kodiak to prosper. The variety of harvesters of multiple gear types and vessel classes that fish out of Kodiak is what makes our processing businesses and Kodiak's fishing economy strong. We are asking the Council to

consider the harvesters' and the processors' long-term investments in the fisheries as well as the harvesters' current lack of tools and incentives to address bycatch. Their livelihood, and the success of the processing sector in Kodiak, will be jeopardized if larger proposed bycatch cuts are implemented at this time.

Thank you for your consideration of the health and stability of Kodiak.

Sincerely,

Alaska Pacific Seafoods

Global Seafoods

International Seafoods of Alaska, Inc

Pacific Seafood Kodiak

Ocean Beauty Seafoods

Trident Seafoods – Star of Kodiak

Western Alaska Seafoods

Kodiak Fish Meal Company

North Pacific Fishery Management Council

June 7, 2012

Re: Agenda Item C-1(b) – Final action GOA Halibut PSC

Julie Bonney, Alaska Groundfish Data Bank

Halibut wastage v. trawl mortality, 1995 - 2011

	O32 (thousand Net lbs)				U32 (thousand net lbs)				U32 + O32 (thousand net lbs)				U32 + O32 (MT round wt)*				GOA Trawl mortality (MT round wt.)
Year	2C	3A	3B	Total	2C	3A	3B	Total	2C	3A	3B	Total	2C	3A	3B	Total	
1995	54	128	9	191	97	282	49	428	151	410	58	619	91.3	248.0	35.1	374.4	2,051
1996	44	177	22	243	115	323	59	497	159	500	81	740	96.2	302.4	49.0	447.5	1,946
1997	40	74	54	168	136	426	161	723	176	500	215	891	106.4	302.4	130.0	538.9	2,011
1998	41	154	56	251	147	473	218	838	188	627	274	1089	113.7	379.2	165.7	658.6	2,028
1999	67	117	71	255	154	491	296	941	221	608	367	1196	133.7	367.7	222.0	723.3	2,137
2000	38	59	58	155	135	393	370	898	173	452	428	1053	104.6	273.4	258.9	636.8	1,888
2001	37	65	32	134	143	459	443	1045	180	524	475	1179	108.9	316.9	287.3	713.0	2,197
2002	26	139	34	199	155	516	528	1199	181	655	562	1398	109.5	396.1	339.9	845.5	1,995
2003	25	68	35	128	165	530	593	1288	190	598	628	1416	114.9	361.7	379.8	856.4	2,085
2004	31	76	15	122	225	612	597	1434	256	688	612	1556	154.8	416.1	370.1	941.1	2,444
2005	32	156	26	214	260	659	558	1477	292	815	584	1691	176.6	492.9	353.2	1,022.7	2,108
2006	21	51	11	83	283	667	511	1461	304	718	522	1544	183.9	434.2	315.7	933.8	1,984
2007	29	53	18	100	267	918	423	1608	296	971	441	1708	179.0	587.3	266.7	1,033.0	1,947
2008	12	61	4	77	212	924	681	1817	224	985	685	1894	135.5	595.7	414.3	1,145.5	1,956
2009	10	44	21	75	262	1,118	773	2153	272	1162	794	2228	164.5	702.8	480.2	1,347.5	1,818
2010	9	21	20	50	242	1,417	887	2546	251	1438	907	2596	151.8	869.7	548.5	1,570.0	1,637
2011	5	29	7	41	65	881	752	1698	70	910	759	1739	42.3	550.4	459.0	1,051.7	1,856

*1000 lb net weight = metric tons / 604.7898 * 1000. IPHC wastage estimates from Tables 1 and 2 2011 RARA (p 56-57):

http://www.iphc.int/publications/rara/2011/2011.53.Wastageofhalibutinthecommercialhalibutfishery.pdf

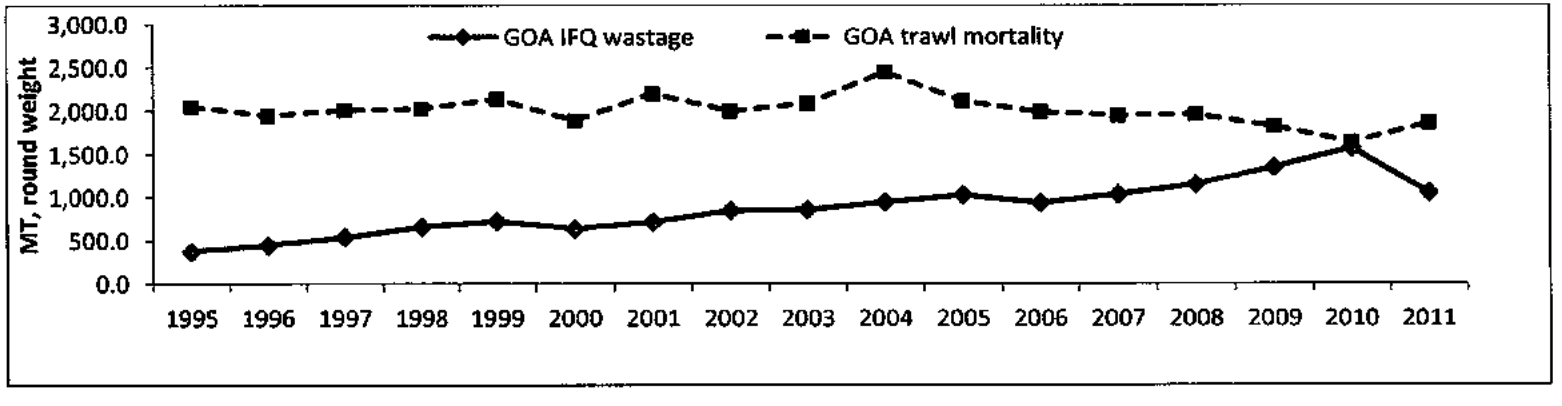

Table 1. Estimates of legal-sized, or O32, Pacific halibut, in thousands of pounds (net weight), killed by lost or abandoned longline gear in the commercial halibut fishery, by IPHC Regulatory Area, 1985 -2011.

	Regulatory Area						
Year	2A	2B	2C	3A	3B	4	Total
1985	n/a	n/a	n/a	n/a	n/a	n/a	1,600
1986	n/a	n/a	n/a	n/a	n/a	n/a	3,200
1987	3	173	368	1,580	341	257	2,722
1988	<1	49	206	1,506	122	69	1,952
1989	7	46	193	1,458	194	130	2,029
1990	15	117	327	1,110	216	238	2,023
1991	2	72	347	1,143	418	245	2,227
1992	7	53	245	643	181	126	1,255
1993	9	96	192	341	63	113	814
1994	1	69	228	845	39	107	1,289
1995	3	39	54	128	9	24	257
1996	1	29	44	177	22	74	347
1997	6	37	40	74	54	79	290
1998	1	53	41	154	56	54	359
1999	7	40	67	117	71	93	395
2000	7	28	38	59	58	69	257
2001	3	46	37	65	32	88	246
2002	5	36	26	139	34	51	290
2003	2	35	25	68	35	49	214
2004	0	36	31	76	15	40	199
2005	5	37	32	156	26	31	287
2006	2	36	21	51	11	18	139
2007	3	29	29	53	18	24	152
2008	<1	22	12	61	4	33	133
2009	1	20	10	44	21	34	131
2010	1	27	9	21	20	27	105
2011[1]	4	20	5	29	7	34	99

[1] Preliminary as of Nov 14, 2011.

North Pacific Fishery Management Council, June 7, 2012
Re: Agenda Item C-1(b) - Final action GOA Halibut PSC
Julie Bonney, Alaska Groundfish Data Bank

Table 2. Estimated sublegal, or U32, halibut discard mortality in thousands of net pounds, killed in the commercial halibut fishery, by IPHC regulatory area and year, 1974-2011.

	Regulatory Area											
Year	2A	2B	2C	3A	3B	4	4A	4B	4C	4D	4E	Total
1974	2	81	42	61	13	2	NA	NA	NA	NA	NA	2
1975	4	143	48	91	21	2	NA	NA	NA	NA	NA	309
1976	2	164	44	107	25	2	NA	NA	NA	NA	NA	344
1977	2	135	26	93	32	4	NA	NA	NA	NA	NA	291
1978	1	113	36	115	14	4	NA	NA	NA	NA	NA	284
1979	1	119	39	130	4	4	NA	NA	NA	NA	NA	297
1980	0	136	29	132	3	2	NA	NA	NA	NA	NA	302
1981	2	152	36	147	6	NA	4	2	2	0	0	352
1982	2	163	33	124	67	NA	10	0	2	0	0	402
1983	3	192	64	117	114	NA	23	9	4	0	0	527
1984	5	363	65	162	104	NA	10	8	6	1	0	724
1985	6	431	109	194	179	NA	17	10	6	1	0	953
1986	7	474	134	338	152	NA	36	2	7	3	0	1,153
1987	7	498	142	373	140	NA	41	13	10	2	1	1,227
1988	5	504	160	507	133	NA	22	15	8	1	0	1,355
1989	4	393	142	503	154	NA	12	26	7	2	0	1,243
1990	3	310	152	476	177	NA	31	13	7	3	1	1,173
1991	3	160	142	413	253	NA	29	16	9	4	1	1,030
1992	4	162	169	525	190	NA	36	26	11	2	1	1,126
1993	5	216	202	480	179	NA	35	23	11	2	1	1,154
1994	2	196	194	559	91	NA	26	24	10	2	2	1,106
1995	2	186	97	282	49	NA	15	13	6	1	1	652
1996	2	184	115	323	59	NA	16	17	7	1	1	725
1997	2	248	136	426	161	NA	29	29	11	2	3	1,047
1998	2	275	147	473	218	NA	39	25	14	3	2	1,198
1999	3	276	154	491	296	NA	55	31	22	4	3	1,335
2000	3	240	135	393	370	NA	72	41	24	4	5	1,287
2001	5	236	143	459	443	NA	80	38	26	6	8	1,444
2002	9	286	155	516	528	NA	92	32	22	8	10	1,658
2003	9	302	165	530	593	NA	104	29	18	11	9	1,770
2004	11	343	225	612	597	NA	85	18	23	12	8	1,934
2005	13	388	260	659	558	NA	93	12	15	22	10	2,030
2006	14	410	283	667	511	NA	101	9	15	25	11	2,046
2007	16	438	267	918	423	NA	132	18	32	32	10	2,286
2008	15	262	212	924	681	NA	133	19	17	60	14	2,337
2009	15	231	262	1,118	773	NA	139	12	14	50	10	2,624
2010	7	233	242	1,417	887	NA	138	32	20	52	10	3,038
2011	6	177	65	881	752	NA	127	33	40	109	23	2,213

North Pacific Fishery Management Council, June 7, 2012
Re: Agenda Item C-1(b) - Final action GOA Halibut PSC
Julie Bonney, Alaska Groundfish Data Bank

Ernie Cadabes

Re: Agenda Item C-1(b) – Final action GOA Halibut Prohibited Species Catch (PSC)

Dear Chairman Olson and members of the Council:

Kodiak typically ranks as the number three commercial fishing port in the United States in terms of value of seafood landed. More than one-third of the jobs in Kodiak are directly involved in the fishing industry, in either the harvesting or processing sectors, while the majority of other jobs are in the service sector directly linked to our fishery economy. Kodiak's fishery economy is strong because of the diversity of fish landings that come across our docks and the variety of vessel size classes and gear types that participate in the fisheries. We, Kodiak's resident processing workforce, depend on fish deliveries all year round. Our pay checks are directly linked to the number of hours that we work and high volume fisheries generate the most work hours for our workers. Flatfish deliveries especially keep us employed during times when other boats are idle. Any reduction in the halibut bycatch amounts the trawl and longline fleets need to bring groundfish to our plants will affect our employment, our paychecks and the Kodiak economy. We ask that you not reduce the halibut bycatch limits for our trawlers and longliners.

We, the undersigned, are concerned Kodiak fish processing and plant workers who urge the Council to not reduce the halibut prohibited species catch limits so necessary for the prosecution of our groundfish fisheries and stable, year-round employment in our community of Kodiak.

Printed Name	Signature	Kodiak Processor
GEMMA CAMAMA		TRIDENT
FLOR JAMIA		
RICHARD GERALINE		
Urban Matam		
ARNEL [illegible]		
Rustico Cimanosa		
CLAUDIO Z ADIVAS		
[illegible]		
ANIANA SISCAR		
PANCITO VAPLADULIP		
Jacky Ann Fangonilo		
BERNARD Sibabuban		
JERRY X. SEVILLA		

Printed Name	Signature	Kodiak Processor
ROMEO G. SALARDA		
JAKE SAMSON		
ZAIDA C. DIESTA		
BERNADETTE DIESTA		
Amalia B. Nevales		
ELVIRA BALBOA		
ELEANOR DIESTA		
Leonida Cerezo		
Alejandra Reyes		
[illegible]	[illegible]	
[illegible]		
Estrella Palilio	E. P.	
[illegible]	M. O	
[illegible]	F M	
JOSEFINE BANACA		
Emelda V. Manuel		
Beberly B. Geronimo		
Roberto N. Geronimo		
RAMILYN D. FERNANDEZ		
EFREN DIESTA		
VIRGILIO DIESTA		
ERWIN SELIVEH		

Printed Name	Signature	Kodiak Processor
DARWIN ERCHDA		
CARLOS VALDIVIA	Carlos Valdivia	
BARTOLOME	B CASTILLO	
ERLINDA POLANCO	E C Polanco	
CORAZON CAMACHO	Corazon Camacho	
Agnes Sumilta	Agnes Sumilta	
MARIE ANGELO MENDIGORIN SALAZAR		
Paul Ferris	Paul Ferris	
Virginia S Jutte	Virginia S Jutte	
Chris Fehlmen	Chris Fehlmen	
JOHN SUMALTA	John Sumalta	
Jamie Surath	Jamie Surath	
Edmundo Cuello	Edmundo Cuello	
KRISTIAN LLOYD HANSEN		
[illegible]	[illegible]	
ABEL VALDEZ	Abel Valdez	
William H Sorgnie Jr	William Sorgnie	
JOHN REX M. JAVIER		
GEMINIANO PLARAS		
REYNALDO DATUGAL		
FIDEL RABANG		
RODOLFO DIESTA		

Printed Name	Signature	Kodiak Processor
FRANCISCO S. MARCELO JR		5-26-12
ANTONIO RABANG	Antonio Rabang	5-26-12
AMOR LUZANO	Amor Luzano	5-26-12
DAVID DELA CRUZ		5-26-12
REYNALDO B. AXALAN		5-26-12
RUDY C. SANTOS		5-26/12
ROCEL TAGLE		5.26/12
OFELIA GAMENA		
JAN RAMASON		5-26-12
Genima Sabangan		5-26-12
mila ANCHETA	mila Ancheta	5-26-12
Julita Fernandez	jfernandez	5-26-12
Reynaldo Asuncion		5-26-12
Marco Bernardo		5-26-12
Felma M. Magpayong		5-26-12
YULI PANGANTHIN		
LUIS G. PERALTA		
FLOR FLORES		5
JESUS CATAMACHAN		
ALEX SURALTA		
JESSE GUEST		
LEO SURATO		

Printed Name	Signature	Kodiak Processor
JAYSON V. EUSEBIO		
Michael V Eusebio		
Anthony Sanchez		
RAFAEL CHAVEZ		
AHRON SUGATA		
Joel Ruiz		
Jekow Rualmim	Jekow Rualmim	
JOSE NATIVIDAD		
CAMILO FANGONILO		
MAREGINA FERNANDEZ		
Pia Janice Icban	PJIcban	
Frank Valdespino		
Ruth Manlangit		
Kristine Joy Z. Siador		
JAYSON C SABANGAN		
Felipe C Pilospilos Jr		
RODOLFO SABANGAN		
ROMUALDO RAMIREZ		
DOMINADOR RIVOLOS		
FRED NATIVIDAD		
Jaime Santelices		

Printed Name	Signature	Kodiak Processor
TERESITA CASAPAO	T. Casabon	
FRANCISCA A FERNANDEZ	F. Fernandez	
Farmacita Samson	F D Samson	
EMILIO GONZAGA	Emilio Gonzaga	
NADA GONZAGA	Nada Gonzaga	
Genoveva Perez	G Perez	
Flordeliza Agoncy	Agoncy	
WARREN P. ALBANO	Warren P. Albano	
Chris Bolinger	Chris J Bolinger	
Elizabeth Miranda	E. Miranda	
RICARDO C MAGSAMO	Ricardo C Magsamo	
ESCOLASTICA MAGSAMO	Escolastica Magsamo - E.B.M.	
TOMAS PEREZ		
FILIPINAS PANGANIBAN	Panganiban	
Theresa Moore	Theresa Moore	
Jayson Buenaflor		
ROMEO P SARMIENTO		
RICHARD PEREZ		
FRED L MARMITE		
Rupert Antig		
JOSEPH I. ENERIO		

Printed Name	Signature	Kodiak Processor
V BERT		
MARIO [illegible]		
ann [illegible]		
Peter Adrian Tayco Jr		
ARCADIO FERNANDEZ		
JOSE T GERONA		
BRYAN I. QUICAHO		
SEGUNDO PANEDA JR.		
RONALD SYAUOR		
Glenda Siador		
ROGELIO BUMATAY		
[illegible]		
ROMEO PANEDA		
George G. Siador		
Bounpha Singhavath		
FERNANDO T GARCIA		
MARIA GUILAS		
ABOU SOW		
Jose Mario Guerrero		
SAUL G. GONZALEZ		
HENOK WALELIGN		
EMILIO BRIONES		

Printed Name	Signature	Kodiak Processor
SAGANI CACINIRE		
Polly BILIKAT		
Lemor Bilkan		
MARINO OCAMPO		
BIENVENIDO NARVAEZ		
HENRY ALMANDA		
RESTITUTO V. BARCELON		
Cesario Sualta		
Mangtor Ashford		
ADRIALINA FANGONILO		
ARMANDO BAUTISTA		

Re: Agenda Item C-1(b) – Final action GOA Halibut Prohibited Species Catch (PSC)

Dear Chairman Olson and members of the Council:

Virgina Servida

Kodiak typically ranks as the number three commercial fishing port in the United States in terms of value of seafood landed. More than one-third of the jobs in Kodiak are directly involved in the fishing industry, in either the harvesting or processing sectors, while the majority of other jobs are in the service sector directly linked to our fishery economy. Kodiak's fishery economy is strong because of the diversity of fish landings that come across our docks and the variety of vessel size classes and gear types that participate in the fisheries. We, Kodiak's resident processing workforce, depend on fish deliveries all year round. Our pay checks are directly linked to the number of hours that we work and high volume fisheries generate the most work hours for our workers. Flatfish deliveries especially keep us employed during times when other boats are idle. Any reduction in the halibut bycatch amounts the trawl and longline fleets need to bring groundfish to our plants will affect our employment, our paychecks and the Kodiak economy. We ask that you not reduce the halibut bycatch limits for our trawlers and longliners.

We, the undersigned, are concerned Kodiak fish processing and plant workers who urge the Council to not reduce the halibut prohibited species catch limits so necessary for the prosecution of our groundfish fisheries and stable, year-round employment in our community of Kodiak.

Printed Name	Signature	Kodiak Processor
		ISA
		ISA
		IS-
		I-A
		ISA
		ISA
		ISA

Kodiak Processing Plant Workers – Petition against any reduction in GOA halibut bycatch limits

Printed Name	Signature	Kodiak Processor
[illegible]	[illegible]	ISA
[illegible]	[illegible]	ISA
MICHELLE [illegible]	[illegible]	ISA
[illegible]	[illegible]	ISA
[illegible]	[illegible]	ISA
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	ISA
MARIA [illegible]	[illegible]	ISA
[illegible]	[illegible]	
[illegible]	[illegible]	ISA
[illegible]	[illegible]	ISA
Leila [illegible]	[illegible]	ISA
[illegible]	[illegible]	ISA
[illegible]	[illegible]	ISA
[illegible]	[illegible]	ISA
[illegible]	[illegible]	ISA
[illegible]	[illegible]	ISA
[illegible]	[illegible]	ISA
[illegible]	[illegible]	ISA
[illegible]	[illegible]	[illegible]
DANTE FUENTES	[illegible]	ISA
VINCENT VILLAPLAZA	[illegible]	ISA

Printed Name	Signature	Kodiak Processor
DENNIS PELAYAN		I SA
Wash. Heinary		I SA
FRANKLIN BELTRAN		
ANGELA TE PALACIOS		ISA
MARIE TE PARRAGA		I SA
MARYLIN DIRECTO		ISA
MARKUS JOHN		ISA
ANGELITA LACASTE		I SA
HELEN MAMARIL		I SA
Jocelyn Lopez		I SA
NEMESIO MAMAC		I SA
Romualda MAMAC		I SA
GREGORIO REYES		I SA
CRISPIN CARINO		I SA
GLENDA AGAID		I SA
INES ORDEN		I SA
ROLANDO ABRERA		I SA
Ricardo O. Cabrera		I SA
DANIEL TUAZON JR		I SA
DAVID Santos		I SA
Annabel F. Chas		I SA
Maria Rendon Sula		I SA

Printed Name	Signature	Kodiak Processor
D. JAMES		ISA
JOHN CARLO SIMMELL	John Carlo Simmell	

Re: Agenda Item C-1(b) – Final action GOA Halibut Prohibited Species Catch (PSC)

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We, the undersigned, are concerned Kodiak fish processing and plant workers who urge the Council to not reduce the halibut prohibited species catch limits so necessary for the prosecution of our groundfish fisheries and stable, year-round employment in our community of Kodiak.

Printed Name	Signature	Kodiak Processor
TIM PIERSONS		INT'L SEAFOODS.

Re: Agenda Item C-1(b) – Final action GOA Halibut Prohibited Species Catch (PSC)

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Printed Name	Signature	Kodiak Processor
		ISA
	Susan FLORES	
		ISA
		ISA
		ISA
		ISA

Printed Name	Signature	Kodiak Processor
Ricardo Cabrera	R Cabrera	ISA
DANIEL TUAZON JR	[illegible]	ISA
Bobbie Carmichael	B. Carmichael	ISA
HUBERT MASTUR	[illegible]	ISA
FREDERICK ROXETE	FD Roxete	ISA
EDELL OMEGA	Edsell Om	ISA
RICARDO MEDINA	[illegible]	ISA
EDWIN QUINTA	[illegible]	ISA
Jose lopez Fuentes	[illegible]	ISA
Rady V. CALSEVON	[illegible]	ISA
Romeo [illegible]	[illegible]	ISA
Voltaire A Francia	[illegible]	ISA
ROMULO TURNITO	[illegible]	ISA
EDUARDO [illegible]	[illegible]	ISA
Kazushi Seto	[illegible]	ISA
[illegible]	[illegible]	ISA
Marie J. [illegible]	[illegible]	ISA
Rose Lopez	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
HELIA RED	[illegible]	ISA
TERESITA [illegible] DAVID	[illegible]	ISA

Kodiak Processing Plant Workers – Petition against any reduction in GOA halibut bycatch limits

Printed Name	Signature	Kodiak Processor
ADOLFO NEVAREZ	Adolfo nevarez	I.S.A
RAUL DAGDAG	[signature]	ISA
ESTRELLA CALDERON	[signature]	ISA
DANILO SARENAS	[signature]	I Sa
Julius Rosete	Julius P. Rosete	ISA
MARIO SOFRANES	[signature]	ISA
Rosa Arevalo	Rosa Arevalo	ISA
HUVERT PASTOR	[signature]	ISA
Rodrigo Reyes	[signature]	ISA
EMILIGELIO ORTEGA	M Ortega	I.S.A
Joel Ronquillo	Ronquillo	I.S.A
DIOSDADO LACAP JR	Diosdado Lacap Jr	I.S.A
[illegible] VALDEZ	[signature]	ISA
ORLANDO PULINTAN	[signature]	I.S.A
JAIME GARMA	[signature]	I.S.A
JUAN MENDEZ	[signature]	
Gian Santiago	[signature]	ISA
RUPERTO MERCADO	[signature]	ISA
WILFREDO FRANCISCO	[signature]	ISA
[illegible]	[signature]	ISA
MAMIL FAUNI	[signature]	I.S.A
[illegible]	[signature]	I.S.A

Kodiak Processing Plant Workers – Petition against any reduction in GOA halibut bycatch limits

Printed Name	Signature	Kodiak Processor
B. [illegible] Laguna		ISA
Salvador Gak		ISA
Alberto Custer		ISA
DANIEL PALAD		ISA
[illegible]		ISA
[illegible] Bautista		ISA
[illegible] RAMALES		ISA
[illegible]		ISA
[illegible]		ISA
L Babasa		ISA
Regina [illegible]		ISA
MARCI SOTARRETIL		ISA
V Ladislao, Jr.		ISA
V. Ladislao		ISA
E. Miranda		ISA
TRINIDAD TABERNA		ISA
Sarah Cariaga		ISA
[illegible]		ISA
Sharmae Cariaga		ISA
Maria Yolanda Palad		ISA
Chris Berthelsen		ISA
Eulinda [illegible]		ISA

Printed Name	Signature	Kodiak Processor
Elizabeth G. David	Elizabeth David	ISA
Roberto David	Roberto David	ISA
NERISSA T. CABRERA	N.T.Cabrera	ISA
Rique B. Cabrera	R.B.C	I.S.A

Re: Agenda Item C-1(b) – Final action GOA Halibut Prohibited Species Catch (PSC)

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Printed Name	Signature	Kodiak Processor
MARY CUNANAN	Mary I Cunanan	Ocean Beauty
Cristobal Gomez	Cristobal Gomez	O.B.I
FELIPE SANTANA	Felipe Santana	O.B.I.
[illegible]	ELIAS RAMOS	O.B.I
Sam Martin	Sam Martin	OBSI
GREGELITO Mendez	[illegible]	OBSI
EVAN HARRIS	Evan L. Harris	OBSI
ESTELA GREGORIO LUIS I	[illegible]	OBSI
JESLAMELIA	HERMILIO?	OBSI
FLORENTINO	CAMACHO	OBSI
Michael Lauer	[illegible]	OBS-LLC
Ronny Cigunac	[illegible]	OBS LLC
MARCELINO DESPACHO	[illegible]	C. B I

Printed Name	Signature	Kodiak Processor
SILVERIO DEL ROSARIO JR		OBSI
DENNIS ACUNDAY		OBSI
Regina D. Sabado	Regina D. Sabado	OBSI
Suzan P. Dista	Suzan P. Dista	OBSI
Geddah Paguio	Gpaguio	OBSI
ELSA PAGUIO	Elsa Paguio	OBSI
Clarita Aglaray	C Aglaray	OBSI
Marygrace Garchitorena	Garchitorenang	OBSI
Phuttha Dangkitti		OBSI
RAFAEL NERO	Rnero	OBSI
CRISTINA TORRES	Cristorres	OBSI
Rodolfo Jornadal		OBSI
MONETTE PACPACO		OBSI
~~DEXTER~~ PACPACO		OBSI
LUCIA S. ABRINDA		OBSI
William Rosales	W.R	OBSI
Adelina Librado	A Librado	OBSI
Leticia A. Rosales	L Rosales	OBSI
BRIGHT ABRINDA		OBSI
Rolando	Rolando Rmendoza	OBSI
M. Valenzuela		OBSI
Cyrel Gabriel		OBSI

Printed Name	Signature	Kodiak Processor
ELIZABETH L. MONTUYA	E.L. Montuya	OBSI
JUANITA A. LAROZA	Jalaroza	OBSI
LILY B. MENDAROZ	Lmendaroz	OBSI
ETELINDA LIZADA	E.L. Lizada	OBSI
CATHERINE GONGORA	cgongora	OBSI
Pasta Nero	Pasta	OBSI
Dominados Nero	Dominados	OBSI
Paul B.	Saculles	OBSI
Flora A. Fruta	Fafruta	OBSI
DOUGLAS NICART		OBSI
Edwardo Yacas		OBSI
ARGELINE PEREZ		OBSI
ANDRES L. GARCIA JR.	Algarcia	OBSI
ARIEL N. ACIOLA		OBSI
ROMIE FRUTO	RFruto	OBSI
Antonio Valenzuela		OBSI
Ricardo Barte		OBSI
Pedro Ubani		OBSI
BONIFACIO A CUEDO		OBSI
TONY OLAZABAL		OBSI

Printed Name	Signature	Kodiak Processor
JAYDI SERVIDA	Jaydi B. Servida	OBSI
LAMBERTO BARTE	[illegible]	OBST
ROSARIO BARTE	Rosario B Barte	OBST
EVELYN DELA CRUZ	[illegible]	OBST
RICHARD GONGORA	Richard Gongora	OBSI
Christian R. Balingit	Christian R Balingit	OBST
Ronal Vina	[illegible]	OBST
Nelia Saavedra	[illegible]	OBSI
Gabriel Arias	G. Arias	OBST
pedro m mendoza		OBSI
Eduardo Chia	E. Chia	OBST
[illegible]	[illegible]	OBSI
Fabian	[illegible]	OBSI
JOSEPHINE S. SIMON	[illegible]	OBST
Michael Ryan Maget	[illegible]	OBST
Gilberto Ramos	Gilberto Ramos	OBST
EDWIN S. ALEJANDRO	[illegible]	OBSI
Ricardo F. Saculles	R. Saculles	OBSI
GLORIA N. JUAN	[illegible] Juan	OBST
ROLIVAN CAMANIA	Rolivan Camania	OBSI
ERIC B VIRAY	Eric Viray	OBSI
Alfie Ventura	[illegible]	OBSI

Printed Name	Signature	Kodiak Processor
Luis VALENZUELA		OBSI
JUANSON NERO		"
FELIX AGTARAP		"
LALAINE ACADEMIA		"
FRANCISCO SUMERA		"
Jonh Nguon T Hao		"
Nancy williams		"
CECILIA SORTO		"
EUFREMIA P. ALBANO		"
[illegible]		"
Marife Garchitorena		"
JASMIN MENDEZ		"
FRANCISCO DEL CARMEN		"
VIRGINIO ANDRES		"
EBEN ESCRIBANO		"
JESUS PEREZ DE G		"
DANILO PADILLA		"
Cecilia T. Man		"
Mary T. Meng		"
DANILO T. REYES		"
MICHELLE T. PEREZ		"
Fernando C. [illegible]		"

Printed Name	Signature	Kodiak Processor
ESTELA BERMUDEZ	aBValenzuela	O/B
PREM T. SALUGAO	PSalugao	O/B
Mark Baisa	[illegible]	OB
EMERITO C TORRES	[illegible]	OBS
MAXIMO ARMENTA	ARMENTA	OBSI
JEFFERSON FAGUNDMAN	[illegible]	OB
PHEBO SERVIDA	P. Servida	O.B.S.I.
JOSEPH LOUIE CREDO	[illegible]	O.B.S.I
Jose I Corcas	Jose I Corcas	O.B
JESSE ALCANTRA	[illegible]	OBSI
TONY SUACILLO	Antonio Suacillo	O/B.
AL SAMANIEGA	[illegible]	OBSI
CESAR PASCUA	[illegible]	OBSI
NERNA C. ESCRIBANO	N.C. Escribano	OBSI
Luis Manuel torres	Luis Torres	OBSI
Miguel A. Gonzalez	[illegible]	OBSI
Francisco Rosel	[illegible]	OBSI
Roberto Co	[illegible]	OBSI
Librado B Quijano	LB Quijano	OBSI
Julios Quintero	Julio	OBSI
ABRAM S GREGORIO		OBSI
ROGELIO J. TORRES	[illegible]	OBSI

Printed Name	Signature	Kodiak Processor
Magdalena Victoria Torres		OBSI
Guillermo Abaran		"
PABLITO C. BRIGINO		"
ESTERCITA S. ALEGADO		"
CRUZITO GARCIA		"
LOVely Lizada		"
Maria Mendoza		"
JOSEPHINE M. MELCHOR		"
ROLANDO C. DOMAGOSO		"
Jacky Ann Fangonilo		"
JOSEPHINE SERVIDA		"
GLENDA ALEGANDRO		"
Rolando Quiaoit		"
[illegible]		"
ELMER ALEJANDRO		"
JOSEPHINE ALEJANDRO		"
RUDOLFO BARADIAN		"
[illegible]		"
Estela REYES		"
MARGIE		"
[illegible]		"
ALFONSO [illegible]		"

Printed Name	Signature	Kodiak Processor
ARNULFO ACORDA	[illegible]	OBSI
[illegible]	[illegible]	"
FERDINAND V. SALUGAO	Ferdinand V. Salugao	"
[illegible] LOPEZ	[illegible] Lopez	"
Romualdo B. Cabito	R. B. Cabito	"
Fremil Narino	[illegible]	"
MIGUEL VALENZUELA	M. Valenzuela	"
[illegible] LOPEZ	[illegible] Lopez	"
SILVIA MORENO	[illegible]	"
ROMARICO CUARESMA II	R. Cuaresma II	"
CELESTINO GANANCIAL	C. Ganancial	"
Mendez Bunancio	[illegible]	"
Niccolas [illegible]	[illegible]	"
Rosa [illegible]	[illegible]	"
JOSE [illegible]	[illegible]	"
FELISERUIZ	F E R	"
RAFAEL AGUIRRE	Rafael Aguirre	"
Tomas C. [illegible]	[illegible]	"
BASILIO D. ESPIRIN	[illegible] D. [illegible]	"
Cesar A. Cabacungan	C. Cabacungan	"
[illegible] PURIFICACION	[illegible]	"
[illegible]	[illegible]	"

Printed Name	Signature	Kodiak Processor
CARLINA A. DOMINGO	[signature]	OBST
SUSAN S. DE GUZMAN	[signature]	OBST
MATILDE PAKINGAN	[signature]	OBST
Alesha Fish	[signature]	OBSI
RAIMO TUILOLO	[signature]	OBST
[illegible]	[signature]	OBSI
[illegible]	[signature]	OBST
Susan Corpuz	[signature]	OBST
Ruth Barton	[signature]	OBST
Athenas Williamson	[signature]	OBST

Printed Name	Signature	Kodiak Processor
VIRGILC M. DAY	[illegible]	OBSI
Jorge Aguirre	[illegible]	"
Angelina Andea	[illegible]	"
Paula mejia	Paula MEJIA H	"
Fabiana [illegible]	[illegible]	"

Nora Agmata

Re: Agenda Item C-1(b) – Final action GOA Halibut Prohibited Species Catch (PSC)

Dear Chairman Olson and members of the Council:

Kodiak typically ranks as the number three commercial fishing port in the United States in terms of value of seafood landed. More than one-third of the jobs in Kodiak are directly involved in the fishing industry, in either the harvesting or processing sectors, while the majority of other jobs are in the service sector directly linked to our fishery economy. Kodiak's fishery economy is strong because of the diversity of fish landings that come across our docks and the variety of vessel size classes and gear types that participate in the fisheries. We, Kodiak's resident processing workforce, depend on fish deliveries all year round. Our pay checks are directly linked to the number of hours that we work and high volume fisheries generate the most work hours for our workers. Flatfish deliveries especially keep us employed during times when other boats are idle. Any reduction in the halibut bycatch amounts the trawl and longline fleets need to bring groundfish to our plants will affect our employment, our paychecks and the Kodiak economy. We ask that you not reduce the halibut bycatch limits for our trawlers and longliners.

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Printed Name	Signature	Kodiak Processor
BENNY DAQUILANEA	[signature]	APS
Elena Luckett	[signature]	APS
VICTORINA C LLEDO	[signature]	APS
RAFAEL SALIGAR	[signature]	APS
Glen V. Albano	[signature]	APS
[illegible]	[signature]	APS.
Alfredo R Dodo	[signature]	APS
[illegible]	[signature]	APS
JACQUELINE VIRAY	[signature]	APS
Lydia V. Albano	[signature]	APS
GLORIA D. PIPIT	[signature]	APS
ANACLETO ROAQUIN	[signature]	APS
Clarina B. Edgy	[signature]	APS

Printed Name	Signature	Kodiak Processor
David Diocares	David L. Diocares	APS
MARLENE PINEDA	[illegible]	APS
NIOYA PROHUCAO	[illegible]	APS
ZENAIDA DIOCARES	[illegible]	APS
Violeta Ignacio	[illegible]	APS
MACBETH D. ABELLERA	[illegible]	APS
VIRGILIO P. SABAR	[illegible]	APS
LEONCIA ACIERTO	[illegible]	APS
[illegible]	[illegible]	APS
EDUARDO [illegible]	[illegible]	APS.
KAREN DOCTOLERO	[illegible]	APS
MARILOU ZUNIGO	[illegible]	APS
William Reid	[illegible]	APS
EDITH A BRADHAM	Edith Bradham	APS
MILAGRINA DOCTOLERO	[illegible]	APS
PACITA B. ASPREC	[illegible]	APS
DELIA CAPILI	[illegible]	APS
RENATO PIPIT	[illegible]	APS
FEDELIZA DINA GALLETO	[illegible]	APS
WILMA L. ORILLE	[illegible]	APS
Vangie L. Viray	[illegible]	APS
REBECCA G. GALLETO	[illegible]	APS

Printed Name	Signature	Kodiak Processor
MARIBEL BUGAN		APS
Reynaldo Galleto		APS
UZAIMINDA ACOB		APS
JEMERSON ALBANO		APS
Teresita M. Fuentes		APS
CARLITO ORILLE		APS
ROMANTE COM		APS
ALDRIN B. ACIERTO		APS
TEOFILO L ORILLE		APS
Ronald Woodard		APS
Jamy Albin		APS
Joe Doctolero		APS
AMELITA W		APS.
CHRISTIAN MIRONA		APS
Jaclyn Villanueva		APS
Rhoel Valenzon		APS
GERRY SABADO		APS.
MARCO B SACULLES	Marco B Saculles	APS
Rustin Franklin		APS
Joel Macariola		APS
VICTORIA AGBAYANI		APS
FRANCIS ZUNAJO		APS

Printed Name	Signature	Kodiak Processor
TANYA GOLLOGLY	Tanya Gollogly	APS
Eden Grace B Yaban	Ebyaban	APS
ANNA LISSA I. DOMINGO	A.I.Domingo	APS
Beatriz A. Pica	B Pica	APS
Norma Ryan	Norma Ryan	APS
Edna Viray	Edna Viray	APC
FERNANDO ICMAT	F Icmat	APS
EDGARDO CAMACHO	Edcamacho	APS
ARTURO VILLANUEVA	Arthur Villanueva	APS
RODOLFO ABELLERA	Abellera	APS
LORNA SALONGA	Lsalonga	a.p.s
FREDELYN BASUEL	Fbasuel	APS

Printed Name	Signature	Kodiak Processor
VALERIANO M. ACIERTO		APS
EDUARDO MABAG		APS
ESTRELLA R. VILLANUEVA		APS
Luzviminda V. Basa		APS
MARIMONE SOBRINO		A.P.S
Mary Ann tornito		A.P.S.
ARALANDO M. DICTOLERO		APS
JEMann ALBANO		A.P.S

Re: Agenda Item C-1(b) – Final action GOA Halibut Prohibited Species Catch (PSC)

Dear Chairman Olson and members of the Council:

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Printed Name	Signature	Kodiak Processor
Moises Martinez		APS
Jose A Rosa		APS
VENANCIO J. SUBANO		APS
Norville G. dela Cruz		APS
EDGARDO VILLARTA		APS
Gildon DeGuzman		APS
JULIE DOCTOLERO		APS
ARLICE BOADO		
Victor Egida		APS
Clarina Egida		APS
Gealdina Camerino		APS
MADELYN ESTEBAT		APS
Leamar Demings		APS

Printed Name	Signature	Kodiak Processor
FERDELITO TABON	Ferdelito T Tabon	A-P-S
ADEMAR TABON	Ademar Tabon	A-P-S
Christopher	Christopher Tabon	A-P-S
Ronald James Tabigne	Tabigne	A-P-S
Mike T. Antonelli		A-P-S
Anthony Samonte		A-P-S
Salvador S. Cayo	SALVADOR CAYO	A-P-S
RICHARD DEAN A. TABIONE	Richard Dean Tabigne	A.P.S
DOMINADOR S. RAMELB, JR		A-P-S
NIKKO IMPAT		A.P.S
CECILIO CABALAR		A-P-S
Milesmarmos		A.P.S.
PEDRO TABON		A.P.S.
MICHAEL TABON	Michael	A-P-S
Jessie Dominguez		APS
MACARIO CABALAR		APS

Printed Name	Signature	Kodiak Processor
Ruby cabalar		
Manilda Tabon		
NILDA A. GANAL	NAGanal	APS
MEDARDO R. GANAL	MGanal	A. PS
MARCELO, ELSA	ESmarcelo	APS
Matthew Sauerland	Matthew Sauerland	A.P.S.
FEDA SANTIAGO		APS
Imelda morales		APS
CORAZON GALI	C. Gali	APS.
Natividad Zivira	N. T	APS
Patricia Gayo	P. Gayo	
Reynaldo Gayo	R. Gayo	
BERNADETTE FERNADO	Bfernado	APS
SENAIDA P. SANTIAGO	Senaida P. Santiago	APS
Amparo Mendez	AMM	APS
Antonio Tormeta	Atormeta	APS

Re: Agenda Item C-1(b) – Final action GOA Halibut Prohibited Species Catch (PSC)

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Printed Name	Signature	Kodiak Processor
MANOLO CABALLA	Manolo Caballa	Paula Seafoods
VICTORIANO SILCULES	Bacules	↓
ANTONIO PRIETO		↓
MARYLU Caballa	Marylu Caballa	↓
THERESA CABALLA	Theresa Caballa	↓
JOSE A. RODRIGUEZ		↓
Israel Beltran		Island Seafood
Medina		↓
Ana Mora	Ana Mora	↓
Lorena Beltran	Lorena Beltran	↓
Estela Beltran	Estela Beltran	↓
Maria O Portillo	Maria O Portillo	↓
Julia C. Ochoa		↓
Jesus Encarnacion Martinez		↓

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Printed Name	Signature	Kodiak Processor
IRENE ARRIAGA	Irene Arriaga	Pacific Seafood
YOLANDA TABOY	Yolanda Taboy	
SALVADOR CRUZ		
Tomasa A Cruz		
BLANCA CRUZ	Blanca Cruz	
JOSE MARTINEZ	JOSE V. M	
Juan Castillo	J Cas	
PEDRO Iraheta		
Agustin Iraheta		
Eliseo Velasquez		
JAYNARD MEDRANO		
CONRAD C MARTINEZ II		
CARLOS MARTINEZ		
Rafe Fangonilo		

Printed Name	Signature	Kodiak Processor
Rowena U. Fernandez		Island Seafoods
Marcelina Pa		↓
Lani Abayon		Island Seafoods
IMELDA S. LAPEÑA		Island Seafoods
TERESA TABOY	Teresa Taboy	Pacific Seafoods
CHARITO DAYRIT		Pacific Seafoods
Elsa Castro.		Island Seafoods.
ANTONIA ATIAS		Pacific Seafoods
Douglas Usaka		Pacific Seafoods
MARI ATIAS		↓
Deanna McDaniels		↓
Anuli Estamislao		Island Seafoods
Candelaria Rarama		Island Seafood
Wilhelma Medrano		Pacific Seafoods
William Medrano		Pacific Seafoods

Enrique Perez

Re: Agenda Item C-1(b) – Final action GOA Halibut Prohibited Species Catch (PSC)

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Printed Name	Signature	Kodiak Processor
[illegible]	[illegible]	UST
MARIA [illegible]	[illegible]	UST
[illegible] SALVADOR VILLARIN	[illegible]	[illegible]
[illegible]	[illegible]	
[illegible]	[illegible]	UST
[illegible]	[illegible]	
[illegible]	[illegible]	
[illegible]	[illegible]	
DIAZ VENCESLAO	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
WILSON VIADO	[illegible]	WESTWARD Seafoods
MARTHA ADAYON	[illegible]	[illegible]
MARINA P CALIBO	[illegible]	UST

Printed Name	Signature	Kodiak Processor
ALEX E. PEREGRINO		WSI
Eric Garcia		WSI
CESHAREL Valentes		WSI
THOMAFA NEGRON		WSI
MELCHOR OSAVC	OSAVC	
NOEL ELOPRE		WSI
Ron Ken Ponce		
Postor Castillo Pineda	Postor Castillo	
NATIVIDAD S. CANETE		
Carlos Alberto Triana		
CRISPES A. BACHILLI		
Delmy Romero		
Elvira L. DELA CRUZ		
RAFAELA AQUINO		
Amadito Lautano		
VERGILIO VALDEZ		
JULITA VALDEZ		
AHMED SEMIA		
Yordani Perez Delgado		
Ronny Sefo		
GABRIEL SARAVIA		WIS.

Printed Name	Signature	Kodiak Processor
Carmencita Limpahan	C. Limpahan	Westward Seafoods
ERMILINDA C. OBAS	[illegible]	Westward Seafoods
Nestoria P. Calibo	NPC.	Westward Seafoods
Merlina R. Tomas	M. Tomas	Westward Seafoods
NENITA P. OOZAMAS	[illegible]	WESTWARD SEAFOODS
Luzviminda ORTiz	L Ortiz	Westward Seafood
FRED MARAMBA	Fred Maramba	Westward Seafoods
NOEMI Pagsolingan	[illegible]	Westward Seafoods
[illegible]	[illegible]	Westward [illegible]
[illegible]	[illegible]	Westward Seafoods
Myo Khaing Than	Mykhaing	Westward Seafoods Inc.
Adam Abakar	[illegible]	Westward seafood in
Ali NaJiB	[illegible]	westword seafood
Helena Aquino	HAquino	Westword Seafood
Carmen Arellano	Arellano.	Westward Seafood
ORLANDO PAGSOLINGAN	Pagsolingan	Westward Seafood
Ruth Barbers	Ruth Barbers	Westward Seafood
Avelino Arellano	Arellano	Westward Seafood
Eufemia Aquino	E Aquino	Westward Seafood
Bonifacio Aquino	B Aquino	Westward Seafood
[illegible] M. Garcia	[illegible]	Westward Seafoods
Nenita Onales	N Onales	Westward Seafood

Kodiak Processing Plant Workers – Petition against any reduction in GOA halibut bycatch limits

Printed Name	Signature	Kodiak Processor
Evangelina T. Adrizar	Evangelina T. Adrizar	Westward
Rosalina Dela Cruz	Rosalina Dela Cruz	Westward
Elvino Dela Cruz	Elvino Dela Cruz	Westward
Natividad Elmundo	Natividad Elmundo	Westward Seafood
WILLING ALONZO	Willing Alonzo	WESTWARD
YOLANDA ALONZO	Yolanda Alonzo	WESTWARD
Sarelo Bawei	Sarelo Bawei	westwardseafood
Elie Cac	Elie Cac	westward
jorge	Jorge Cac	westward
CECILIA CORTEZ	Cecilia Cortez	WESTWARD
ASALIA LUCAS	Asalia Lucas	WESTWARD
AMELITA Valdez	Amelita Valdez	Westward
[illegible]	[illegible]	Westward
ALICIA DELA CRUZ	Alicia Dela Cruz	westward
OFRECINIA RALLAR	Ofrecinia Rallar	WESTWARD
GENET - Thomas	Genet-Thomas	Westward
Hiroyuki Kozuma	Hiroyuki Kozuma	WST

Fishermen's Finest

Fishermen's Finest, Inc.

1532 N.W. 56th Street ▪ Seattle, WA 98107
TEL: (206) 283-1137 ▪ FAX: (206) 281-8681

June 6, 2012

Mr. Eric Olsen, Chairman
North Pacific Fishery Management Council
605 W 4th Avenue, Suite 306
Anchorage, AK 99501-2252

Re: Agenda Item C-1(b): Gulf of Alaska Pacific halibut prohibited species cap (PSC)

Dear Chairman Olson,

Fishermen's Finest operates two trawl catcher processors in the A80 sector. Both of the vessels have fished in the Gulf of Alaska since the mid to late eighties, targeting on various rockfish and flatfish species, as well as atka mackerel and cod. We continue to target groundfish fisheries in the Gulf, even though regulations over the past twenty years have reduced access to many target fisheries. We would like to take this opportunity to comment on the proposed Gulf of Alaska halibut PSC reductions.

Halibut sideboards for the Amendment 80 fleet are based on the fleet's history in the Gulf from 1998 through 2004. The A80 fleet has not been able to achieve its sideboard history due to premature fishery closures. Prior to 2004, catcher vessels had few markets for the DW flatfish on which the CPs targeted. The second seasonal apportionment of DW halibut used to stay open well into May. The fishery was spread out in terms of time and location, without CPs racing. As shoreside markets developed for DW flats in 2004, the increased effort added pressure on the halibut. DW flats closed within the month of April – forcing all vessels to fish starting April 1st when the fish are not well aggregated, and as such, halibut rates are higher. Reducing the halibut will only exacerbate the status quo, since there will be even less halibut in each seasonal apportionment. (See Tables 4-23, 4-32)

We strongly urge the Council to be more deliberate and strategic in its actions to reduce trawl halibut bycatch consumption. This can be done without roadblocking the fleet from responsible bycatch avoidance practices, without reducing revenues, and without increasing halibut rates.

For example, when the A80 fleet was given the Groundfish Retention Standard, the Council understood that the fleet could not increase retention without the tools to end the race for fish. The groundfish retention standard was implemented in 2007, and the A80 coop structure was implemented in 2008. This was a rational way to induce the fleet to improve its practices.

Fishermen's Finest, Inc. to NPFMC
Agenda Item C-1(b): Gulf of Alaska Pacific halibut PSC June 6, 2012

We strongly urge the Council to not reduce halibut to the trawl fleet until the fleet is given tools to manage the halibut more effectively – by way of either deck sorting to reduce mortality, individual bycatch accounts, PSC cooperatives, or full rationalization. There are several more reasons not to reduce halibut at this time:

- Halibut abundance, in terms of numbers, are very high, especially since the 1987 and later year classes. High abundance logically means increased chances of interception for our vessels. If there was less halibut, we would see less incidental catch; this is not the case.
- The decreasing size at age issue has not been linked, either directly or indirectly, to incidentally caught halibut. While it does result in a reduced CEY/GHL for the directed and charter fleets, the groundfish fleets experience the same reductions in catch and revenue when TACs and Directed Fishing Allowances are reduced. Incidental catch needs to the non-directed fishermen are not adjusted downward just because there is less target opportunity for the directed fishermen. We would like to tell the pollock fleet to catch less rock sole, but so far we just haven't gone there. This may serve as a good precedent though!
- Starting in 2007, the A80 fleet was mandated to retain almost all the flatfish it caught, without regard to market consequences. We have mandatory retention limits whether the flatfish are spawning are not. Directed halibut fishermen balk at retaining fish smaller than 32 inches, citing that buyers don't want smaller fish. The 2011 Statewide ex-vessel price for halibut is $6.50/lb – certainly not the high end of the price; there will be a market for 26 or 28 inch fish. Lowering size limits, and coincidentally increasing retention, for this fleet needs to be further explored.
- The imposition of halibut reductions disproportionately affects the observed fleets. CPs have 100 – 200% observers on board when in the Gulf. CVs have 30-100%. However, the directed halibut and sablefish users self-report discards and bycatch, without adequate or any observer coverage. The fleet that self reports discards, does not have observers on board, and hi-grades by regulation, should not dictate our incidental catch needs.
- Finally, one of the more frequently cited hypotheses for the smaller size at age is competition - both within the halibut species itself, and between halibut and arrowtooth. It seems counter intuitive then to reduce bycatch. Reducing bycatch leaves more small halibut in the water, which creates more competition between halibut and also reduces targeted arrowtooth, another competitor.

Fishermen's Finest, Inc. to NPFMC
Agenda Item C-1(b): Gulf of Alaska Pacific halibut PSC June 6, 2012

We would like to recommend the following options which the Council should take positive action:

- A80 sideboards should roll from season to season. This allows us to get back to the management status quo under which all other fleets operate.

- We are not opposed to the CVs having their DW and SW sideboards combined after May 15th, however we are extremely disappointed that the Council did not reinstate combined sideboards for A80 in the 5th season, like the other fleets have and we are used to. The CVs have a competitive advantage over the CPs in 5th and now in the 2nd seasons where deep and shallow water halibut can be combined. This is a large competitive loss for us, and further reduces access to our sideboard history.

The most important recommendation we have for the Council is not to take halibut reductions at this time. If the Council is pressured to do so, then the reductions should not take place until some sort of rationalization is in place. If that is not a procedurally viable option, then reductions should not go into place until 2016, or 2015 at a minimum.

We also recommend that the qualifying years for a rationalization program have an end date of 2012, as everyone is on notice that rationalization is on its way, and the race for history will commence, if it hasn't already.

Thank you for taking the time to consider these comments,

Susan Robinson

Susan Robinson

Council motion
June 8, 2012
C-1 (b) Final action on GOA Halibut Prohibited Species Catch (PSC)

The Council adopts the following preferred alternative:

Alternative 2. Amend the GOA Groundfish FMP to remove setting GOA halibut PSC limits from the annual groundfish harvest specifications process. GOA halibut PSC limits would be established (and amended) in federal regulation.

Option 2. Revise the current GOA halibut PSC limits and write the new limits into regulation

Suboption 1. Reduce the halibut PSC limit for hook and line gear CP sector by:
c) 15%

Suboption 2. Reduce the halibut PSC limit for hook and line gear CV sector by:
c) 15%

(Combined, a 15% reduction to the non-DSR hook and line sectors is 44 mt.)

Suboption 3. Reduce the halibut PSC limit for trawl gear sector by:
c) 15% (267 mt)

The PSC limit for HAL demersal shelf rockfish in SE Outside District would also be reduced by 15% to 9 mt (1 mt reduction).

The 15% reduction for the trawl and non-DSR hook-and-line sectors would be phased in over three years, as follows: 7% (first year); additional 5% (second year); and additional 3% (third year). All reductions are reflected in the attached tables. In the third year and after, the revised total non-DSR hook-and-line halibut PSC limit would be 246 mt and the total trawl limit would be 1,705 mt.

Suboption 3.1 AFA/Am 80/Rockfish Program sideboard limits will be:
a) Applied as percentage against the GOA halibut PSC limit

Suboption 3.2.
Allow the Amendment 80 sector to roll unused halibut PSC from one season to the subsequent season (similar to the non-Amendment 80 sectors).

Suboption 3.3
Allow available trawl halibut PSC in the second season deep water and shallow water complexes to be aggregated and made available for use in either complex from May 15th through June 30th. Halibut PSC sideboards for the Amendment 80 and AFA sectors would continue to be defined as deep water and shallow water complexes in the second season.

NMFS will accomplish this by re-specifying halibut between the deep and shallow water complexes after the second season is complete to capture actual use.

Note: Any unused PSC will be rolled over to the complex to which it was initially assigned.

Trawl PSC limits resulting from the motion (phased in approach)

	Total allowance**	1st season January 20 to April 1	2nd season April 1 to July 1	3rd season* July 1 to September 1	4th season September 1 to October 1	5th season October 1 through December 31
Total Allowance						
seasonal share		27.5 percent	20 percent	30 percent	7.5 percent	15 percent
Total Allowance (7% Reduction)	1,848	508	370	554	139	277
Total Allowance (12% Reduction)	1,759	484	352	528	132	264
Total Allowance (15% Reduction)	1,705	469	341	512	128	256
Deep-water complex						
seasonal share		12.5 percent	37.5 percent	50 percent*	0 percent	
Option - 7% reduction	739	92	277	178 (or 370)		
Option - 12% reduction	704	88	264	160 (or 352)		
Option 3 - 15% reduction	682	85	256	150 (or 341)		
Shallow-water complex						
seasonal share		50 percent	11.1 percent	22.2 percent	16.7 percent	
Option - 7% reduction	832	416	92	185	139	
Option - 12% reduction	791	396	88	176	132	
Option 3 - 15% reduction	767	384	85	170	128	
Undesignated						
seasonal share						100 percent
Option - 7% reduction	277					277
Option - 12% reduction	264					264
Option 3 - 15% reduction	256					256

All values are metric tons, except where noted as percentages.

* Number in bracket is total allocation plus 191.4 metric ton rockfish program halibut PSC allocation.

** The current 2,000 MT limit is reduced by the 27.4 MT Rockfish Program halibut PSC reduction.

Complex and seasonal amounts are based on 2012 division of the overall amount

Hook-and-line PSC limits resulting from motion (phased in approach). Based on 2012 CP/CV division of total

	Total allowance	1st season January 1 to June 10	2nd season June 10 to September 1	3rd season* September 1 through December 31
Total Allowance				
seasonal share		86 percent	2 percent	12 percent
Total Allowance **(7% Reduction)**	270	232	5	32
Catcher Vessels (based on 2012)	161	138	3	19
Catcher Processors (based on 2012)	109	94	2	13
Total Allowance **(12% Reduction)**	255	219	5	31
Catcher Vessels (based on 2012)	152	131	3	18
Catcher Processors (based on 2012)	103	89	2	12
Total Allowance **(15% Reduction)**	247	212	5	30
Catcher Vessels (based on 2012)	147	126	3	18
Catcher Processors (based on 2012)	99	86	2	12

A80 sideboard limits

	Total sideboard	1st season January 20 to April 1	2nd season April 1 to July 1	3rd season* July 1 to September 1	4th season September 1 to October 1	5th season October 1 through December 31
Deep-water complex						
Option - 7% reduction	387	21	198	96	3	69
Option - 12% reduction	368	20	189	92	2	65
Option 3 - 15% reduction	357	20	183	89	2	63
Shallow-water complex						
Option - 7% reduction	126	9	35	27	14	42
Option - 12% reduction	120	8	33	26	13	40
Option 3 - 15% reduction	117	8	32	25	13	39

All values are metric tons, except where noted as percentages.

* Note: excludes rockfish program halibut PSC allowance and usage.

Rockfish sideboard limits

	July sideboard tonnage	
	Deep-water Complex	Shallow-water Complex
Option - 7% reduction	46	2
Option - 12% reduction	44	2
Option 3 - 15% reduction	43	2

* Excludes rockfish program halibut PSC allowance and deduction.

AFA non-exempt catcher vessel sideboard limits

	Total sideboard	1st season January 20 to April 1	2nd season April 1 to July 1	3rd season July 1 to September 1	4th season September 1 to October 1	5th season October 1 through December 31
Deep-water complex						
Option - 7% reduction	51	6	19	25	0	
Option - 12% reduction	50	6	18	25	0	
Option 3 - 15% reduction	48	6	18	24	0	
Shallow-water complex						
Option - 7% reduction	283	141	31	63	47	
Option - 12% reduction	269	135	30	60	45	
Option 3 - 15% reduction	261	130	29	58	44	
Undesignated						
Option - 7% reduction	57					57
Option - 12% reduction	54					54
Option 3 - 15% reduction	52					52

All values are metric tons, except where noted as percentages.