SSCReport to the 189th CFMC Meeting

April 20-22, 2026

Dr. Vance Vicente

Chairman

Scientific and Statistical Committee

SSC Meeting: April 8-10 2026

Participants

SSC

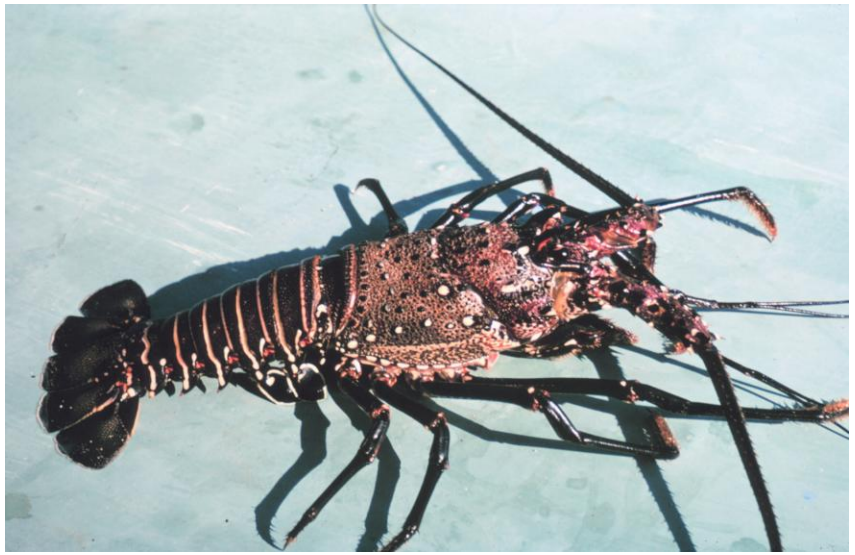
- Jason Cope
- Elizabeth Kadison
- Walter Keithly
- Richard Appeldoorn
- Jorge García Sais
- Juan J Cruz Motta
- Tarsila Seara
- Todd Gedamke
- Skyler Sagarese
- Vance Vicente

DAP chairs
SEFSC
SERO
Researchers
CFMC members and staff

Agenda overview

1. Reviewed **SEDAR 91 U.S. Caribbean Spiny Lobster Puerto Rico**
1. Reviewed **SEDAR 84 Caribbean Yellowtail Snapper (Puerto Rico)**
1. Reviewed **SEDAR 84 Caribbean Yellowtail Snapper (St. Thomas/St. John)**
1. Reviewed **SEDAR 84 Caribbean Stoplight Parrotfish (St. Croix)**
1. SSC Final Review and Recommendations for SEDAR 91 PR and SEDAR 84 PR-USVI
1. Update on **SEDAR 103 U.S. Caribbean Application of Alternative Assessment Methods**

1. SEDAR 91 Caribbean Spiny Lobster Puerto Rico



Credit Photo Collection of Dr. James P. McVey, NOAA Sea Grant Program

1. SEDAR 91 Caribbean Spiny Lobster Puerto Rico

1. In **March 2026 the CFMC SSC received from the Caribbean Fisheries Branch a Summary of Puerto Rico Spiny Lobster SEDAR 91 Additional Sensitivity Runs Incorporating Standardized Fishery-Dependent Indices of Abundance and 2024 Terminal Year**

1. **This report describes the requested supplemental analysis following the SSC's initial review of the SEDAR 91 assessment, highlighting a fundamental improvement to the modeling framework through the incorporation of a) standardized indices of abundance (Martínez Rivera and McCarthy 2026) and b) recruitment deviations into the assessment model.**

1. **The original SEDAR 91 Base model—which lacked these dynamic components—indicated the stock was overfished (SSB / SSBSPR 30% < 1) and undergoing overfishing (F / FSPR 30% > 1),**

1. **The updated sensitivity run (labeled 8324_03g) suggests a more optimistic stock status. By transitioning to F parameter estimation and enabling recruitment deviations, the model identifies a decade of strong recruitment signals that reconcile the simultaneous increases in CPUE and catch observed in recent commercial landings (Matos-Caraballo et al. 2024).**

1. **Under this more biologically representative configuration, the sensitivity run indicates the Puerto Rico spiny lobster stock is not overfished (SSB / SSBSPR 30%~ > 1) and not undergoing overfishing (F / FSPE 30% < 1).**

1. **Incorporating abundance indices fundamentally improves the SEDAR 91 modeling framework by allowing the model to distinguish between overfishing and natural recruitment fluctuations, providing more accurate and responsive management advice.**

SEDAR 91 Caribbean Spiny Lobster PR

Standardized Index of Abundance by Kevin McCarthy

Fishery-dependent indices of abundance: available data:

- Landings and fishing effort of commercial fishers from the Caribbean Commercial Logbook (CCL).
- Each fishing trip has a unique trip identifier, the landing date, fishing gear, coast, gear-specific effort, species caught, and weight (lbs) of the landings.
- Data subsetting.
- Catch per unit effort (CPUE) defined as whole weight per gear quantity (traps fished, SCUBA tanks used).

SEDAR 91 Caribbean Spiny Lobster PR

Outline

- Background
- S57 Assessment Approach
- S91 Assessment Approach
- S91 Sources of data
- Data and Life History Overview (what information went to the model)
- S91 Models
- Quantile Analysis (looking at different quantiles in the length data)
- Figures
- SSC Discussion and Next Steps

SEDAR 91 Caribbean Spiny Lobster PR

Background

- SEDAR 91 addressed the stock assessment for US Caribbean Spiny Lobster.
- The process consisted of an in-person Data Workshop, with several webinars before and after the workshop and a series of assessment webinars.
- The Stock Assessment Report (SAR) for US Caribbean Spiny Lobster – Puerto Rico was disseminated to the public in September 2025.
- The SSC was tasked with recommending whether the assessments represent Best Available Science, whether the results are useful for providing management advice and developing fishing level recommendations.

SEDAR 91 Caribbean Spiny Lobster PR

S57 Assessment Approach

- SEDAR 57 (S57) was the first application of Stock Synthesis (SS3) in the US Caribbean (2019).
- The Puerto Rico assessment models developed during S57 were fit to catch time series and length composition information from dive and pot/trap fisheries using a data-limited to moderate implementation of SS3.
- S57 resulted in a satisfactory determination for providing management advice.
- A data-only update was conducted through 2022 to provide OFLs and ABCs through 2023-2025.

S91 Assessment Approach

- Iterate on existing SEDAR 57 (S57), SEDAR 57 Update (S57U) length-based statistical catch at age models using SS3 through 2023
- SS3 was implemented as a length-based statistical catch-at-age model. Forward-projecting, age-structured population dynamics model that is fit to landings (removals), length composition data, and *indices of abundance*.

S91 Sources of Data

- Landings from self-reported fisher logbooks
- Length compositions from shore-based port sampling
- Life history parameters carried over from SEDAR 57

NEW: INCORPORATED INTO THE ASSESSMENT. INCLUDED IN THE BASE RUN.

- Length compositions obtained from SEAMAP-C dive surveys conducted off of the Southwest Puerto Rico coast during 2021-2023
- Length compositions obtained from an HJR Reefscaping lobster trap survey conducted throughout Puerto Rico coastal waters during 2021-2022
- Fishery-dependent indices of abundance from fisher logbooks (by Kevin McCarthy)

SEDAR 91 Caribbean Spiny Lobster PR

S91 Models

Stage	Code	Model Description
Initial	*init*	*S57 parameters unchanged* + data through 2023 and start year changed to 1985
	2initf	*init* + initial fishing mortality estimated for each fleet
	seamapc	*2initf* + SEAMAP-C data fit with exponential logistic selectivity parameters
	hjr	*seamapc* + HJR data fit with exponential logistic selectivity parameters
S91 Base	*new_eq*	*hjr* + equilibrium initial catches for each fleet based on likelihood profiles
Sensitivity	*selex1*	*new_eq* + dive fishery is initialized with logistic selectivity pattern; only estimating 1st limb
	selex2	*new_eq* + dive fishery is initialized with logistic selectivity pattern; 3 estimated parameters
	steep	*new_eq* + steepness fixed to 0.8
	combsex	*new_eq* + male growth and L-W for females to approximate a single male sex model
	lw	*new_eq* + US Caribbean region length-weight parameters
	eq_hi	hjr + equilibrium initial catches for each fleet based on likelihood profile highest values
	eq_lo	hjr + equilibrium initial catches for each fleet based on likelihood profile lowest values
	eq_cv_hi	*new_eq* + 0.3 initial catch CV
	indices	*new_eq* + fishery-independent indices of abundance

SSC Meeting: Action items: MOTIONS PROPOSED

Topic 1: Review **SEDAR 91 U.S. Caribbean Spiny Lobster Puerto Rico Assessment Report**

- **Motion 1**: The SSC considers the assessment for SEDAR 91 U.S. Caribbean Spiny Lobster for Puerto Rico to represent the **best available science.**

- **Motion 2**: The SSC finds that the results presented in the SEDAR 91 U.S. Caribbean Spiny Lobster Puerto Rico are **useful for providing management advice and developing fishing level recommendations for the Council.**

SSC Meeting: Action items: MOTIONS PROPOSED

Topic 1: Review **SEDAR 91 U.S. Caribbean Spiny Lobster Puerto Rico Assessment Report**

- **Motion 3:** The current assessment indicates that the stock is currently above target and therefore experiencing a fishing down to the MSY proxy. In addition, the new stock assessment shows an increase in the overall size of the population (i.e., a higher unfinished population size), which leads to an increase in catches with all other things being equal.
- -This increase in stock scale is greatly influenced by the final point in the new abundance indices, which adds further uncertainty in the model (as shown in the retrospective analysis).
- -These conditions lead to a 3-year average ABC that will exceed the proxy-MSY OFL in 2029.
- -Instead, the SSC recommends to use the ABC that is derived from the OFL based on the proxy-MSY (F at SPR=30%) as a constant catch value for management.
- -Further, the SSC recommends using the 2022-2024 landings average for each fleet as the provisional landings values for 2025 and 2026.

SSC Review and Decisions

	Metric Tons		Pounds	ABC Metric Tons	ABC Pounds
MSY 30% SPR	227.879		502,387	200.970	443,062
				Current ABC	376,452
				Tentative ABC based on CFMC P*	

Decisions for OFL and ABC

Necessary assumptions for recent landings (2025 & 2026)

P* = 0.45 *CFMC input for management uncertainty*

σ = 0.5 *SSC input scientific uncertainty*

2. SEDAR 84 Caribbean Yellowtail Snapper Puerto Rico

Credit: **Photographer** Dr. Dwayne Meadows

SSC Meeting: Action items: MOTIONS PROPOSED

Topic 2: Review **SEDAR 84 U.S. Caribbean Yellowtail Snapper Puerto Rico Assessment Report**

- **Motion 4**: The SSC considers the assessment for SEDAR 84 U.S. Yellowtail Snapper for Puerto Rico to represent the **best available science.**

- **Motion 5**: The SSC finds that the results presented in the SEDAR 84 U.S. Yellowtail Snapper for Puerto Rico are **not at present useful for providing management advice and developing fishing level recommendations for the Council.**

3. SEDAR 84 Caribbean Yellowtail Snapper STT-STJ

Credit: **Photographer** Dr. Dwayne Meadows

SSC Meeting: Action items: MOTIONS PROPOSED

Topic 3: Review **SEDAR 84 U.S. Caribbean Yellowtail Snapper St. Thomas-St. John Assessment Report**

- **Motion 6**: The SSC considers the assessment for SEDAR 84 U.S. Yellowtail Snapper for St. Thomas and St. John to represent the **best available science.**

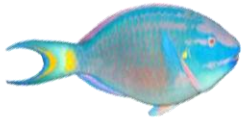
- **Motion 7**: Given the uncertainties noted during the Review Workshop, the SSC finds that the results presented in the SEDAR 84 U.S. Yellowtail Snapper for St. Thomas/St. John are **not at present useful for providing management advice and developing fishing level recommendations for the Council.**

4. SEDAR 84 Stoplight Parrotfish (St. Croix)

Credit: **Photographer** Dr. Dwayne Meadows

SSC Meeting: Action items: MOTIONS PROPOSED

Topic 4: Review **SEDAR 84 U.S. Caribbean Spotlight Parrotfish St. Croix Assessment Report**



- **Motion 8**: The SSC considers the assessment for SEDAR 84 U.S. Stoplight Parrotfish for St. Croix to represent the **best available science.**

- **Motion 9**: The SSC finds that the results presented in the SEDAR 84 U.S. Stoplight Parrotfish for St. Croix are **not at present useful for providing management advice and developing fishing level recommendations for the Council.**

5. SSC Final Review and recommendations for SEDAR 91 PR and SEDAR 84 PR-USVI

SSC Final Review for SEDAR 91 PR

FINAL REVIEW	SEDAR 91 PR SL
Best available science	X
Useful for providing management advice and developing fishing level recommendations for the Council	X

For SEDAR 91 PR SL - SSC presents the ABC to the Council Members. Results of the models demonstrate not overfishing and/or underfishing.

Action Item: Does the CFMC accepts or not the ABC, for it to pass to a framework amendment?

SSC Final Review for SEDAR 84 PR - USVI

FINAL REVIEW	SEDAR 84 PR YT	SEDAR 84 STT-STJ YT	SEDAR 84 STX SP
Best available science	X	X	X
Useful for providing management advice and developing fishing level recommendations for the Council			

For SEDAR 84 PR - USVI - The three assessment are found **NOT** useful for providing management advice and developing fishing level recommendations for the Council. What does the experts said? There is no stock assessments to determine how the population is. It cannot provide OFL and ABC.

Action Item: None.

SSC Meeting: Action items: MOTIONS PROPOSED

Topic 5: Review and Recommendations for **SEDAR 91 and SEDAR 84 Assessment Report**

- **Motion 10**: The SSC endorses the recommendations made by the data and review panels and also makes the following recommendations related to SEDAR 91 and SEDAR 84.

SEDAR 91 SSC Recommendations

1. Investigate further potential factors for use in the CPUE index standardization. The fish trap survey in particular showed large dynamics outside biological bounds that may be due to other factors currently not included in the standardization process, such as historical management decisions (e.g. size limits), socioeconomic factors, and fishing behavior (e.g., how traps are baited). Collection and analysis of Local Ecological Knowledge and other socioeconomic data can contribute to understanding potential drivers.

1. When developing fishery-dependent indices of relative abundance, consider alternative trip selection methods and/or improvements to the Stephens and MacCall (2004) trip selection approach, such as exploring whether species correlation coefficients (e.g. Index of Association) vary over time periods

SEDAR 91 SSC Recommendations

3. Model sensitivity analysis showed that when catch is given a larger variance, the model will deviate from the inputted catch time series, especially toward the end of the time series. This period of catches is also recognized as more uncertain and currently derived from a catch correction process that contains its own uncertainty. Local ecological knowledge may bear further insight into the best catch time series and how to calculate it, as it is preferred to model catches with low uncertainty rather than let the model estimate catches.

4. Adding recreational or other removal fleets will help estimate the overall scale of the lobster population and offer a more complete estimate of the overall fishing mortality.

5. Explore the potential impacts of warming water temperatures on spiny lobster recruitment and growth.

SSC Recommendations for SEDAR 84	SEDAR 84 PR YT	SEDAR 84 STT/STJ YT	SEDAR 84 STX SP
Continued evaluation of life history parameters for this stock	X	X	X
Evaluate stock connectivity to determine whether local recruitment contributes to the stock or if recruits are primarily obtained from surrounding areas	X	X	
Consider simpler assessment implementations such as an age-structure production model. This could be beneficial in situations where the representativeness of the TIP length composition is questionable, which was noted for Yellowtail Snapper in Puerto Rico	X		
Increase data collection for recreational landings	X	X	X
Initiate a sustained data collection program effort for local ecological knowledge	X	X	X
Investigate fishing effort	X		

SSC Recommendations for SEDAR 84	SEDAR 84 PR YT	SEDAR 84 STT/STJ YT	SEDAR 84 STX SP
Increase data collection for determining discards for both commercial and recreational fisheries, and consider alternative approaches using local ecological knowledge as needed		X	
Increase cooperative research effort to collect data mentioned	X	X	X
Increase FI sampling in waters deeper than 30m (DCRMP)	X		
Evaluate the utility of NCRMP and TCRMP surveys			X
Investigate whether landings time series can be extended back in time with either available data or local ecological knowledge	X	X	X

6. Update on SEDAR 103 U.S. Caribbean Application of Alternative Assessment Methods

Source: SEDAR

Topic 6: Update on **SEDAR 103 U.S. Caribbean Application of Alternative Assessment Methods**

Details:

- Review and recommend options for alternative assessment approaches to better inform management of US Caribbean federally managed species.
  - Approaches likely to differ among species and species groups.
  - Goal is to have analytical approaches recommended for most federally managed species in the US Caribbean.

- Project started in January 2026 (a delay from the original 2025 start date due to the 2025 government shutdown)

Topic 6: Update on **SEDAR 103 U.S. Caribbean Application of Alternative Assessment Methods**

SEDAR 103 Schedule: Data Webinars

Date	Webinar	Status
January 16, 2026	Data Scoping Webinar • *Discuss ToRs, scope of work, discuss working papers and reference documents*	Done
February 27, 2026	Data Webinar 1 • *Fisheries Dependent Data Review; Management History; Reporting Form History*	Done
April 1, 2026	Data Webinar 2 • *Fisheries Independent Data Review; Ecosystem, Environmental, Anthropogenic, Habitat Data Review*	Done
April 29, 2026	Data Webinar 3 • *Cont. FI/Ecosystem; Life History Data Review; Morphometrics Database*	Next
May 20, 2026	Data Webinar 4 • *Socioeconomic Data Review; fishery characterization*	Next
June, 2026 (TBD)	Data Webinar 5 • *Pacific Islands assessment history, Analytical methods lightning talks*	Next

Topic 6: Update on **SEDAR 103 U.S. Caribbean Application of Alternative Assessment Methods**

SEDAR 103 Schedule: TBD

Date	Webinar/workshop	Status
July 2026	Pre Workshop Webinar • *Continue analytical methods lightning talks if need, discuss workshop logistics*	Next
August, 2026	Working paper submission for Method Development Workshop to SEDAR Staff	Next
August 17-21, 2026	**In-Person Method Development Workshop (Miami, FL)**	Next
September, 2026	Post-workshop Webinar 1	Next
September, 2026	Deadline for Final Working Papers	Next
October, 2026	Draft Method Development Reports to Panel for Review	Next
October, 2026	Post-workshop webinar 2 • *Finish workshop discussions and begin assessment application*	Next
October, 2026	Report Comments due to Editors	Next
November, 2026	Final Report to SEDAR Staff	Next

Topic 6: Update on **SEDAR 103 U.S. Caribbean Application of Alternative Assessment Methods**

SEDAR 103 Schedule: TBD

Tentative date	Webinar/workshop	Status
November 2026	Assessment Application Webinar 1	Next
December 2026	Assessment Application Webinar 2	Next
January 2027	Assessment Application Webinar 3	Next
February 2027	Assessment Application Webinar 4	Next
February 22, 2027	Draft Assessment Application Reports to Panel for Review	Next
March 8, 2027	Report Comments due to Editors	Next
March 2027	Final Report to SEDAR Staff	Next
March 2027	Final Distribution to Review Panel	Next
Spring 2027	In-Person Review Workshop	Next
End of Workshop	First Draft Review Reports	Next
May 2027	Review Workshop Panel Drafts due to Chair	Next
June 2027	Review Workshop Addenda/Revision Reports due to Chair & SEDAR Staff	Next
June 2027	Review Workshop Panel Reports due to SEDAR Staff	Next
June 2027	Complete Assessment Report Submitted to SEDAR at SAFMC/SERO/SEFSC	Next

Topic 6: Update on **SEDAR 103 U.S. Caribbean Application of Alternative Assessment Methods**

Web site:

https://sedarweb.org/assessments/sedar-103-us-caribbean-application-of-alternate-assessment-methods/

- Reference documents
- Working Papers
- Terms of References (TORs)
- Project schedule