

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON  
FISHERY MANAGEMENT PLAN AMENDMENT 11—SARDINE ALLOCATION

Dr. Sam Herrick presented results from an economic analysis of the preliminary alternatives in "Allocation of the Pacific Sardine Harvest Guideline." The economic analysis projects differences among alternatives in processor revenues net of variable costs. The five-year projections are based on monthly landings in 2004 for each area in the analysis: Southern California, Northern California, and the Pacific Northwest.

The economic analysis assumes that monthly landings increase by 10% per year for each area. Dr. Herrick reported that 10% per year was the "expected" value of participants at a meeting of the Coastal Pelagic Species Management Team in February 2005, but this value appears not to have an empirical basis. Discussion by the Scientific and Statistical Committee (SSC) identified several factors that could affect the 10% value, including changes in market conditions, changes in climate, changes in stock abundance, and the overall harvest guideline or availability of quota. Therefore, the SSC recommends sensitivity analysis for this value, both by area and season. The SSC also noted the implications of projected landings for salmon bycatch, but this topic was not part of the presentation, and not formally discussed. Monthly landings were projected under low, medium, and high harvest guidelines, summarized annually by sector, and were used to identify each area:

- Shortfalls in landings in metric tons.
- Months with shortfalls.
- Months with zero allocation following months with shortfalls.

Evaluation was done using comparisons of estimated processor revenues net of variable costs, which was defined in the analysis as producer surplus. These comparisons are based on several restrictive assumptions for processors. As stated above, a sensitivity analysis is recommended to explore the effects of the following assumptions on the outcome of the analyses:

- Constant product prices, product mixes, and unit costs for variable inputs (e.g. energy, ice, ex-vessel prices for sardines) over the five-year projections.
- Perfectly competitive markets.
- Capital costs are not affected by any of the factors in the economic analysis including assumed growth in landings, specifically the emerging Pacific Northwest sector of the sardine fishery.

Data for costs and revenues were taken from a sample of processors in each area. While an attempt was made to survey "large" processors, the representativeness or coverage of the sample in each area is unknown. The SSC notes the survey methodology and data would benefit from additional review by the SSC and coastal pelagic species advisory bodies. In addition, the SSC has concerns about several aspects of the economic analysis including:

- The treatment of capital costs, such as buildings and equipment, as fixed over the five-year projections.
- The assumed independence of variable costs and product prices from the scale of production, for example 10% growth per year.

Capital costs could vary among areas and alternatives. Current processing capacity may be sufficient to accommodate the assumptions of projected growth in each area of the analysis, but the SSC recommends further analysis. Regarding independence from the scale of production, the SSC recommends that various assumptions in the economic analysis be checked for consistency with assumptions of the market equilibrium model that is being used as an analytical framework. The SSC also recommends that extreme cases in the analysis receive further attention, such as those associated with the low harvest guideline, or alternatives that allocate substantially more quota to the northern area.

The SSC encourages further economic analysis to evaluate effects of these alternatives on income and employment in fishing communities. To improve this economic analysis for decision-making, the SSC recommends:

1. The survey methodology and data be documented and reviewed.
2. Sensitivity analysis be conducted for assumptions about growth and capital costs in each area under different alternatives.

If a review of the survey data cannot be done before the June Council meeting, the SSC recommends using only the projected effects on landings and ex-vessel revenues from the economic analysis of alternatives.

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