WASHINGTON DEPARTMENT OF FISH AND WILDLIFE REPORT ON
NORTHERN BLACK ROCKFISH STOCK ASSESSMENT

After reviewing the final northern black rockfish assessment, and the parameters that were specified and estimated in the model, the Washington Department of Fish and Wildlife (WDFW) has comments on two items: 1) the management structure of black rockfish; and 2) the different models presented in the assessment.

On the management structure, as WDFW has mentioned previously to the Council, a genetic study conducted in 1995-97 reinforced findings from a major tagging study that there are two separate black rockfish stocks, north and south of Cape Falcon, Oregon. The Groundfish Management Team then estimated the amount of the stock located between Cape Falcon and the Oregon/Washington border and, for ease of management, transferred that amount from the northern assessment area to the south. Based on the results of this genetic study and past management practices, WDFW recommends that the Council continue with this approach, specifying separate acceptable biological catches and optimum yields for northern and southern black rockfish stocks.

With regard to the models used for northern black rockfish, they include parameters that the Stock Assessment Team (STAT) specified (i.e., hard-wired) in the model and those that were left unspecified, thus allowing the model to estimate those values. Specified parameters included natural mortality and parameters associated with recruitment (e.g., steepness and sigma R). Unspecified parameters included the coefficient of catchability (q) for the WDFW tagging survey.

In the base model, q is estimated by the model to be 0.8, which suggests that WDFW's tagging survey encounters 80% of the northern black rockfish stock biomass, which is highly unlikely. Beginning in 1998, WDFW implemented a new black rockfish tagging program off the central Washington coast. From a geographic perspective, the area covered by the tagging program represents approximately 36 nm of coastline, or about 22% of the assessed area (see Attachment 1). In addition, tagging activities occur out of Westport and are focused in nearshore areas that are typically < 10-15 fm, in order to reduce the amount of mortalities associated with barotrauma, whereas black rockfish are distributed past 30 fm. Because the tagging area extends along 22% of the assessed area coastline and does not cover the full depth of the black rockfish range, WDFW believes that q is probably closer to the 0.3 specified in the initial STAT (pre-STAR) base model, rather than 0.8 specified in the post-STAR base model.

With regard to the Decision Table, the STAR Panel requested that the STAT Team profile around natural mortality (M) values to capture a reasonable range of uncertainty about stock abundance. For the lower end of this range, they chose values for M that were in the draft southern black rockfish assessment (which has yet to be completed, reviewed, and accepted). However, as it is presented, it appears as if all of the scenarios in the Decision Table are equally likely to represent "possible true states of nature." We believe all scenarios presented are not plausible for northern black rockfish. The age and growth data that we have collected over the

past 25 years do not support the low natural mortality scenario, which is why the low M values do not fit the model well (see Figure 1).

Figure 1.
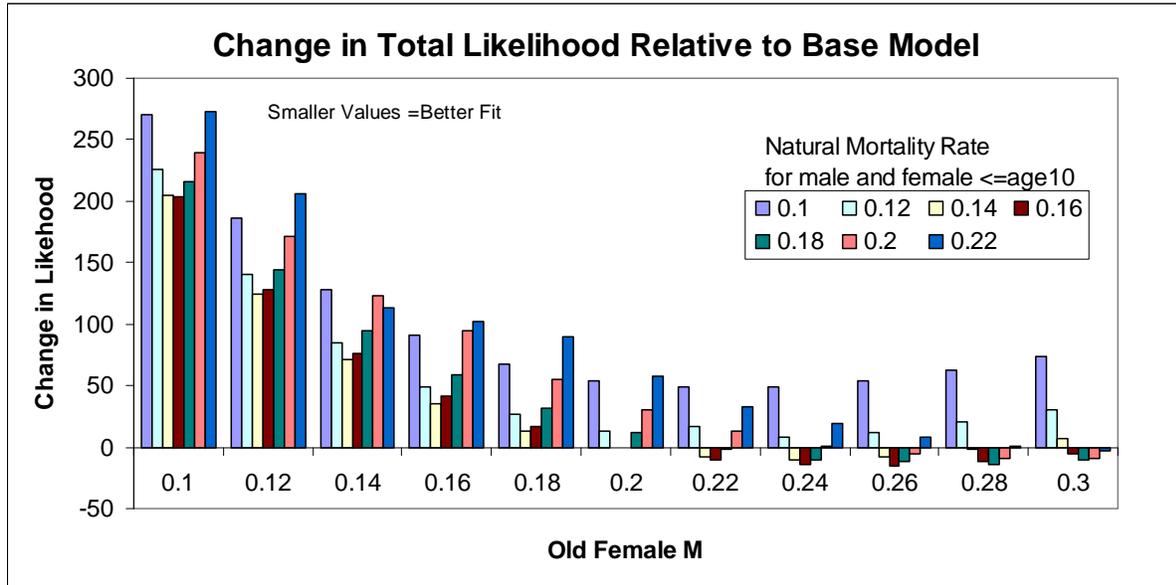
The "Best Fit" model, however, includes M values that are more consistent with the age and growth data we have collected. In the "Best Fit" model, q is still high—estimated to be 0.62—but is still closer to what we believe occurs in the tagging program.

WDFW would also like to stress that there are potential consequences, which may not be readily apparent, to selecting a harvest yield from an assessment and how that translates into the endorsement of a particular model. As specified in the Terms of Reference (TOR), updates cannot introduce new information; therefore, regardless of which model results are adopted for management by the Council, the parameters for that model then automatically carry forward into future updates, and could potentially influence future full assessments. When the Council selects a harvest yield that it believes is appropriate, that appears to get translated into the Council's endorsement of that particular model and the values of the parameters used in that model. Given this approach, it becomes extremely important that STAT Teams give thorough consideration of the parameters specified and the values used, and that the STAR Panel and Scientific and Statistical Committee pay particular attention to how well those parameters "fit" into the model when structuring their recommendations.