

SALMON AMENDMENT COMMITTEE ISSUE PAPER REGARDING ALTERNATIVES FOR AMENDMENT 16 TO THE SALMON FISHERY MANAGEMENT PLAN

After initial consideration of the alternatives adopted for public review at the September 2010 Council meeting, including preliminary preferred alternatives (PPA), the Salmon Amendment Committee (SAC) has the following comments and requests for further guidance from the Council.

Classification/Annual Catch Limits

Under the PPA for stock classification, all stocks currently in the salmon fishery management plan (FMP) remain in the fishery, therefore, all stocks that are not Endangered Species Act (ESA), hatchery, or internationally managed stocks must have annual catch limits (ACL). The far north migrating spring summer (FNMSS) Chinook stocks (mid-Columbia, Grays Harbor, Queets, Hoh, and Quillayute spring/summer Chinook) meet those conditions so ACLs must be specified. The PPA does not include these stocks as a complex with an indicator stock, so each individual stock would require an ACL. Information necessary to establish and evaluate ACLs include:

- Preseason: an adult equivalent (AEQ) abundance forecast and the ACL exploitation rate (F_{ACL}).
- Postseason: actual preseason AEQ abundance and a postseason estimate of exploitation rate (F_t).

Based on the level of information available, it appears that specifying ACLs for Mid-Columbia and some Washington Coast spring stocks may not be possible. The SAC has identified several potential solutions:

- Identify Classification Alternative 2 as PPA (including FNMSS Stock Complex with Hoh spring Chinook as an indicator stock).
- Eliminate FNMSS stocks from fishery – not in need of Council conservation and management measures, including essential fish habitat (EFH). These stocks have base period exploitation rates in Council area fisheries of less than 5 percent, and probably less than 1 percent, which would be similar to species like chum and sockeye.
- Designate FNMSS stocks as ecosystem component (EC) – similar to elimination from the fishery, but would allow continued monitoring and reconsideration, if appropriate.

Status Determination Criteria

Puget Sound Pink Salmon

Puget Sound Pink salmon is an aggregate stock managed under the Pacific Salmon Treaty (PST), which is not exempt from status determination criteria (SDC) requirements. Therefore an F_{MSY} estimate (or proxy) and an annual postseason estimate of realized F_t will be required to evaluate overfishing. The FMP specifies a conservation objective of 900,000 natural spawners (or management consistent with the PST); 900,000 could serve as a maximum sustainable yield spawning level (S_{MSY}) proxy for specifying the minimum stock size threshold (MSST) and assessing overfished, approaching overfished and rebuilt status. However, estimating F_t for this stock aggregate would be difficult. Several options exist for specifying SDC for pink salmon:

- Eliminate the stock from the FMP and defer management to state/tribal co-managers, subject to jurisdictional limitations (possibly limited to Washington registered vessels). This would allow co-managers to set retention limits for commercial and recreational fisheries, but would eliminate designation of EFH for pink salmon. However, EFH protection would remain as a result of EFH designations for Puget Sound Chinook and coho.
- Determine if it is possible to calculate an aggregate F_t to evaluate overfishing.
- Divide the aggregate stock into component stocks and set individual stock status benchmarks.

Preliminary Preferred Alternative Ambiguity in Overfished and Rebuilt Status

For the Council's PPA, a stock would be overfished when the three year arithmetic mean of S is below the MSST ($MSST = 0.5 * S_{MSY}$), and rebuilt when a single year S exceeds S_{MSY} . The structure of the PPA could result in a stock being simultaneously overfished and rebuilt, which is not operationally feasible. Metrics used to determine overfished, approaching an overfished condition, and rebuilt status should be symmetrical (i.e., all based on either 1 or 3 year metrics) to avoid ambiguous status determinations and provide consistent measures of stock status.

Appropriateness of Geometric or Arithmetic Mean

Given the inherent variability of salmon population abundance and the semelparous nature of their reproduction, the SAC has determined that population status is best described using a three-year metric. The most appropriate metric for this purpose is the one best suited for lognormally distributed abundance data. The geometric mean, not the arithmetic mean, is the most appropriate measure of central tendency for lognormally distributed data. Furthermore, the SSC has concluded that "...SDC be based on 3-year geometric means as they will be less subject to random error (noise) in the estimation and evaluation process" (SSC supplemental statement, September 2010). The geometric mean is currently used in other aspects of salmon assessment and management, including the ongoing status reviews of all ESA listed species being conducted by NMFS.

Washington Coastal and Puget Sound Coho: S_{MSY} and F_{MSY} Assumptions

In developing the draft Environmental Assessment (EA) for Amendment 16, the SAC initially used the midpoint of the escapement goal range of Washington Coastal coho stocks as an S_{MSY} proxy, and one half of that as the MSST. The midpoint was proposed because the Pacific Salmon Commission uses that reference point to determine categorical status for evaluating compliance with the PST's Southern Coho Management Plan (Annex IV, Chapter 5, December, 2008). Estimates of F_{MSY} have not been defined for coastal coho stocks by the tribal and state co-managers. As part of the Amendment 16 process, direct estimates of both F_{MSY} and S_{MSY} were developed from spawner-recruit analyses using escapement data for coastal coho stocks and ocean recruits derived from backward Fishery Regulation Assessment Model (FRAM) runs. The same method was used for the Queets and western Strait of Juan de Fuca coho overfishing reviews last year. The SAC requests guidance from the co-managers and Council on use of the F_{MSY} estimates as the basis for defining maximum fishing mortality thresholds (MFMTs), and use of the S_{MSY} estimates to calculate the MSSTs for coastal coho stocks.

For Puget Sound coho stocks, the SAC used the "normal" fishing mortality ceilings as estimates

of F_{MSY} to develop MFMTs for Amendment 16 Draft EA. The SAC requests guidance on the following two options for MSST:

- The escapement associated with the “low/critical” abundance breakpoint and the “low” harvest rate ceiling,
- Half of the escapement associated with the “normal/low” breakpoint and the “normal” harvest rate ceiling.

Actions When SDC are Triggered

The MSA requires implementation of an FMP, plan amendment, or proposed regulations within two years of a stock becoming overfished. The adoption of rebuilt SDC and *de minimis* fishing provisions provide a default rebuilding plan for salmon stocks; however, other actions may be necessary, or at least worth considering in the event a stock is determined to be overfished. The current FMP includes specific actions for when an overfishing concern is triggered, some of which could be carried over for implementation when a stock is determined to be overfished according to the new overfished SDC. The Council may want to preserve the flexibility to implement actions through either process - amendment or proposed regulations - depending on the specific circumstances; however the Council should indicate the actions to be taken if the various SDC are triggered. For **example**:

When a stock is determined to be overfished the Council shall require an assessment of:

- The role of fishing, scientific and management uncertainty,
- The ability to achieve rebuilding within ten years under the current control rule and rebuilt SDC,
- Management actions necessary to ensure rebuilding is achieved in the required time frame.

Pending the findings of the assessment, the Council also may:

- Consider if MSST and MFMT should be updated,
- Consider development of a rebuilding plan that includes measures or criteria other than what is included in the default rebuilding plan,
- Consider assessing the role of freshwater and marine survival in triggering the SDC.

When overfishing on a stock has occurred, the Council shall:

- Identify and, if possible, correct the cause of overfishing and ensure that current or future overfishing ends and is prevented. The STT will report in the SAFE document any instances of overfishing and identify the source(s) of mortality, and compare postseason exploitation rates with preseason expectations. The Council will then notify relevant management agencies so that they can respond to the overfishing appropriately.
- Implement AM(s) for when the ACL is exceeded, for those stocks/complexes that have ACLs specified. If overfishing occurs on these stocks, then the ACL will have also been exceeded. Therefore, AM(s) associated with exceeding the ACL will also be implemented if overfishing occurs on stocks with ACLs.

The SAC requests the Council consider the above **examples** and provide guidance on what actions should be included so the SAC can develop appropriate draft FMP language to be included in the next draft EA.

Annual Catch Limits

There were comments at the September meeting requesting consideration of using the tier limits in another way for stock complexes. Complexes by definition have components without directly estimated F_{MSY} , therefore it may be appropriate to consider using the lower of Tier 1 F_{ABC} ($0.95 * F_{MSY}$) or Tier 2 F_{ABC} ($0.90 * F_{MSY}$) for the indicator stock when accounting for scientific uncertainty. This would not change any of the proposed F_{ABC} levels in the three stock complexes identified in the alternatives because two (Central Valley Fall [CVF] and FNMSS) have Tier 2 indicator stocks, and the Klamath River fall Chinook (KRFC; indicator for the Southern Oregon/Northern California [SONC] Chinook complex) Tier 1 F_{ABC} (0.68) is lower than the proposed Tier 2 F_{ABC} (0.70). However, these circumstances could change as new information becomes available for KRFC or other potential indicator stocks (e.g., South Oregon Coast Chinook), or if the tier buffers are modified.

De minimis fishing provisions

The Council's motion for a PPA specified that the exploitation rate was "unspecified" below the midpoint of the conservation objective and MSST. The SAC has characterized the Council's intent as an unspecified reduction from the *de minimis* fishing mortality rate below that midpoint. For SRFC and KRFC the midpoints are 91,500 and 26,250, respectfully. The SAC asks that the Council confirm or clarify their intent for the *de minimis* fishing PPA.

Schedule for Final Council Action

The Council has delayed taking final action on Amendment 16 until after the November 2010 meeting, and should consider a revised schedule. Final action in November was delayed because the draft EA would not be sufficiently complete in time for the November briefing book; specifically, the affected environment (Chapter 3) and analysis of alternatives (Chapter 4) were incomplete, and FMP language for the PPA could not be completed in time. Given the workload associated with the preseason planning process and other commitments, it would be difficult to complete these tasks before the June 2011 meeting. However, the SAC believes that final Council action in June 2011 would allow sufficient time to complete the draft EA, accomplish all of the internal review and comment processes, and have the final proposed rule published by March 1, 2012, in time for the 2012 preseason planning process.

PFMC
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