SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON PROGRESS REPORT ON USING DESCENDING DEVICES TO MITIGATE BAROTRAUMA IN RECREATIONAL FISHERIES

Mr. John Budrick (California Department of Fish and Game), Ms. Heather Reed (Washington Department of Fish and Wildlife), and Ms. Lynn Mattes (Oregon Department of Fish and Wildlife) presented the current status of the GMT analysis of alternative rockfish mortality rates associated with the use of descending devices (Agenda Item I.3.b, GMT Report).

The GMT provided a review of the research informing alternative mortality rates associated with the use of descending devices to mitigate barotrauma effects on cowcod and yelloweye rockfish. Key uncertainties identified in the GMT's progress report include the effect of depth of capture, limited species-specific research on cowcod and yelloweye, the effect of time on deck, the effect of thermal shock (e.g., temperate gradient across the thermocline) and, significantly, long-term mortality and potential negative effects to reproduction and productivity. These uncertainties led the GMT to use proxy species to develop cowcod and yelloweye mortality rates and extrapolate empirical evidence spatially (e.g., to deeper depths) and temporally (i.e., presuming longer-term mortality rates from apparent survival for individuals at up to 10 days).

The SSC discussed the specific questions to the SSC in the GMT's progress report and offers the following recommendations.

1. Are the research results cited sufficient to develop mortality rates for cowcod and yelloweye released using descending devices at the depths provided in this progress report?

The SSC believes the available scientific evidence is sufficient to assume increased survival of cowcod and yelloweye released with descending devices in recreational fisheries. Given the large uncertainty in estimating long-term effects of barotrauma, the SSC recommends conservative buffers be considered in developing cowcod and yelloweye mortality rates associated with the use of descending devices. The SSC was unable at this time to recommend a particular methodology for determining appropriate mortality rates or how large a precautionary buffer should be given our limited understanding of barotrauma effects. The SSC recommends the GMT provide a more coherent analysis with better rationale for alternatives in the next iteration of their progress report. The GMT should identify a preferred methodology/alternative for SSC and Council consideration.

2. What are the research and data needs to better inform the development of mortality rates of cowcod and yelloweye using descending devices?

Ideally, species-specific research with longer-term studies of cowcod and yelloweye survival could reduce much of the current scientific uncertainty associated with the use of descending devices when releasing these species in recreational fisheries. While expensive, research using

pop-up archival tags could improve our understanding of longer-term survival of rockfish when recompression occurs from the use of descending devices.

3. Given the uncertainty in mortality rates from barotrauma studies conducted to date, what level of precaution should be considered for applying a survival rate credit for anglers using descending devices?

A better characterization of the uncertainty in mortality rates from barotrauma studies conducted to date should include uncertainty in longer-term survival than the few fish observed for up to 10 days in the Wegner et al. study, depth of capture, the differential in temperature between the bottom and the surface, the time on deck, and the degree of rough handling by recreational anglers, which may be presumed to be greater for inexperienced anglers relative to that for researchers conducting barotrauma studies. Given that the uncertainty in barotrauma survival associated with the use of descending devices is relatively large, conservative buffers in applied mortality rates should be considered. This is especially important as greater fishing opportunities are considered based on applied "survival credit." Adequate precaution should be considered until population level effects and longer-term survival are better understood.

4. If survival credit is given, there will be necessary changes to recreational surveys to document the proportion of rockfish by species released using descending devices. Are the current sampling rates sufficient to gain a representative sample of the use of descending devices by fleet?

It will be important to gain a representative sample of the proportion of anglers using descending devices by mode and species to adjust catch and release mortality estimates. Proportional use by mode is important since it may be unrealistic to expect private boat anglers to have the same level of expertise as charter skippers and crew. Proportional use by species is important since research conducted to date indicates some species (e.g., blue and bank rockfish) may be more sensitive to barotrauma effects than others. Also, some species, such as shallow nearshore rockfish and yellowtail rockfish, may not require recompression upon release given their resilience to barotrauma, which could bias survey results if the surveys simply asked if descending devices were used in discarding all rockfish. Therefore, quantification of the overall effects of descending device use will require additional questions in surveys, which come at the cost of fewer individuals answering the surveys. Optimizing the length of the survey and obtaining information that can be used to effectively account the discard mortalities of released rockfish will be an important consideration in implementing this initiative. Careful account also needs to be taken of potential biases in survey responses.

The SSC encourages more research on the use of descending devices to mitigate barotrauma in rockfish released in west coast recreational fisheries. Until there is better information on long-term survival of cowcod, yelloweye, and other rockfish species released using these devices, conservative mortality rates should be assumed. Nevertheless, the SSC supports this initiative and agrees that rockfish survival benefits will accrue through the effective use of descending devices.