SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON
CLIMATE VULNERABILITY ASSESSMENT REPORT

Dr. Michelle McClure (Northwest Fisheries Science Center) briefed the Scientific and Statistical Committee Ecosystem Based Management Subcommittee (SSCES) on the National Marines Fisheries Service (NMFS) Climate Vulnerability Assessment framework, and the results of its application to species in the California Current Ecosystem at its meeting on September 11, 2017. The SSCES reported on its review to the Science and Statistical Committee (SSC).

The framework includes factors that determine the sensitivity of species to climate effects, the exposure of species to the consequences of climate change, and the capacity of species to adapt to climate effects. The species of highest risk are those that are exposed to the consequences of climate change, are highly sensitive to climate effects, and are unable to adapt. The framework is a component of the NMFS Climate Strategy and is being applied nationally.

The framework summarizes the available material in a systematic way, but is based primarily on expert judgement. The SSC had concerns about the use of criteria based on life history characteristics, population growth rate, and depletion levels. These criteria are relevant to understanding stock status, but may not reflect vulnerability specific to climate. A useful exercise would be to recalculate vulnerability scores with these criteria excluded. Validating the framework is currently not possible, but future applications could lead to refinements to the factors considered, how they are scored, and how they are ranked.

The SSC expected that coastal pelagic species would be classified as more at risk to climate effects while the rankings for rockfish appeared overly high owing to the use of the criteria on stock status. In addition, adding scores by criterion together to produce a final score may mask situations in which a species is very highly sensitive, but only on one criterion. The SSC consequently recommends that analysts examine the scores for individual criteria.

The framework can be applied at a finer taxonomic scale than species, which has been done for salmon. The outcomes for salmon at the evolutionary significant unit (ESU) level are broadly similar to those at the species level, but among-ESU variation in relative risk is clear.

In general, the framework is appropriate for ranking species in terms of their vulnerability to climate change although the criteria should be restricted to those that directly relate to such vulnerability. The framework is qualitative and does not provide estimates of extinction risk or predicted likely trajectories of population size. Care therefore needs to be taken when interpreting the results from the framework. The SSC considers the framework to be a triage tool. Ideally, more focused and quantitative analyses should be conducted for species identified to be at high risk. The value of the framework will be enhanced if applied at regular (5-10 year) intervals, and subsequently used to identify priority species for monitoring.

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