SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON FMP AMENDMENT 15 – *DE MINIMIS FISHERIES*

Ray Beamesderfer presented the analytical work undertaken to date for evaluating the biological effects of the various alternatives for *de minimis* fisheries on Klamath River fall Chinook salmon. Other members of the team presented economic analyses. The Scientific and Statistical Committee (SSC) commends the team for the amount of work accomplished since the last Council meeting, but notes that the work is not yet complete.

The general biological analysis approach is to define a range of options and then simulate the outcome of these management measures. These options included *de minimis* age-4 ocean impact rates of 16, 10, 5 and 2.5 percent as well as a sliding scale alternative. An alternative approach taken was to define the proportion of years in which to exceed the target, and then find a rate that achieves that goal. The larger the constant *de minimis* rate, the more often *de minimis* fisheries occur, and whenever *de minimis* fisheries occur, the projected post-fishing natural spawner escapement is less than 35,000.

The base model presented was roughly equivalent to Model 2 of the "Klamath River Fall Chinook Stock-Recruitment Analysis" report, as was suggested by the SSC at the June 2006 Council meeting, although there were some analysis errors which need to be addressed. Random changes and trends in in-river survivorship should be included in simulations, which will allow consideration of future changes in the state of the Klamath River basin.

The current analysis adequately models the difference between management action and implementation, i.e. target F and actual F, although including autocorrelation in this relationship would lead to more realistic results. Accounting for errors in preseason abundance estimation when setting target F would further increase the realism of the simulations.

The hindcast analysis does not include dynamics and therefore does not reflect the full effect of changes in management strategies. For this reason the utility of this analysis is limited to a lower bound estimate of the frequency of *de minimis* fisheries which would have occurred under different management regimes.

The modeling exercise used to analyze the alternatives does not capture all the important issues. For example, the Klamath fall Chinook stock consists of several smaller populations, and low composite spawning escapement could lead to localized extinction and/or damage to long-term productivity due to inbreeding depression. Even with the introduction of depensation, the Ricker stock-recruit model may underestimate threats to the stock. For example, with the model it is impossible for the stock to go to extinction. Nor does the model reflect differences in fecundity with spawner age. The sensitivity analysis presented to the SSC consisted of one "pessimistic" alternative with a combination of factors which appears unrealistic. More realistic sensitivity analyses should be undertaken including such issues as changes in freshwater production and a stronger form of depensation.

The economic analysis would be made more clear by improved organization and should include analysis and some discussion of short-term vs. long term trade-offs. The SSC reiterates that this

analytical approach is adequate for the comparison of the various alternatives, although the absolute numbers arrived at will be highly dependent upon the model assumptions. Given these concerns, at present only relative comparisons and outputs should be emphasized.

PFMC
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