2016 SEDAR 21 (Dusky Shark) Update Assessment Review

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Terms of Reference and Responses

1) Evaluate whether the assessment updated all data inputs (to 2015) used in the SEDAR 21 base run and the four plausible states of nature identified in the SEDAR 21 peer review.

There were no changes to the data or methods used to calculated length or age compositions or selectivities from the previous SEDAR 21. Four of the standardized time series of indices of relative abundance (VMSLL, LPS, NELL and PLLOP) were updated with data through 2015. The BLLOP time series ended in 2013 due to regulatory changes introduced in 2014. The life history inputs were not updated in the 2016 updated assessment, as inputs are constant inputs and the methods were approved in the previous SEDAR 21. This is presumed to be appropriate based on the assumption that no new life history data have become available since the previous SEDAR 21, and that this SEDAR is an update assessment and updating life history parameters would be inappropriate at this time. The relative effort time series for the three fleets (BLL, REC and PLL) were updated through 2015.

2) Evaluate whether the assessment documented any changes or corrections made to the input datasets, if applicable, and provided updated input data tables.

The methods used to update the length/age compositions, selectivities and indices of abundance and effort were consistent with those used in the previous SEDAR 21. There were not changes to the data from the previous SEDAR 21, with the exception of including more years of data. All data were presented in the Tables 2.1-2.5.

3) Evaluate whether the assessment documented any changes or corrections made to the modeling approach and justified those changes, if applicable.

No changes were made to the model configuration from the previous SEDAR 21. The changes requested by the CIE reviewers of the previous SEDAR were incorporated in the uncertainty, allowing for alternative states of nature. The alternative scenarios are well documented in section 3.1.5, detailing how each scenario was implemented and the justification for the methods of sensitivity used (e.g., a U-shaped M curve, as shown in Table 3.2).

4) Evaluate whether the age-structured catch-free production model used was configured properly and used consistent with the approach and structure used SEDAR 21.

Based on the information provided in the updated assessment, the model appears to be configured properly and it is consistent with that used in SEDAR 21.

5) Evaluate whether the assessment provided updated parameter estimates and measures of uncertainty, updated estimates of stock status and management benchmarks (e.g.,Fcurrent/FMSY, SSBcurrent/SSBMSY, SSBcurrent/SSBMSST, MFMT), and updated projections of future stock status, as conducted in SEDAR 21.

The base model run updated (through 2015) parameter estimates (with standard deviation) are presented in Table 3.1, MSY quantities and management benchmarks in Table 3.6 and trends in some

benchmarks in Table 3.7. The stock status results from the alternative scenarios are presented in Table 3.5 with coefficients of variation and the results of the projections with each of the scenarios are presented in Table 3.8. (note that figures are also presented, but not listed here)

6) Considering that this assessment was an update and that, consequently, the data input streams, the stock assessment model, and the methods used to project stock status were constrained to be the same as those used in the previous SEDAR 21 benchmark stock assessment:
    a. Are the relative biomass and exploitation rate estimates reliable and consistent with input data and biological characteristics of this stock and useful to support inferences on the status of the stock?
    b. Are the conclusions on overfished and overfishing status justified?
    c. Are the results obtained from stock projections useful and robust to support inferences of probable future conditions?

The ASCFM does not fit the indices well, which was apparent also in the previous SEDAR. This is likely due to life history characteristics of the species, precluding large swings in abundance. Further, this update demonstrated that both the fishery dependent and independent indices may not sample the full population well, for example dome shaped selectivity of the LPS. The ASCFM is likely an appropriate modelling approach given the data limitations, and this approach has been supported by the previous SEDAR 21 CIE. The other data inputs (e.g., life history) are likely representative, and with the alternative scenarios, this assessment likely brackets the real state of nature. Thus, the methods used in this assessment seem appropriate for making inferences on the status of the stock. The conclusions regarding overfished status and overfishing activity are justified by the base model and the alternative scenarios. The projection results are robust to changes in input parameters and results in relatively similar future states, and support using the methods to infer probable future conditions.

7) Did the stock assessment update report include all the information required to evaluate the work undertaken?

The updated report was thorough and easy to read. While the previous SEDAR 21 was provided, enough information was presented in this updated assessment to allow me to fully understand and review it without having to refer to the previous review. I did go back to the previous SEDAR 21 document, however, it was unnecessary.