SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON
CABEZON AND LINGCOD STOCK ASSESSMENTS AND LINGCOD REBUILDING
ANALYSIS FOR 2005-2006

Cabezon

The Scientific and Statistical Committee (SSC) reviewed the cabezon stock assessment document (Exhibit D.6, Attachment 1, November 2003) and the cabezon STAR Panel report (Exhibit D.6, Attachment 2, November 2003).   First, it was noted that the panel report recommended incorporating "model" uncertainty into the stock projections by combining results from nine models that systematically varied the natural mortality rate (M = 0.20, 0.25, and 0.30) and stock productivity (h = 0.7, 0.8, and 0.9) parameters.   The SSC endorses the cabezon stock projections that are based on the "Posterior distribution (nine analyses)" in Table 12 (page 53) of the stock assessment as a sensible attempt to integrate model uncertainty into the analysis. However, the committee notes that the calculation is an *ad hoc* solution to the problem, and a full Bayesian analysis would be much preferred.

It was further noted that the time series of California commercial passenger fishing vessel (CPFV) logbook data in the cabezon stock assessment model begins in 1960, which is the earliest year of data that was provided to the Stock Assessment Team (STAT) Team as they prepared for the assessment.   However, the CPFV logbook data set actually begins at least as early as 1947, and an analysis of CPFV logbook records that was conducted by the SSC at the meeting shows that the highest recorded catch of cabezon in the CPFV fishery occurred prior to 1960 and that CPFV catch rates of cabezon were also highest prior to that date (see attached figure).   The SSC was concerned that these data could have a considerable influence on the estimate of stock depletion and, as a consequence, recommends that the CPFV logbook data be re-assembled, evaluated, and, if appropriate, included in the assessment model.   In particular, the total recreational catch of cabezon may have been trending down during the 1945-1960 period, rather than being a constant 25 mt per year as modeled in the assessment.

Two members of the cabezon STAT Team were present during the SSC's discussion, and they indicated a willingness to revise the analysis and submit their findings to the SSC Groundfish Subcommittee for review prior to the March Council meeting.   In the interim, because of the increased uncertainty about the estimate of depletion from the cabezon model, the SSC recommends the Council adopt a preliminary optimum yield (OY) that would keep the spawning biomass stable over the medium term.   Results presented in the right hand column of Table 12 (page 53) of the assessment document, under the heading $F_{50\%}$, show that median harvest levels for the next seven years (2004-2010) range from 80 mt to 85 mt.   Because this "control rule" is a constant harvest rate option, with no precautionary adjustment, over that time frame cabezon stock size should not decline any further if harvested at this level.

Lingcod

The SSC also reviewed the lingcod stock assessment document (Exhibit D.6, Attachment 3, November 2003) and the STAR Panel meeting report (Exhibit D.6, Attachment 3, November 2003).   Based on an examination of the parameter files in the assessment document, it became

apparent that a key parameter (recruitment variability) was mis-specified. As a consequence, recruitment variability was likely to have been too small in the rebuilding projections. If this parameter is re-specified, this would be expected to affect the OY values presented in the projections (e.g., Table ES2, page 7 of the assessment document).
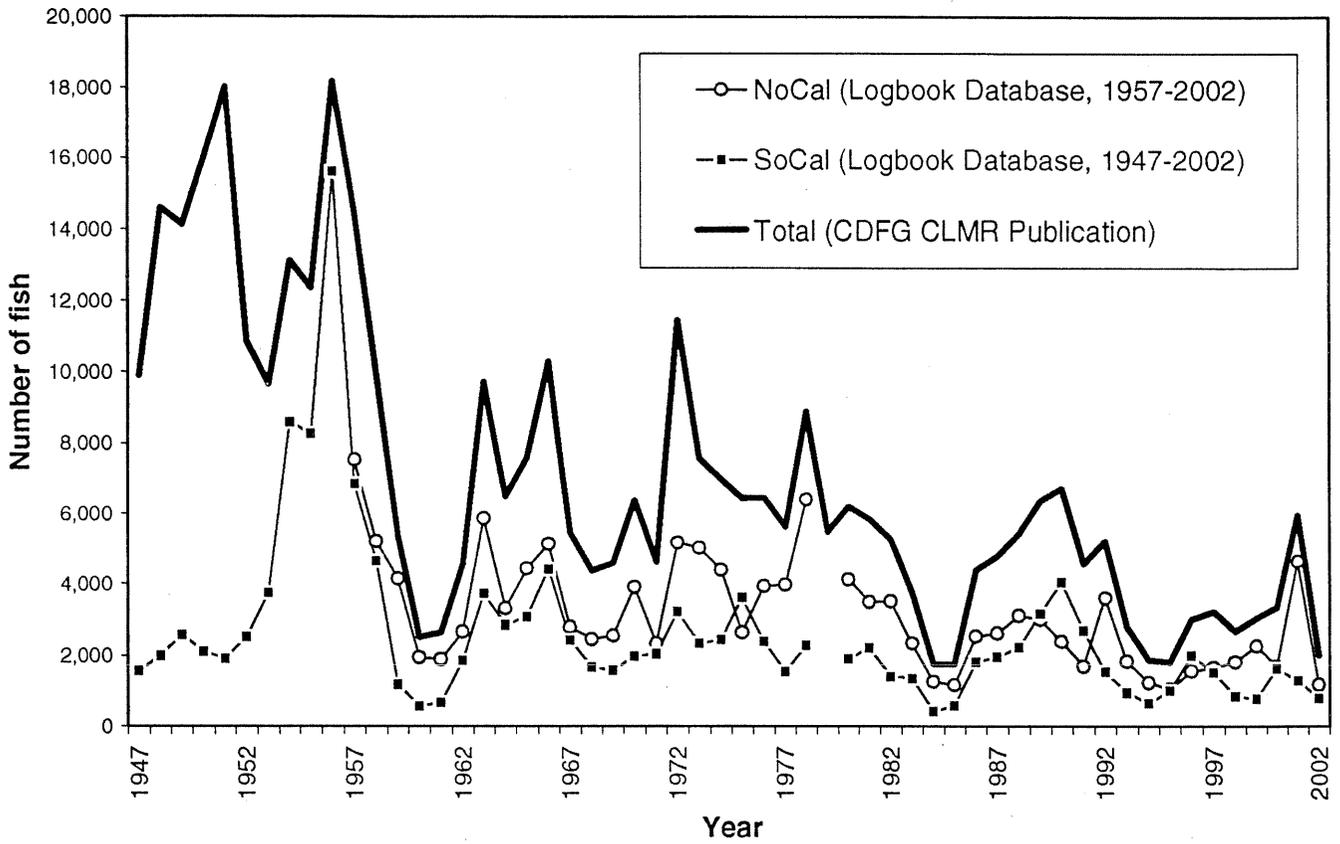
Moreover, this parameter mis-specification could have influenced the decision of the STAR Panel to adopt a lingcod model that incorporated dome-shaped selectivity patterns, rather than asymptotic selectivity as in the 2000 assessment model. Consequently, the SSC recommends the current model be re-evaluated, specifically with respect to the recruitment variability parameter and the improvement in fit that accompanied the shift to dome-shaped selectivity curves. Likewise, stock rebuilding should be re-calculated using the revised model.

This will not be an inconsequential effort, although the lead assessment author indicated a willingness to evaluate the issues involved. As with cabezon, the SSC Groundfish Subcommittee agreed to review any revised analyses that may come forth prior to the Council's March 2004 meeting.

Lastly, the SSC discussed how to treat the lingcod results with respect to management areas (distinct north and south projections versus a "coastwide" projection). For the previous rebuilding analysis, the two separate lingcod models (LCN and LCS) were each used to project stock rebuilding in their respective areas, and the coastwide OY was simply calculated as the sum of the two components. The SSC continues to endorse the calculation of a coastwide OY as the sum of yield projections from the two area models because separate biological characteristics are maintained and explicitly incorporated into the modeling. Even so, the LCN and LCS models could be used individually to evaluate different management options for utilizing the combined coastwide OY. This approach might be particularly useful in accounting for different levels of depletion and/or productivity in the northern and southern areas.

PFMC
11/05/03

Cabezon Removals by California CPFVs

Number of fish (y-axis): 0 – 20,000

Legend:
- NoCal (Logbook Database, 1957-2002)
- SoCal (Logbook Database, 1947-2002)
- Total (CDFG CLMR Publication)

Year (x-axis): 1947 – 2002

Cabezon CPUE from CA CPFV Logbooks

CPUE (Catch per Angler-Hr) (y-axis): 0.00 – 1.00

Assessment index begins in 1960

Legend:
- NoCal
- SoCal
- Statewide

Year (x-axis): 1947 – 2002