CEFAS
The Centre for Environment, Fisheries & Aquaculture Science

Review of 2005 Red Snapper revised Assessment Summary Report

for

University of Miami Independent System for Peer Review

June 2005

CEFAS Contract C2327

COMMERCIAL IN CONFIDENCE

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Executive Summary

The review workshop for SEDAR 7, Gulf of Mexico Red Snapper (*Lutjanus campechanus*), took place in New Orleans, Louisiana, from April 4 through April 7, 2005. At that time, the review panel decided that a different assessment approach should be used. Subsequently, the assessment team developed a revised assessment summary report that follows this recommendation. This report reviews the revised assessment summary report to evaluate consistency with review panel's previous recommendations, at the request of the Center for Independent Experts. The report also reviews the assessment summary report's recommendations for management criteria under the Sustainable Fisheries Act.

(1) Review the red snapper assessment summary report and determine whether the report accurately represents the recommendations made by the review panel during the April 4 - 7, 2005 review workshop.

The review panel had two main findings: 1) that age-0 snapper be reintroduced into the model; 2) that the average estimated recruitment over the last 20 years be used in projections (with benchmarks recalculated to be consistent with that level).

The inclusion of age-0 individuals in the model runs presented in the assessment summary report could not be identified from the information presented in that report. Confirmation that age-0 individuals were included, as recommended by the Review Workshop, was obtained through communication with the NMFS Assessment Team. ***The inclusion of age-0 individuals within the model runs needed to be explicitly stated within the document to clarify the settings of the run that the reader was examining.***

The assessment summary report explicitly stated that the projections were based upon the use of average estimated recruitment over the last 20 years, as requested by the review panel. No action was therefore necessary.

(2) Review the assessment summary report recommendations for Sustainable Fisheries Act management criteria and determine whether the relative merits and risks of alternative criteria are accurately and thoroughly presented.

The assessment summary report followed the suggestions and discussions of the review panel. 30%SPR was used as a benchmark in the assessment summary report. Its use is consistent with MSY concepts (estimates of both F_{MSY} and B_{MSY} can be inferred from SPR).

As the Assessment Workshop noted, and the Review Workshop concurred, SPR benchmark levels are generally robust to fishery selectivity patterns: the value of MSY is conditional on selectivity patterns of the gears used in the fishery, which are affected by decisions of the Gulf of Mexico Fishery Management Council. Furthermore, given uncertainties over the true underlying stock-recruitment function, SPR benchmarks have the additional advantage of being less sensitive to stock-recruit

uncertainties when compared to benchmarks derived from a stock-recruitment function.

Given the high levels of shrimp bycatch, it seems unlikely that 30%SPR will approximate MSY conditions. Despite this, the fact that 30%SPR has previously been used by the Council, and the fact that 30% is suitably high to ensure sustainability, makes its use appropriate.

(3) If the panel determines that the advisory report is insufficient with regard to Tasks 1 or 2, outline specific actions necessary to correct the deficiencies.

In general, the assessment summary report adequately communicated the assessment results and findings. There were areas that needed further clarification, as noted during the panel's e-mail discussions. These are detailed within the recommendation section of this report. Some minor editorial suggestions were also made, although they were outside the ToR. These are listed in the recommendations section of this report.

(4) Participate in e-mail exchanges with the other peer-review panellists that address Tasks 1-3 above.

The e-mail review was carried out during the period of the 13th to 17th June 2005. A number of issues were raised both within and outside the scope of work detailed above. The main points raised by this reviewer are summarised in this report.

Background

South East Data, Assessment, and Review (SEDAR) is a joint process for stock assessment and review of the South Atlantic, Gulf of Mexico, and Caribbean Fishery Management Councils; NOAA Fisheries, SEFSC and SERO; and the Atlantic and Gulf States Marine Fisheries Commissions. SEDAR is organized around three workshops: data, assessment, and review. Input data are compiled during the data workshop, population models are developed during the assessment workshop, and an independent peer review of the data and assessment models is provided by the review workshop. The assessment review panel is composed of stock assessment experts, other scientists, and representatives of councils, fishing industries, and non-governmental conservation organizations. Final SEDAR documents include a data report produced by the data workshop, a stock assessment report produced by the assessment workshops, an advisory report and a review consensus report evaluating the assessment and drafted during the assessment review panel workshop, and the collected stock assessment documents considered in the SEDAR process.

The review workshop for SEDAR 7, Gulf of Mexico Red Snapper (*Lutjanus campechanus*), took place at the Country Inn and Suites hotel in New Orleans, Louisiana, from April 4 through April 7, 2005. The Center for Independent Experts (CIE) provided a chair and a technical reviewer for the SEDAR 7 review workshop. At that time, the review panel decided that a different assessment approach should be used. Subsequently, the assessment team developed a revised assessment summary report that follows this recommendation.

This report reviews the revised assessment summary report to evaluate consistency with review panel's previous recommendations, at the request of the Center for Independent Experts (see Appendix 1). The report also reviews the assessment summary report's recommendations for management criteria under the Sustainable Fisheries Act.

Description of review activities

Dr Graham Pilling undertook the review at CEFAS (Lowestoft, UK). Dr John Carmichael provided the assessment summary report, by e-mail. During the week of the 13th June 2005, the report was discussed via e-mail by the SEDAR 7 review panel. Recommendations for modifications to the report were made direct to the NMFS Assessment Team in light of the terms of reference of the virtual panel. This separate report to CIE was completed during the week of the 27th June 2005.

Summary of findings

The findings of the CIE reviewer are presented by ToR task.

(1) Review the red snapper assessment summary report and determine whether the report accurately represents the recommendations made by the review panel during the April 4 - 7, 2005 review workshop.

The main recommendations from the Review Workshop were:

- Age-0 snapper are reintroduced into the model. The Panel understood the argument in support of excluding this age class in that density dependent compensation could extend to even higher ages. However, in the scientific judgment of the Panel, it is not prudent to assume that density dependent compensation can completely override the mortality induced by the shrimp fishery on age-0 red snapper.

- Higher recruitment scenarios are included in the projections of the base case. Recruitment estimates over the last 20 years are highly variable, but on average are above the level predicted by the stock-recruitment relationship. Three alternative recruitment scenarios were recommended for projections, using either: the spawner-recruitment relationship; recent average recruitment (last 20 years); or an even higher average recruitment level (obtained from a sensitivity run). In terms of predicting short-term future recruitment levels, the Panel preferred, on the balance of probabilities, the use of average estimated recruitment over the last 20 years (with benchmarks recalculated to be consistent with that level).

The inclusion of age-0 individuals in the model runs presented in the assessment summary report could not be identified from the information presented in that report. Confirmation that age-0 individuals were included, as recommended by the Review Workshop, was obtained through communication with the NMFS Assessment Team. A request was made that their inclusion be specifically stated within the document (see recommendations).

The assessment summary report explicitly stated that the projections were based upon the use of average estimated recruitment over the last 20 years, as requested by the review panel. No action was therefore necessary.

(2) Review the assessment summary report recommendations for Sustainable Fisheries Act management criteria and determine whether the relative merits and risks of alternative criteria are accurately and thoroughly presented.

The assessment summary report followed the suggestions and discussions of the review panel. 30%SPR was used as a benchmark in the assessment summary report. Its use is consistent with MSY concepts (estimates of both F_{MSY} and B_{MSY} can be inferred from SPR).

As the Assessment Workshop noted, and the Review Workshop concurred, SPR benchmark levels are generally robust to fishery selectivity patterns: the value of MSY is conditional on selectivity patterns of the gears used in the fishery, which are affected by decisions of the Gulf of Mexico Fishery Management Council. Furthermore, given uncertainties over the true underlying stock-recruitment function, SPR benchmarks have the additional advantage of being less sensitive to stock-recruit uncertainties when compared to benchmarks derived from a stock-recruitment function.

Given the high levels of shrimp bycatch, it seems unlikely that 30%SPR will approximate MSY conditions. Despite this, the fact that 30%SPR has previously been used by the Council, and the fact that 30% is suitably high to ensure sustainability, makes its use appropriate.

The assessment summary report also noted that, as suggested by the review workshop, there is a need to test whether selected or alternative benchmarks are robust to sources of uncertainty within the process. The use of management strategy evaluation would be useful to identify alternative robust red snapper population benchmarks.

(3) If the panel determines that the advisory report is insufficient with regard to Tasks 1 or 2, outline specific actions necessary to correct the deficiencies.

In general, the assessment summary report adequately communicated the assessment results and findings. There were areas that needed further clarification, as noted during the panel's e-mail discussions. These are detailed within the recommendation section of this report.

(4) Participate in e-mail exchanges with the other peer-review panellists that address Tasks 1-3 above.

The e-mail review was carried out during the period of the 13th to 17th June 2005. A number of issues were raised both within and outside the scope of work detailed above. The main points raised by this reviewer are summarised above.

Conclusions and recommendations

The assessment summary report was necessarily short and non-technical, as appropriate for its target audience.

The main 'substantive' recommendation with direct relevance to the ToR was that the inclusion of age-0 individuals within the model runs needed to be explicitly stated within the document, to clarify the settings of the run that the reader was examining.

A number of additional points can be raised, which mainly focus on clarifying the contents of the report and drawing attention to key issues.

- Table 1 of the assessment summary report reflects stock-specific calculations. This approach is sensible (and indeed, recommended in the Review Panel report of this CIE reviewer) since a sustainable scenario for one 'stock' might not be sustainable for the other. However, this change from previous reports needs to be clearly indicated when referring to this table.

- The Review Workshop did not examine a '50% shrimp reduction' allocation, as presented in table 1 of the assessment summary report, since 'Gulf-wide' results were given (see above). The stock-specific results were included in the assessment summary report since the western stock did not recover under the 40% shrimp mortality reduction scenario (although when considered as a Gulf-wide stock, recovery occurs within the target timescale of 2032). The fact that 30%SPR was not achieved by the western stock within the given time frame when stocks are considered separately should be stressed in the text to ensure managers consider this.

- Some explanation for differences in the recovery trajectories when compared to previous reports would be appropriate, to explain how changes in the model settings have influenced stock recovery. For example, it is worth noting that the average recruitment scenario recommended by the review workshop is about 50% higher than that estimated from the historical catch-effort information, 'kick-starting' rebuilding.

Bibliography

NMFS (2005). 2005 Gulf Red Snapper Advisory Report. 10p.

NMFS (2005). 2005 SEDAR 7 Assessment Summary Report. 16p.

Porch, C.E. (2005). SEDAR 7 Appendix. Documentation of CATCHEM runs that model age 0 red snapper explicitly and projections of model age 0 and age 1 results under different future recruitment scenarios. 45p.

Appendix 1. Statement of work

Subcontract between the University of Miami and CEFAS (Dr. Graham Pilling)

Statement of Work

Background

South East Data, Assessment, and Review (SEDAR) is a joint process for stock assessment and review of the South Atlantic, Gulf of Mexico, and Caribbean Fishery Management Councils; NOAA Fisheries, SEFSC and SERO; and the Atlantic and Gulf States Marine Fisheries Commissions. SEDAR is organized around three workshops: data, assessment, and review. Input data are compiled during the data workshop, population models are developed during the assessment workshop, and an independent peer review of the data and assessment models is provided by the review workshop. The assessment review panel is composed of stock assessment experts, other scientists, and representatives of councils, fishing industries, and non-governmental conservation organizations. Final SEDAR documents include a data report produced by the data workshop, a stock assessment report produced by the assessment workshops, an advisory report and a review consensus report evaluating the assessment and drafted during the assessment review panel workshop, and the collected stock assessment documents considered in the SEDAR process.

The review workshop for SEDAR 7, Gulf Red Snapper, took place at the Holiday Inn Chateau Le Moyne in New Orleans, Louisiana, from April 4 through April 8, 2005. The Center for Independent Experts (CIE) provided a chair and a technical reviewer for the SEDAR 7 review workshop. At that time, the review panel decided that a different assessment approach should be used. Subsequently, a revised assessment summary report that follows this recommendation was developed by the assessment team.

NMFS-SEFSC requests the additional assistance of the two assessment scientists from the CIE who previously worked on the SEDAR 7 review panel. There are two requirements: 1) review the revised assessment summary report to evaluate consistency with review panel's previous recommendations, and 2) recommend a preferred benchmark that is appropriate for the advisory report under the Sustainable Fisheries Act. No consensus opinion between the two CIE consultants is sought.

The activities required under this Statement of Work shall be conducted electronically, so no travel is needed.

Statement of Tasks

The roles and responsibilities of each CIE designee are described in the tasks below.

(1) Review the red snapper assessment summary report and determine whether the report accurately represents the recommendations made by the review panel during the April 4 - 8, 2005 review workshop.

(2) Review the assessment summary report recommendations for Sustainable Fisheries Act management criteria and determine whether the relative merits and risks of alternative criteria are accurately and thoroughly presented.

(3) If the panel determines that the advisory report is insufficient with regard to Tasks 1 or 2, outline specific actions necessary to correct the deficiencies.

(4) Participate in e-mail exchanges with the other peer-review panelists that address Tasks 1-3 above.

(5) Provide to the CIE a report addressing Tasks 1-4 above. The report shall consist of background, description of review activities, summary of findings, conclusions/recommendations, and references. The report shall also include as separate appendices the bibliography of all materials provided and a copy of the statement of work.

Schedule

It is estimated that the duties of each CIE consultant will require a maximum of five work days. The revised red snapper assessment report will be provided via e-mail to the CIE consultants no later than June 13, 2005. Please contact John Carmichael (SEDAR Coordinator; 843-571-4366 or John.Carmichael@safmc.net) for additional details. The e-mail exchanges of Task 4 shall take place during the week of June 13-17, 2005. Each consultant shall provide their individual written report for Task 5 to Dr. David Sampson, via e-mail to David.Sampson@oregonstate.edu, and to Mr. Manoj Shivlani, via e-mail to mshivlani@rsmas.miami.edu no later than the close of business on June 17, 2005.

Submission and Acceptance of CIE Reports

The CIE shall provide the final consultants' reports in pdf format for approval by NOAA Fisheries to the COTR, Dr. Stephen K. Brown, no later than July 1, 2005. The COTR shall notify the CIE via e-mail regarding acceptance of the consultants' reports. Following the COTR's approval, the CIE shall provide the COTR with digital copies of the consultants' reports with digital signed cover letters, both in pdf format.

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