# IPHC Memo

**To:** IPHC Staff

**From:** Bruce

**Re:** Research Advisory Board meeting

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The RAB met on September 14th here in Seattle and was attended by John Woodruff (Icicle Seafoods), Dean Adams (Seattle harvester), David Boyes (B.C. harvester), and Arne Fuglvog (Petersburg harvester). Rob Wurm (Kodiak harvester), Blake Tipton (SM Seafoods, Ladner BC), and Gary Williamson (BC harvester) were not available.

The attached was the general outline for the meeting. We spent the morning reviewing 1999-2000 projects. This probably took too long and we may not do this in future, or relegate it to a mail-out prior to the meeting. However, we did delve into some issues in the review that paved the way for discussions in the afternoon. Four items in particular did come out of the morning session.

1. Prior hook injuries (PHI): RAB wants us to continue our efforts at documenting the occurrence of PHIs and education about careful release for other fisheries (e.g. Pacific cod). They also suggested some means to get at the magnitude of the problem in other fisheries via observer data, which we will pursue.

2. Surprise, chalky fish!. We will do another presentation to the annual meeting concerning background knowledge of the physiological processes leading to chalkiness. We are also pursuing evaluation of some stab-type pH meter for direct detection in plants.

3. The effects of changing gear in the halibut fishery following IQs. Many more vessels now fish for combinations of sablefish and halibut, and to a much lesser extent, P. cod and rockfish. This has resulted in associated changes in the type and quantity of gear used in harvesting halibut, particularly as it concerns hook size and spacing. The second major issue is the distribution and timing of fishing effort within the 8-month season. Pat and Suzanne Rebert looked at part of this issue for BC after Canada went to IQs but it may be time for us to look at this more intensively for Alaska. Associated with this is the issue of having skippers identify the target species for each set when interviewed by our port samplers.

4. The impact of prior fishing activity on our survey results. There was concern as to whether our surveys account for recent fishing activity within survey areas. The short answer is no but, by nature, the survey is only a snapshot in time and has its primary value in the sequence of observations over time. With the number of stations we need to occupy in any given year, it would be impossible to try and engineer fishing effort away from

stations, nor would we want to do that.  We are, after all, trying to get a picture of what is there at the time we are there.

The afternoon session was largely devoted to discussion of ideas brought forward by the RAB members for future research.  The following are the most significant suggestions brought forward and are listed without evaluation.

1.  Use of pots for the halibut fishery.  The main advantage of pots would be the ability to create restricted selectivity at both ends of the size spectrum through the use of escape panels and restricted entryways.  Concerns raised about their use included increased risk of flea predation, bycatch, ghost fishing, interference with other gear, and preemption of grounds.  Not being proposed at present but may be under consideration in Canada.

2.  Evaluation of 32-in size limit.  Particular concern is whether removal of the limit would result in shifted selectivity.  At present, we do not know the size composition of the commercial catch (only the landings) and base our understanding of the effects of removing the size limit on the size distribution of the survey catch.  The commercial fishery is also using combination gear (shorter spacing and smaller hooks than survey gear) in greater proportion since the advent of IQ management for sablefish and halibut. Since selectivity that shifts to smaller sizes with removal of the size limit would have negative effects on spawning biomass per recruit (but not on yield per recruit), it is important that we have a good estimate of the present size composition of the commercial catch.  This is important to the determination of whether a shift in size selectivity would require a shift in grounds or simply retention of what is presently caught, but discarded.

3.  More explanation of the relative impacts on the assessment of various data sources is required.  In particular, the impact of changes in both commercial and survey CPUE time series is not well understood by industry.

4.  Should a reward program for the recovery of lost gear be initiated?  The concern here is that lost gear is creating a cumulative problem that has impacts on distribution of fishing effort, hence CPUE.  Suggested that dedicated vessels or rewards to individual fishing vessels that retrieve lost gear could be implemented with industry funding and administered by IPHC.

5.  Discussion of the value of Marine Protected Areas (MPAs) and Local Area Management Plans (MPAs) in halibut management.  Noted that the effect depends on both the size of the MPA and biological basis for productivity.  The latter is related to whether there are benefits of the MPA or LAMP distributed outside their boundaries, and whether the changes within the MPAs or LAMPS arise from measures taken within them, from external events, or both.

6.  The IPHC length-weight conversion tables.  Quite a bit of commentary about seasonal differences but it was also noted that heading practices in plants may also have changed (i.e. longer heads being cut now → lower recovery), so any changes in seasonal length-weight that may have occurred are confounded by these potential changes in heading

practices. It was also noted that, if heading practices have changed, estimated catch removals from the stock might not be correct although the magnitude of the error was thought to be small. The estimation of impacts of changes in heading practices was thought to be a precursor to any discussion of seasonal estimations for length-weight conversion.

7. Aquaculture. Industry would like reports to the Annual Meeting from each country on their activities concerning Pacific halibut aquaculture.

8. Chalky fish. Oh my. Lots of discussion on this but it may be a bit like the weather – talk all you want, you won't change it. There was a suggestion for getting a better idea of spatio-temporal occurrence by tracking fish via CDN tail tags. We also outlined the pH meter work to be done this year and the development of a research plan that might be executed by others or submitted for contract funding.

9. Bird occurrence. We reviewed the recommendation for technology-based (camera/GPS) monitoring of the fleet in our contract report to NMFS. The Digital Observer project in Alaska, which plans to use image-recognition software for species i.d. as fish come over the rail (no, really…) apparently scored some big $$ in grant money. We were skeptical of the potential usefulness of this approach when we reviewed earlier this year.

10. A study of pre and post-IFQ commercial fisheries concerning effort distribution (space and time), CPUE, biological features of the catch, selectivity, etc. Basically, industry believes the fishery has changed a lot since IFQs and wants to ensure that the Commission analyses account for these potential changes.

Next step is censusing those RAB members who could not attend and then incorporating all views into a list of projects to go back to the RAB for comments and then forward to the Commissioners at the Interim. Approval at the Annual Meeting. Then we work our little tails off!

Table 1. List of projects proposed for 1999-2000

A.1   Discard mortality estimates
A.2   Prior hook injury (PHI)  study on setline surveys
A.3   Pacific halibut aging manual
A.4   Monitoring changes and discrepancies in application of aging criteria using otolith
       images in a computer paint program.
A.5   Break and Burn Percentage Agreement
A.6   Changes in assigned ages over time due to changes in application of criteria and
       equipment
A.7   Halibut otolith exchange with eastern Canada
A.8   Marginal increment analysis
A.9   Incidence of crystallized otoliths from the 1998-99 setline surveys.
A.10  Sport halibut fishery review
A.11  Review and analysis of historical IPHC tagging data
A.12  Historical documentation of halibut special experiments
A.13  Analysis of 1998-1999 special halibut experiments
A.14  Chalky halibut
A.15  The 2000 stock assessment
A.16  Development of a less variable harvest policy
A.17  Effect of survey frequency on variability of biomass estimates.
A.19  Misclassification of ages
A.20  Determination of the sex of landed halibut
A.21  Influence of near bottom ocean conditions on juvenile halibut growth
A.22  Rescue of IPHC hydrographic data back to 1935
A.23  Halibut Season Extension Report: Administrative issues
A.24  IPHC statistical area documentation
A.25  Review of port sampling project, 1994 to present
A.26  Commercial catch database
S.1   Time stratified sampling by observers for halibut viability and length
S.2   Comparisons of halibut viability data among observers
S.3   Update Halibut Viability Video Used in NMFS Observer Training
S.4   Hook-size/bait-size comparison
S.5   Mixed Bait (Salmon-herring-P. cod vs. salmon) Study
S.6   DNA development and evaluation
S.7   Graduate Assistantship
S.8   Update of NMFS trawl survey database at IPHC
S.9   Density-dependent and independent control of halibut growth and recruitment
       (IPHC staff)
S.10  Spatial and ontogenetic variability in the trophic status of Pacific halibut
S.11  Purchase and deployment of a water column profiler
U.1   Stable Isotopes
U.2   Feasibility study for monitoring bycatch of the short-tailed albatross in the Pacific
       halibut fishery off Alaska.
U.3   NMFS catcher vessel logbook and sablefish data collection

U.4    Geographic Information System

Table 2.  Research topics for 2000-2001

**Stock Assessment**

1. Tagging of halibut for determination of exploitation rate.  The analytic assessment model has difficulty differentiating between some fishery-induced and natural events because there is not enough information in any given data source to provide such discriminating power.  An independent estimate of exploitation rate (hence biomass) would provide such power and greatly improve the performance of the model.  We propose a major tagging program (probably for full implementation in 2002) to gain such an independent estimate of exploitation rate.  The program would employ coded wire tags (CWT) or possibly transponder tags (PIT tags) to avoid the need for an assumption concerning reporting rate for recovered tags.

2. Harvest policy.  We are continuing our research on harvest policy, both to incorporate growth and regime shifts, as well as both target and threshold reference points.  The purpose of this research is to evaluate harvest policy against a number of stock management objectives (stock size, catch, harvest rate).

3. Analytic treatment of the assessment for Areas 3B.

4. Risk assessment.  A graduate student may be funded to develop a risk assessment model for policy evaluation purposes.

**Other**

1. Hook-by-hook species composition sampling on surveys.  This project addresses the identification and evaluation of a subsampling program to determine if our survey data can be used for abundance indexing of species caught as bycatch.

2. Length-weight tables.  There has been considerable discussion about the accuracy of the Commission's length-weight tables.  We may undertake a project to review the potential for season-specific tables, in conjunction with an examination of conversion rates used presently in the fishery.

3. Impacts of fishery management measures in other fisheries on halibut bycatch.

4. Outline of a research program to address chalky fish.  The Commission does not have the expertise to execute a major program on, say, the physiology of chalky halibut. However, we believe the Commission should play a leadership role in developing the outline of a research program to address this problem.  The outline would cover spatial, physiological, technological, and utilization aspects of chalkiness.  This outline might then be turned over to a separate group or outside funding may be sought.  In either event, the Commission's role would be that of a sub-contractor, rather than as direct research.

In addition to these few projects, we have identified a great many "in-house" projects associated with data systems, ageing, and halibut biology, many of which are extensions or continuations of projects from Table 1.