SEDAR

Southeast Data, Assessment, and Review

SEDAR 84

Caribbean Yellowtail Snapper and Stoplight Parrotfish

Peer Review Report

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December 2025

Executive Summary

This review evaluates the quality of data, methods, and outcomes of stock assessments conducted for three key fisheries in the U.S. Caribbean: St. Croix Stoplight Parrotfish, St. Thomas/St. John Yellowtail Snapper, and Puerto Rico Yellowtail Snapper. While the modeling platform (SS3) used in these assessments is technically sound, its application was often mismatched with the limited and inconsistent data available. Common issues across assessments included short time series, natural mortality model, lack of commercial length frequency data, and uncertainty in stock unit definitions. These limitations collectively reduced the reliability of assessment results and their suitability for informing fisheries management.

For St. Croix Stoplight Parrotfish, both DW and AW teams recognized the challenges posed by a short time series and a single length-frequency distribution. Although model outputs were technically valid, they were highly sensitive to data weighting and assumptions, causing stock status estimates to fluctuate dramatically. The review concluded that the current model results should not inform management and recommended a shift toward simpler, data-poor approaches, such as indicators based on mean length in catch and survey abundance, while improving historical catch records and survey design.

The assessment for St. Thomas/St. John Yellowtail Snapper was hampered by a poorly defined stock unit and similarly short and uninformative data series. The decision to proceed with modeling under these conditions led to questionable outputs and reduced utility for management. The review calls for improved stock unit definition based on biological dynamics, exploration of more appropriate natural mortality models, and enhancement of data series before further analytical modeling is attempted.

For Puerto Rico Yellowtail Snapper, the longer time series allowed for a more informative model, but key concerns remained. The exclusion of historical survey data and unresolved issues around stock unit definition reduced the model's credibility. While the outputs were more stable than in other assessments, they are still not recommended for management use without significant refinements. The review calls for improved stock unit definition based on biological dynamics, exploration of more appropriate natural mortality models, and enhancement of data series before further analytical modeling is attempted.

Background

The Review Workshop took place between the 15th and 18th of July 2025, in Fort Lauderdale, Florida, USA. An informal pre-workshop meeting was organized on July 3rd, 2025, online.

The author's role in the process was of an independent peer reviewer, with experience in population dynamics, stock assessment and scientific advice to fisheries management.

Responses to the Terms of Reference

The work done during the workshop was very collaborative. The analytical team was open to test several requests from the review panel and did it in time to keep the scientific discussion going, which allowed the review workshop to explore and test several paths to model the population and fisheries dynamics. A detailed evaluation of all the ToRs is presented in the Review Workshop Report, which I fully support. In this section I'll be brief and add extra elements I consider relevant.

1. Evaluate the data used in the assessment, addressing the following:

a. Are data decisions made by the DW and AW sound and robust?

St. Croix Stoplight Parrotfish

DW: Generally, yes. However, the outcome was a short time series and a single length-frequency distribution for the commercial fleet. Both factors pose challenges for running an analytical stock assessment model, especially for a species with a longevity of 26 years.

AW: Generally, yes. There were some issues related to the use of the software platform, which could have been avoided if the analytical team had interacted more with SS3 experts at NOAA. Overall, the main issue is using a sophisticated model to fit to a data-poor situation. While theoretically possible, it's unnecessary for managing a small local fishery of about 30 speargun fishers.

St. Thomas/St. John Yellowtail Snapper

DW: No. The stock unit is clearly not well defined, and this should have been addressed by the DW.

AW: Generally, yes. There were some issues related to the use of the software platform, which could have been avoided if the analytical team had interacted more with SS3 experts at NOAA. The main problem was fitting a model to only part of the stock.

Puerto Rico Yellowtail Snapper

DW: No. The DW should not have removed historical survey time series. Given the limited data available, any decision to exclude historical data should follow an analysis of its potential value unless the data were clearly flawed due to poor sampling design or procedures. The poorly defined stock unit also should have been addressed.

AW: Generally, yes. Software-related issues persisted, and more interaction with SS3 experts could have helped. Again, the core problem was attempting to model only a portion of the stock.

b. Are data uncertainties acknowledged, reported, and within normal or expected levels?

St. Croix Stoplight Parrotfish

Not entirely. High observation variability in survey data due to weather conditions was not reported. Nonetheless, catch and abundance estimates appear sound.

St. Thomas/St. John Yellowtail Snapper

No. The stock unit should have been better investigated. The decision to define the stock based on administrative needs may be understandable for early-stage management but is inadequate for assessment purposes. Biological and dynamic stock properties should guide such decisions (see Cadrin et al., 2023 https://www.sciencedirect.com/science/article/pii/S0165783623000437). The 12-year time series is also too short for a species with a 20–30 year lifespan.

Puerto Rico Yellowtail Snapper

No. Like St. Thomas/St. John, the stock unit decision was based on administrative convenience rather than biology. This is inappropriate for stock assessment modeling (see Cadrin et al., 2023 https://www.sciencedirect.com/science/article/pii/S0165783623000437).

c. Are data applied properly within the assessment model?

Yes, considering the data available it was properly used in the stock assessment model.

d. Are input data series reliable and sufficient to support the assessment approach and findings?

St. Croix Stoplight Parrotfish

No. The time series is short, there are no length frequencies for commercial fishing, and only four data points from independent abundance surveys.

St. Thomas/St. John Yellowtail Snapper

No. Same limitations as above.

Puerto Rico Yellowtail Snapper

Inconclusive. The data used were considered reliable, but several datasets, especially surveys, were dropped by the DW without adequate testing. Given the model's sensitivity to assumptions and data streams, additional datasets could have improved results.

2. Evaluate the methods used to assess the stock, taking into account the available data.

a. Are methods scientifically sound and robust?

Yes, SS3 is a sound and robust modelling platform, fully tested and widely used to fit stock assessment models.

b. Are assessment models configured properly and used consistent with standard practices?

Mostly, see the Review Workshop Report for technical details. From a process point of view, the work would have benefited from a deeper involvement of other NOAA experts in SS3 and stock assessment early on. Having more mature runs at the stage of review would be more helpful for the review panel.

c. Are the methods appropriate given the available data?

St. Croix Parrotfish & St. Thomas/St. John Yellowtail Snapper: No. The models are too complex for the short, uninformative time series. Poor stock definition compounds the issue for Yellowtail Snapper.

Puerto Rico Yellowtail Snapper: The longer time series can support an analytical model, but the unresolved stock unit issue still compromises the model's validity.

3. Evaluate the assessment findings with respect to the following:

a. Can the results be used to inform management in the U.S. Caribbean (i.e., develop annual catch recommendations)?

St. Croix Stoplight Parrotfish

No. The model results are too sensitive to model assumptions. The tests run by the analytical team showed that the stock status flips from overexploited to underexploited depending on which data stream is given more weight. In this situation and considering the short time series and limited data available for the fisheries LF and the survey observations, the results should not be used to inform management decisions.

St. Thomas/St. John Yellowtail Snapper

No. The short time series and poor definition of stock unit, impacts the assessment quality, potentially generating spurious outcomes. Although not as much as for parrotfish, the model results are sensitive to model assumptions.

Puerto Rico Yellowtail Snapper

No. Stock unit definition impacts the assessment quality, potentially generating spurious outcomes, although the problem may not be as extreme as ST since most of the platform is covered by this stock unit.

b. Is it likely the stock is overfished? What information helps you reach this conclusion?

It's unknown. See 3.a.

c. Is it likely the stock is undergoing overfishing? What information helps you reach this conclusion?

It's unknown. See 3.a.

4. Comment on the degree to which methods used to evaluate uncertainty reflect and capture the significant sources of uncertainty in the population, data sources, and assessment methods. Ensure that the implications of uncertainty in technical conclusions are clearly stated.

In general, the sources of uncertainty are described and both the DW and AW did the best they could to deal with those uncertainties in a scientifically sound way.

Nevertheless, there are 3 main sources that were not described and dealt with:

- Natural mortality: although the AW tested the effect of the M level in the assessment it did so with a single constant M model by changing the levels of M. It did not explore other M models that could be more appropriate for these species.
- Stock unit: for Yellowtail snapper the DW and AW considered the St. Thomas/St. John and Puerto Rico stocks to be separated and did not explore the option of having a single stock unit. The stock definition of this species is a major source of uncertainty with potential impacts in the assessment outcomes.
- Historical data streams: although the DW made decisions about which data streams should be used in the assessment and which should be dropped, those decisions were made without fully testing their impact in the assessment.

5. Consider the research recommendations provided by the Data and Assessment workshops and make any additional recommendations or prioritizations warranted. Clearly denote research and monitoring that could improve the reliability of, and information provided by, future assessments.

St. Croix Stoplight Parrotfish

- Recover historical catches: Establishing long time series of catches will improve estimates of stock productivity and fishery dynamics.
- Improve survey estimates: Fishery-independent data will be especially valuable for improving abundance estimates and understanding stock dynamics. Under indicator-based management, well-designed surveys and reliable abundance estimates are critical to maintaining stable exploitation and avoiding stock collapse.
- Develop management systems based on data-poor methodologies (e.g., mean length in the catch, survey abundance): Apply approaches such as length-based reference points and survey-based abundance indices to inform harvest control rules. Given the scale of the fishery, implementing a full stock assessment appears unnecessary and overly costly.

St. Thomas/St. John/Puerto Rico Yellowtail Snapper

- Define stock unit based on population dynamics: For assessment purposes, the stock should be considered a closed population, meaning that the full population dynamics are included in the assessment. Alternatively, a spatial model should be applied that accounts for migration across stock units. In this case, it is recommended to define a single stock unit, as the combined populations around both islands likely encompass the full stock.
- Explore natural mortality (M) models aligned with stock biology: The natural mortality currently applied is constant across all ages. Based on research over the past decade, it should be possible to develop an M model that reflects higher mortality at younger ages, improving biological realism.
- Recover historical catches: Establishing long time series of catches will improve the estimation of stock productivity and fishery dynamics.

- Improve the growth model: The SS3 model fit is highly dependent on the growth parameters. As the time series are extended and additional surveys are incorporated, efforts should focus on improving growth models and reducing uncertainty in age estimates.
- Improve survey estimates: Fishery-independent information is essential for improving abundance indices and understanding stock dynamics. At least three surveys are currently available, and the methods to estimate reliable indicators of stock abundance based on these surveys should be explored.

6. Provide guidance on key improvements in data or modeling approaches that should be considered when scheduling the next assessment.

St. Croix Stoplight Parrotfish

- Develop indicators to support a management system based on data poor methodologies, for example time series of mean length in the catch and survey abundance.
- Test harvest control rules using the above mentioned indicators to develop a management system that can keep the fishery stable and productive.

St. Thomas/St. John Yellowtail/Puerto Rico Snapper

- Create a single stock unit and compile all the available information for the single unit (surveys, length frequency samples, landings, discards, otolith readings, etc.).
- Test M models that are not constant across ages using recent literature (see https://www.sciencedirect.com/special-issue/10NSQ74ZXD9 as a starting point).
- Recover historical catches and length frequencies of the catch as much as possible.
- Try dome shape selectivity with decreasing selectivity on larger individuals instead of constant selection.

7. Provide recommendations on possible ways to improve the SEDAR process.

Strengthen the connection and overlap between the data workshop and the assessment work. Some decisions made during the data workshop did not appear to consider their impact on the assessment work.

Include a management review in the process so that the three elements - data, assessment, and management - are considered as a whole. Currently, these elements seem to be treated separately, even though they are closely linked. This separation makes the development and review process less efficient than it could be.

Review the ToRs for the review workshop. There are too many ToRs, with some overlap (e.g., ToRs 5 and 6), and some that are very difficult to address without additional work. For example, the use of assessment outcomes for management, I cannot respond to this ToR without first fully understanding the management process.

8. Prepare a Peer Review Summary summarizing the Panel's overall conclusions and recommendations.

This report and the Review Workshop report completes the task in TOR8.

Appendix 1: Bibliography of materials provided for review

Document #	Title	Authors	Date Submitted
Documents Prepared for the Data Workshop			
SEDAR84-DW-01	Radiocarbon Age Validation for Caribbean Parrotfishes	Jesus Rivera Hernández and Virginia Shervette	9 January 2024 Updated: 5 March 2024
SEDAR84-DW-02	SEDAR 84 Commercial fishery landings of Yellowtail Snapper (*Ocyurus chrysurus*) in St. Thomas and St. John, US Caribbean, 2012-2022	Stephanie Martínez Rivera, Kimberley Johnson, and M. Refik Orhun	18 January 2024 Updated: 21 February 2024
SEDAR84-DW-03	SEDAR 84 Commercial fishery landings of Stoplight Parrotfish (*Sparisoma viride*) in St. Croix, US Caribbean, 2012-2022	Stephanie Martínez Rivera, Kim Johnson, and M. Refik Orhun	18 January 2024 Updated: 21 February 2024
SEDAR84-DW-04	Analysis of SEAMAP-C hook and line survey data for yellowtail snapper in Puerto Rico (1992-2020)	Walter Ingram, Refik Orhun, and Carlos M. Zayas Santiago	19 January 2024
SEDAR84-DW-05	Summary of Management Actions for Stoplight Parrotfish (*Sparisoma viride*) from St. Croix (1985 - 2021) as Documented within the Management History Database	G. Malone	22 January 2024 Updated: 21 February 2024
SEDAR84-DW-06	Summary of Management Actions for Yellowtail Snapper (*Ocyurus chrysurus*) from Puerto Rico and St. Thomas/St. John (1985 - 2021) as Documented within the Management History Database	G. Malone	22 January 2024 Updated: 21 February 2024

SEDAR84-DW-07	Addressing Critical Life History Gaps for U.S. Caribbean Yellowtail Snapper: Bomb radiocarbon of age estimation method and a summary of the regional demographic patterns for size, age, and growth	Virginia Shervette, Jesus Rivera Hernandez, Sarah Zajovits	22 January 2024 Updated: 15 February 2024
SEDAR84-DW-08	U.S. Caribbean Yellowtail Snapper Population Demographics, Growth, and Reproductive Biology: Addressing Critical Life History Gaps	Virginia Shervette, Jesus Rivera Hernandez, Noemi Pena Alvarado	18 February 2024
SEDAR84-DW-09	SEDAR 84 Trip Interview Program (TIP) Size Composition Analysis of Yellowtail Snapper (*Ocyurus chrysurus*) in Puerto Rico, U.S. Caribbean, 1983-2022	Katherine Godwin, Adyan Rios, Kyle Dettloff	21 February 2024
SEDAR84-DW-10	SEDAR 84 Trip Interview Program (TIP) Size Composition Analysis of Yellowtail Snapper (*Ocyurus chrysurus*) in St. Thomas/St. John, U.S. Caribbean, 1983-2022	Katherine Godwin, Adyan Rios, Kyle Dettloff	21 February 2024
SEDAR84-DW-11	SEDAR 84 Trip Interview Program (TIP) Size Composition Analysis of Stoplight Parrotfish (*Sparisoma viride*) in St. Croix, U.S. Caribbean, 1983-2022	Katherine Godwin, Adyan Rios, Kyle Dettloff	21 February 2024
SEDAR84-DW-12	SEDAR 84 Commercial fishery landings of Yellowtail Snapper (Ocyurus chrysurus) in Puerto Rico, US Caribbean, 2012-2022	Stephanie Martínez Rivera, Kimberley Johnson, and M. Refik Orhun	21 February 2024
SEDAR84-DW-13	Length-Frequency Snapshot of Yellowtail Snapper from Image Analysis in Puerto Rico	Derek Soto, Alejandro Carrera Montalvo, Todd Gedamke	22 February 2024
SEDAR84-DW-14	Fishery-Independent Reef Fish Visual Survey Population Density and Length Composition for Stoplight Parrotfish in the St. Croix	Laura Jay W. Grove, Jeremiah Blondeau, and Jerald S. Ault	16 February 2024
SEDAR84-DW-15	Fishery-Independent Reef Fish Visual Survey Population Density and Length	Laura Jay W. Grove, Jeremiah	16 February 2024

	Composition for Yellowtail Snapper in the Puerto Rico	Blondeau, and Jerald S. Ault	
SEDAR84-DW-16	Fishery-Independent Reef Fish Visual Survey Population Density and Length Composition for Yellowtail Snapper in St. Thomas/John	Laura Jay W. Grove, Jeremiah Blondeau, and Jerald S. Ault	16 February 2024
Documents Prepared for the Assessment Process			
SEDAR84-AP-01	Report on the status of U.S. Caribbean stoplight parrotfish *Sparisoma viride* age, growth, and reproductive biology for the SEDAR84 Stock Assessment	Jesús M. Rivera Hernández and Virginia Shervette	6 July 2024
SEDAR84-AP-02			
SEDAR84-AP-03			
SEDAR84-AP-04			
Documents Prepared for the Review Workshop			
SEDAR84-RW-01			
Final Stock Assessment Reports			
SEDAR84-SAR1	US Caribbean Yellowtail Snapper – Puerto Rico	SEDAR 84 Panels	
SEDAR84-SAR2	US Caribbean Yellowtail Snapper – St. Thomas & St. John	SEDAR 84 Panels	
SEDAR84-SAR3	US Caribbean Stoplight Parrotfish – St. Croix	SEDAR 84 Panels	
Reference Documents			

SEDAR84-RD01	Selectividad Pesquera del Buche (Seno) en Chinchorros de Playa con mallas de 2.5, 2.0 y 1.0 pulgadas, a lo largo de la costa Oeste y Noreste de la Isla de Puerto Rico	Edgardo Ojeda Serrano, Omayra Hernandez Vak, and Samuel Garcia Vazquez
SEDAR84-RD02	Monitoring of Mesophotic Habitats and Associated Benthic and Fish/Shellfish Communities from Abrir la Sierra, Bajo de Sico, Tourmaline, Isla Desecheo, El Seco and Boya 4, 2018-20 Survey	Jorge R. Garcia-Sais, Stacey Williams, Evan Tuohy, Jorge Sabater-Clavell and Milton Carlo
SEDAR84-RD03	Population Size, Growth, Mortality and Movement Patterns of Yellowtail Snapper (*Ocyurus chrysurus*) in the U.S. Virgin Islands Determined Through a Multi-institutional Collaboration	St. Thomas Fishermen's Association
SEDAR84-RD04	S8-DW-09: An Update on the Reported Landings, Expansion Factors and Expanded Landings for the Commercial Fisheries of the United States Virgin Islands (with Emphasis on Spiny Lobster and the Snapper Complex)	Mónica Valle-Esquivel and Guillermo Díaz
SEDAR84-RD05	SEDAR68-DW-13: Marine Recreational Information Program Metadata for the Atlantic, Gulf of Mexico, and Caribbean regions	Vivian M. Matter and Matthew A. Nuttall
SEDAR84-RD06	Nearshore habitats as nursery grounds for recreationally important fishes, St. Croix, U S. Virgin Islands	Ivan Mateo
SEDAR84-RD07	Seasonal Patterns of Juvenile Fish Abundance in Seagrass Meadows in Teague Bay Bank Barrier Reef Lagoon, St. Croix, U.S. Virgin Islands	Ivan Mateo and William J. Tobias
SEDAR84-RD08	The Distribution of Herbivorous Coral Reef Fishes within Fore-reef Habitats: the Role of Depth, Light and Rugosity	Michael Nemeth and Richard Appeldoorn
SEDAR84-RD09	The Use of Vertical Distribution Data in the Identification of Potential Spawning	Kristen A. Ewen

	Sites and Dispersal Pathways for Parrotfish (Genera *Sparisoma* and *Scarus*) within Territorial Waters of the U.S. Virgin Islands	
SEDAR84-RD10	Evaluating the impact of invasive seagrass *Halophila stipulacea* on settlement, survival, and condition factor of juvenile yellowtail snapper, *Ocyurus chrysurus*, in St. Thomas, USVI	Sophia Victoria Costa
SEDAR84-RD11	The Commercial Yellowtail Snapper Fishery off Puerto Rico, 1983-2003	Nancie J. Cummings
SEDAR84-RD12	S8-DW-08: The commercial reef fish fishery in Puerto Rico with emphasis on yellowtail snapper, *Ocyurus chrysurus*: landings and catch per unit of effort from 1983 through 2003	Nancie J. Cummings and Daniel Matos-Caraballo
SEDAR84-RD13	The Net Buyback and Ban in St. Croix, U.S. Virgin Islands	Juan J. Agar, Flavia Tonioli, Chloe Fleming
SEDAR84-RD14	Best practices for defining spatial boundaries and spatial structure in stock assessment	Steven X. Cadrin[a], Daniel R. Goethel[b], Aaron Berger[c], Ernesto Jardim[d]
SEDAR84-RD15	Good practices, trade-offs, and precautions for model diagnostics in integrated stock assessments	Maia S. Kapur [a,*], Nicholas Ducharme-Barthe [b], Megumi Oshima [b], Felipe Carvalho [b]

Appendix 2: Performance Work Statement

Performance Work Statement (PWS)

National Oceanic and Atmospheric Administration (NOAA)
NOAA Fisheries
Center for Independent Experts (CIE) Program
External Independent Peer Review

SEDAR 84 US Caribbean Yellowtail Snapper and Stoplight Parrotfish
July 15-18, 2025

Background

The NOAA Fisheries is mandated by the Magnuson-Stevens Fishery Conservation and Management Act, Endangered Species Act, and Marine Mammal Protection Act to conserve, protect, and manage our nation's marine living resources based upon the best scientific information available (BSIA). NOAA Fisheries science products, including scientific advice, are often controversial and may require timely scientific peer reviews that are strictly independent of all outside influences. A formal external process for independent expert reviews of the agency's scientific products and programs ensures their credibility. Therefore, external scientific peer reviews have been and continue to be essential to strengthening scientific quality assurance for fishery conservation and management actions.

Scientific peer review is defined as the organized review process where one or more qualified experts review scientific information to ensure quality and credibility. These expert(s) must conduct their peer review impartially, objectively, and without conflicts of interest. Each reviewer must also be independent from the development of the science, without influence from any position that the agency or constituent groups may have. Furthermore, the Office of Management and Budget (OMB), authorized by the Information Quality Act, requires all federal agencies to conduct peer reviews of highly influential and controversial science before dissemination, and that peer reviewers must be deemed qualified based on the OMB Peer Review Bulletin standards[1].

Scope

The **SouthEast Data, Assessment, and Review (SEDAR)** is the cooperative process by which stock assessment projects are conducted in NMFS' Southeast Region. SEDAR was initiated to improve planning and coordination of stock assessment activities and to improve the quality and reliability of assessments.

SEDAR 84 will be a compilation of data, an assessment of the stock, and CIE assessment review conducted for U.S. Caribbean yellowtail snapper and stoplight parrotfish. The review workshop provides an independent peer review of SEDAR stock assessments. The term review is applied broadly, as the review panel may request additional analyses, error corrections and sensitivity runs of the assessment models provided by the assessment panel. The review panel is ultimately responsible for ensuring that the best possible assessment is provided through the SEDAR process. The stock assessed through SEDAR 84 is within the jurisdiction of the Caribbean Fisheries Management Council and the Commonwealth of Puerto Rico and the Territory of the U.S. Virgin Islands.

The specified format and contents of the individual peer review reports are found in **Annex 1**. The Terms of Reference (ToR) of the peer review are listed in **Annex 2**. The tentative agenda of the panel review meeting is attached in **Annex 3.**

Requirements

NMFS requires three reviewers to conduct an impartial and independent peer review in accordance with the Performance Work Statement (PWS), OMB guidelines, and the ToRs below. The reviewers shall have expertise in data limited assessment methods and a working knowledge of Stock Synthesis as applied to model data limited species. The chair, who is in addition to the three reviewers, will not be provided by the CIE. Although the chair will be participating in this review, the chair's participation (e.g., labor and travel) is not covered by this contract.

Each reviewer will write an individual review report in accordance with the PWS, OMB Guidelines, and the TORs below. Modifications to the PWS and TORs cannot be made during the peer review, and any PWS or TORs modifications prior to the peer review shall be approved by the Contracting Officer's Representative (COR) and the CIE contractor. All TORs must be addressed in each reviewer's report.

Tasks for Reviewers

1) Pre-review Background Documents: Review the following background materials and reports prior to the review:

   Working papers, reference documents, and the Data Workshop and Assessment Process Reports will be available on the SEDAR website:

https://sedarweb.org/assessments/sedar-84-caribbean-yellowtail-snapper-and-stoplight-parrotfish/

2) Attend and participate in an in-person review meeting. The meeting will consist of presentations by NOAA and other scientists, stock assessment authors and others to facilitate the review, to answer any questions from the reviewers, and to provide any additional information required by the reviewers.
3) After the review meeting, reviewers shall conduct an independent peer review report in accordance with the requirements specified in this PWS, OMB guidelines, and ToRs, in adherence with the required formatting and content guidelines. Reviewers are not required to reach a consensus.
4) Each reviewer shall assist the Chair of the meeting with contributions to the summary report.
5) Deliver their reports to the Government according to the specified milestones dates.

Foreign National Security Clearance

When reviewers participate during a panel review meeting at a government facility, the NMFS Project Contact is responsible for obtaining the Foreign National Security Clearance approval for reviewers who are non-US citizens. For this reason, the reviewers shall provide requested information (e.g., first and last name, contact information, gender, birth date, passport number, country of passport, travel dates, country of citizenship, country of current residence, and home country) to the Project Contact for the purpose of their security clearance, and this information shall be submitted at least 30 days in advance. For additional information, please see the following link: https://www.commerce.gov/osy/programs/foreign-access-management. The contractor is required to use all appropriate methods to safeguard Personally Identifiable Information (PII).

Place of Performance

The place of performance shall be in Fort Lauderdale, FL.

Period of Performance

The period of performance shall be from the time of award through August 2025. Each reviewer's duties shall not exceed **14** days to complete all required tasks.

Schedule of Milestones and Deliverables: The contractor shall complete the tasks and deliverables in accordance with the following schedule.

Within 2 weeks of award	Contractor selects and confirms reviewers
Approximately 2 weeks prior to the review	Contractor provides the pre-review documents to the reviewers
July 15 – 18, 2025	Panel review meeting
Approximately 2 weeks later	Contractor receives draft reports
Within 3 weeks of receiving draft reports	Contractor submits final reports to the Government

* The Peer Review Summary Report will not be submitted to, reviewed, or approved by the Contractor.

Applicable Performance Standards

The acceptance of the contract deliverables shall be based on three performance standards: (1) The reports shall be completed in accordance with the required formatting and content (2) The reports shall address each ToR as specified (3) The reports shall be delivered as specified in the schedule of milestones and deliverables.

Confidentiality and Data Privacy

This contract may require that services contractors have access to Privacy Information. Services contractors are responsible for maintaining the confidentiality of all subjects and materials and may be required to sign and adhere to a Non-disclosure Agreement (NDA).

Travel

All travel expenses shall be reimbursable in accordance with Federal Travel Regulations (Travel resources | GSA), and all contractor travel must be approved by the COR prior to the actual travel. Any travel conducted prior to the receipt of proper written authorization from the COR will be done at the Contractor's own risk and expense. International travel is authorized for this contract. Travel is not to exceed $12,000.00.

Project Contacts

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Annex 1: Peer Review Report Requirements

1. The independent Peer Reviewer report shall be prefaced with an Executive Summary providing a concise summary of whether they accept or reject the work that they reviewed, with an explanation of their decision (strengths, weaknesses of the analyses, etc.).

2. The report must contain a background section, description of the individual reviewers' roles in the review activities, summary of findings for each ToR in which the weaknesses and strengths are described, and conclusions and recommendations in accordance with the TORs.

   a. Reviewers must describe in their own words the review activities completed during the panel review meeting, including a brief summary of findings, of the science, conclusions, and recommendations.

   b. Reviewers should discuss their independent views on each ToR even if these were consistent with those of other panelists, but especially where there were divergent views.

   c. Reviewers should elaborate on any points raised in the summary report that they believe might require further clarification.

   d. Reviewers shall provide a critique of the agency review process, including suggestions for improvements of both process and products.

   e. The report shall be a stand-alone document for others to understand the weaknesses and strengths of the science reviewed, regardless of whether or not they read the summary report. The report shall represent the peer review of each ToR, and shall not simply repeat the contents of the summary report.

3. The report shall include the following appendices:

   Appendix 1: Bibliography of materials provided for review

   Appendix 2: A copy of this Performance Work Statement

   Appendix 3: Panel membership or other pertinent information from the panel review meeting.

Annex 2: Terms of Reference for the Peer Review

SEDAR 84 US Caribbean Yellowtail Snapper and Stoplight Parrotfish
July 15 – 18, 2025

CIE reviewers are contracted to complete their independent peer review based on the ToRs. Therefore, the CIE-NMFS review and approval process is based on whether the CIE independent reports addressed each ToRs.

1. Evaluate the data used in the assessment, addressing the following:
    a. Are data decisions made by the DW and AW sound and robust?
    b. Are data uncertainties acknowledged, reported, and within normal or expected levels?
    c. Are input data series reliable and sufficient to support the assessment approach and findings?
    d. Are data applied properly within the assessment model?

2. Evaluate the methods used to assess the stock, taking into account the available data.
    a. Are methods scientifically sound and robust?
    b. Are assessment models configured properly and used consistent with standard practices?
    c. Are the methods appropriate given the available data?
3. Evaluate the assessment findings with respect to the following:
    a. Can the results be used to inform management in the U.S. Caribbean (i.e., develop annual catch recommendations)?
    b. Is it likely the stock is overfished? What information helps you reach this conclusion?
    c. Is it likely the stock is undergoing overfishing? What information helps you reach this conclusion?
4. Comment on the degree to which methods used to evaluate uncertainty reflect and capture the significant sources of uncertainty in the population, data sources, and assessment methods. Are the implications of uncertainty in technical conclusions clearly stated?
5. Evaluate current data availability and candidate assessment approaches. Make recommendations for future assessment approaches given the available data. Make

recommendations for additional work needed to develop scientific advice suitable for fishery management. (requirement: familiarity with US fishery management requirements (e.g., MSA, NS guidelines).

6. Consider the research recommendations provided by the Data and Assessment workshops and make any additional recommendations or prioritizations warranted. Clearly denote research and monitoring that could improve the reliability of, and information provided by, future assessments.
7. Provide guidance on key improvements in data or modeling approaches that should be considered when scheduling the next assessment.
8. Provide recommendations on possible ways to improve the SEDAR process.
9. Prepare a Peer Review Summary summarizing the Panel's overall conclusions and recommendations.

Annex 3: Tentative Agenda

SEDAR 84 US Caribbean Yellowtail Snapper and Stoplight Parrotfish

Assessment Review

July 15 – 18, 2025

Fort Lauderdale, Florida

Tuesday

8:30 am – 9:00 am	**Introductions and Opening Remarks**	**Coordinator**
- Agenda Review, TOR, Task Assignments		
9:00 am – 12:00 pm	**Assessment Presentations**	**Analytic Team**
- *Background*		
- *Assessment Data & Methods*		
12:00 pm – 1:30 pm	**Lunch Break**	
1:30 pm – 5:30 pm	**Assessment Presentations (continued)**	**Analytic Team**
- *Assessment Data & Methods*		
- Identify additional analyses, sensitivities, corrections		
5:30 pm – 6:00 pm	**Public Comment**	**Chair**

***Tuesday Goals*:** Initial assessment presentations completed, sensitivities and modifications identified.

Wednesday

8:30 a.m. – 11:30 pm	**Assessment Presentations (continued)**	**Analytic Team**
- *Assessment Methods*		
- Identify additional analyses, sensitivities, corrections		
11:30 a.m. – 1:00 pm	**Lunch Break**	
1:00 pm – 5:30 pm	**Panel Discussion**	**Chair**
- Review additional analyses, sensitivities		

- *Recommendations and comments*

5:30 pm - 6:00 pm **Public Comment** **Chair**

Wednesday Goals: Presentations completed, additional sensitivities identified, preferred models selected, Summary report drafts begun.

Thursday

8:30 a.m. – 11:30 pm **Panel Discussion** **Chair**

- *Review additional analyses, sensitivities*

- *Recommendations and comments*

11:30 a.m. – 1:00 pm **Lunch Break**

1:00 pm – 5:30 pm **Panel Discussion** **Chair**

- *Final sensitivities reviewed.*

5:30 pm - 6:00 pm **Public Comment** **Chair**

Thursday Goals: Review final sensitivities, complete assessment work, and finalize discussions.

Friday

8:30 a.m. – 2:00 pm **Panel Discussion or Work Session** **Chair**

- *Review Summary Reports*

Friday Goals: Final results available. Draft Summary Report reviewed.

Appendix 3: Panel membership or other pertinent information from the panel review meeting.

SEDAR 84

Caribbean Yellowtail Snapper and Stoplight Parrotfish
Review Workshop Participants

LIST OF PARTICIPANTS

Review Panel

Adriana Nogueira Gassent.....IEO-CSIC (Centro Oceanográfico de Vigo) / CIE Reviewer
Elizabeth Kadison ..... UVI/CFMC SSC

Ernesto Jardim .....Independent Fisheries Consultant / CIE Reviewer
Jorge (Reni) Garcia-Sais .....CFMC SSC

Lisa Chong..... Michigan State University / CIE Reviewer
Vance Vicente.....Vincent Associates / CFMC SSC

Analytic Team

Adyan Rios .....SEFSC

Kevin McCarthy.....SEFSC

Appointed Observers
Julian Magras.....St. Thomas DAP

Staff
Emily Ott.....SEDAR
Graciela Garcia-Moliner ..... CFMC Staff

Observers

Nathan Vaughan.....SEFSC

Observers via Webinar

Anne Kersting.....NOAA
David Behring.....NOAA
Gerson Martinez.....St. Croix DAP
Jesus Rivera Hernandez ..... USC
John Froeschke.....GFMC
Katherine Godwin .....NOAA
Kelly Klasnick ..... SAFMC
Maggie Rios.....DPNRVI
Maria Lopez-Mercer.....NOAA
Nelson Crespo.....PR Industry
Nicole Greaux ..... CFMC

Rachael Silvas..... SAFMC
Rachel Banton.....NOAA
Refik Orhun .....NOAA
Sarah Stephenson .....NOAA
Sennai Habtes .....DPNR VI
Suz Thomas ..... SAFMC
Virginia Shervette..... USC