

## SUMMARY AND BACKGROUND FOR THE SALMON FISHERY MANAGEMENT PLAN AND OVERFISHING CONCERNS

Two amendments to the Salmon Fishery Management Plan (FMP) have defined and determined the Council's response to overfishing for salmon stocks: Amendment 10, adopted in 1991, which provided the initial definition of overfishing, and Amendment 14, adopted in 2000, which expanded on the determination of overfishing and provided more specificity regarding the Council's response.

Amendment 10 defined overfishing as "...an occurrence whereby all mortality, regardless of the source, results in a failure of a salmon stock to meet its annual spawning escapement goal or management objective for three consecutive years, and for which changes in the fishery management regime offer the primary opportunity to improve stock status." If overfishing occurred, the Council was required to: "appoint a work group to investigate the causes of the apparent shortfall" and "...report ... its conclusions and recommendations ... to the Council." The FMP then specified: "For those actions within Council control, the Council may change analytical or procedural methodologies to improve the accuracy of estimates for abundance, harvest impact and maximum sustained yield (MSY) escapement levels, and/or to reduce ocean harvest impacts when shown to be effective in stock recovery to MSY levels. For those causes beyond Council control, the Council may make recommendations to those entities which have the control to change preseason prediction methodology (e.g., procedures established under *Hoh v. Baldrige*), improve habitat, and review and/or revise escapement goals." There was no specific requirement to determine the end of overfishing, just the above reference to "...stock recovery to MSY levels."

Amendment 14 established two categories to address overfishing, the Conservation Alert (CA) and the Overfishing Concern (OC). The CA addressed circumstances and actions required during the preseason process to prevent overfishing from occurring. The OC provided guidance on determining if overfishing had occurred, and how the Council should respond to that possibility or determination (Agenda Item E.1.a, Attachment 2). Amendment 14 defines an OC as "...if, in three consecutive years, the postseason estimates indicate a natural stock has fallen short of its conservation objective...". When triggered, an OC requires the Council to direct the STT and relevant agencies and tribes to complete an assessment to "... appraise the actual level and source of fishing impacts on the stock, consider if excessive fishing has been inadvertently allowed..., identify any other pertinent factors..., and assess the overall significance of the present stock depression with regard to achieving MSY on a continuing basis." The STT recommendations should include "...any needed adjustments to annual management measures... or ...adjustments to the conservation objective to... reflect the MSY or ensure rebuilding to that level" and "...actions that will recover the stock in as short a time as possible... and provide criteria for identifying stock recovery and the end of the overfishing concern." After reviewing the STT report, the Council will "...specify the actions that will comprise its immediate response for ensuring that the stock's conservation objective is met or a rebuilding plan is properly implemented and any inadvertent excessive fishing within Council jurisdiction is ended. The Council's rebuilding plan will establish the criteria that identify recovery of the stock and the end of the overfishing concern."

The OC provisions in Amendment 14 provide a process to determine the cause of spawning escapement (or other conservation objective) shortfalls before a declaration of a stock being overfished. This process is sensitive to the unique life history characteristics and habitat requirements of salmon, and the possibility of factors outside of Council control contributing to escapement shortfalls.

The language in Amendment 14 allowing a determination of the criteria to end an OC was intended to provide the flexibility to address specific circumstances associated with a particular stock and escapement shortfall. For example, stocks with subcomponents such as KRFC may have different considerations than a more homogeneous stock like North Lewis River fall Chinook, and age structure considerations of Chinook may be different than coho. The FMP clearly tasks the STT with the initial responsibility for assessing these factors and making recommendations to the Council, thus establishing a sound scientific basis for the Council's ultimate decisions on rebuilding. However, it should be noted that any prior determination on ending an OC may or may not be applicable to future OCs.

While the biological/technical aspects of OCs merit individual evaluation, the policy considerations for rebuilding stocks and ending OCs may warrant other approaches. Several instances of overfishing or triggering of an OC have occurred since Amendment 10 passed, including some retroactive application of the definition or criteria. However, the 2004-2006 KRFC OC is the first instance of the Council considering specific criteria for ending an OC.

A chronological summary of Overfishing/OC events leading up to the 2004-2006 KRFC OC is presented below with the recommendations of the various workgroups.

When Amendment 10 passed in 1991, Oregon coastal coho (OCN) had not met their escapement objective since 1986, so the Council formed a workgroup to review the stock status and make recommendations for assuring future productivity of the stock. The recommendations from their report included:

1. Develop an unbiased stock recruitment predictor;
2. Improve spawning escapement methods;
3. Reevaluate the spawner escapement goal;
4. Investigate alternatives to quota management;
5. Reduce coho non-retention fisheries;
6. Develop an ocean fishery mortality model that includes OCN;
7. Conduct sampling to determine seeding levels in OCN rivers;
8. Collect scales from ocean catches to estimate OCN contribution rates;
9. Develop a hatchery indicator stock(s) for OCN;
10. Develop a management strategy that is sensitive to changes in ocean conditions;
11. Evaluate use of supplementation techniques, and;
12. Restore habitat.

In 1990-1992, both KRFC and Sacramento River fall Chinook (SRFC) failed to meet their spawning escapement objectives, and the Council appointed separate workgroups to develop reports. The SRFC report recommendations included:

1. Refine predictor models for SRFC to ensure unbiased projection of the Central Valley Index (CVI);
2. Manage ocean fisheries for attainment of the SRFC escapement goal while recognizing low precision of management models;
3. Support for habitat improvement projects, and;
4. Support for hatchery marking and recovery programs to better estimate contribution rates.

The KRFC report recommendations included:

1. Review of the harvest rate policy in light of substock productivities;
2. Recalibration of the harvest rate model to reflect substock parameters and inriver/ocean harvest rate combinations;
3. Eliminate bias in ocean abundance projection models (e.g., using a zero intercept model);
4. Review hatchery/natural proportion projection methods;
5. Extend the spatial use of the KOHM;
6. When warranted, a) ensure achievement of the floor by use of quotas, b) set preseason management target above spawning escapement floor, and c) evaluate spawner deficit accounting;
7. Improve the allocation decision process;
8. Consideration of mark selective river fisheries;
9. Support for hatchery reform procedures, and;
10. Support for hatchery restoration activities.

For immediate implementation, the KRFC report recommended numbers 1, 2, 3, 5, and 6.

Between 1988 and 1995 a number of Puget Sound Chinook and coho stocks fell below their conservation objective and the Council appointed a workgroup to develop a stock assessment report. At that time, annual management objectives for Puget Sound and Washington Coastal stocks were developed by parties to the *U.S. v. Washington* and *Hoh v. Baldrige* court cases. These annual objectives were used to assess compliance with the FMP overfishing definition, as opposed to long-term MSY objectives as has been the case since passing of FMP Amendment 14 in 2000. The report recommendations were several pages in length and covered topics including habitat restoration, data needs, enhancement efforts, harvest management and forecast methods. Some of the pertinent recommendations were:

1. Expand and enhance use of the Chinook and coho Fishery Regulation Assessment Model (FRAM) for analyzing impacts from all fisheries on Puget Sound stocks;
2. Conduct postseason abundance and exploitation rate analyses to improve run prediction databases;
3. Review current escapement goals;
4. Develop a management plan for Puget Sound Chinook;
5. Develop FMP criteria for rebuilding Strait of Juan de Fuca (SJF) coho;
6. Review SJF coho preseason forecast methods for bias, and;
7. Adopt a range of escapement and exploitation rate target schedules for rebuilding SJF coho rather than relying on a single fixed escapement goal.

Amendment 14 to the Salmon FMP was adopted in 2000 to reflect the requirements of the 1996 Sustainable Fisheries Act, as well as conservation objectives for Puget Sound and Washington Coastal stocks that would be used to determine if an OC was triggered. Prior to Amendment 14, annual management objectives developed by the parties to *U.S. v. Washington* and *Hoh v. Baldrige* were used to determine if those stocks were overfished.

Queets coho were determined to have triggered an OC according to the new criteria adopted in Amendment 14 because they failed to achieve their conservation objective in 1997-1999, even though the stock had been managed under the annual management objectives used to determine overfishing in effect prior to Amendment 14 being adopted in 2000. The Council directed the STT to conduct a stock assessment to determine the probable cause of the escapement shortfall and recommend if a rebuilding plan and criteria to end the OC should be developed. The STT determined that the cause of the shortfalls were related to freshwater and marine environmental conditions and that harvest management factors did not play a role, and in addition the stock met the MSY escapement objective in 2000. The STT did make the following recommendations:

1. Criteria to end the OC and a rebuilding plan were not necessary;
2. A full status review would be necessary if 2001 escapement was below the objective;
3. The CA and OC provisions of the FMP combined with available forecast methods provided adequate protection against overfishing, and;
4. Review of the lower end of the spawning escapement range.

The Council concurred with the STT recommendations and no further action was taken with respect to Queets coho.

PFMC  
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