

NOAA
FISHERIES

SERO

Modification of Spiny Lobster Management Reference Points Based on SEDAR 57

Amendment to the for Puerto Rico, St. Thomas/St. John, and
St. Croix Fishery Management Plans

170th Caribbean Fishery Management Council Meeting
August 11-12, 2020

Overview – Island-based Spiny Lobster Stocks

The Council developed three new island-based FMPs and voted in December 2019 to submit the FMPs for review, approval, and implementation.

- Each island-based FMP includes the Council's 4-tiered Acceptable Biological Catch (ABC) control rule
 - All stocks/stock complexes fall under Tier 4 of the ABC control rule in the island-based FMPs, until amended
- Each island-based FMP re-specifies the ACL for spiny lobster

Fishery Management Plan	ABC (lbs)	ACL (lbs)
Puerto Rico	554,981	527,232
St. Thomas and St. John	220,221	209,210
St. Croix	207,925	197,528



ABC Control Rule Tier 4

Tier 4: Data Limited: **No Accepted Assessment Available**

MSY	MSY proxy = long-term yield at proxy for F_{MSY} .
SDC	$MFMT = F_{MSY \text{ proxy}}$ $MSST = 0.75 * SSB_{MFMT}$ Sustainable yield level (SYL) ⁵ = a level of landings that can be sustained over the long-term. $OFL \text{ proxy} = SYL$
Tier 4a	No accepted ⁶ assessment, but the stock has relatively low vulnerability to fishing pressure . A
Conditions for Use	stock's vulnerability to fishing pressure is a combination of its productivity and its susceptibility to the fishery. Productivity refers to the capacity of the stock to produce MSY and to recover if the population is depleted. Susceptibility is the potential for the stock to be impacted by the fishery. If SSC consensus ⁷ cannot be reached on the use of Tier 4a, Tier 4b should be used.
SYL	$SYL = \text{Scalar} * 75^{\text{th}} \text{ percentile of reference period landings}$, where the reference period of landings is chosen by the Council, as recommended by the SSC in consultation with the SEFSC. $\text{Scalar} \leq 3$ depending on perceived degree of exploitation, life history and ecological function.
ABC	$ABC = \text{buffer} * SYL$, where buffer must be ≤ 0.9 (e.g., 0.9, 0.8, 0.75, 0.70...) based on the SSC's determination of scientific uncertainty ⁸ .

For spiny lobster in each island-based FMP, the Council set the ACL (=OY) equal to the $ABC * 0.95$.



SEDAR 57: Spiny Lobster Stock Assessments

- SEDAR 57 estimated management reference points:
 - maximum sustainable yield (MSY) proxy
 - maximum fishing mortality threshold (MFMT) - overfishing
 - minimum stock size threshold (MSST) - overfished
- SEDAR 57 projected overfishing limit (OFL)
 - for years 2019-2022
 - SEFSC updated the OFL projections for 2021-2026

The SSC reviewed SEDAR 57 and determined that the stock assessments are suitable for management advice.



Accepted Assessment

The spiny lobster stock for each island would move from Tier 4 to Tier 3 of the ABC control rule.

Tier 3: Data Limited: Accepted Assessment Available	
Condition for Use	Relatively data-limited or out-of-date assessments
MSY	MSY proxy = long-term yield at proxy for F_{MSY}
SDC	MFMT = F_{MSY} proxy MSST = $0.75 * SSB_{MFMT}$ or proxy OFL = Catch at MFMT
ABC	ABC determined from OFL as reduced (buffered) by scientific uncertainty⁴ and reflecting the acceptable probability of overfishing² a. Where the buffer is applied to the PDF of OFL when the PDF is determined from the assessment (with $\sigma \geq 2\sigma_{min}$) OR b. Where $ABC = \text{buffer} * OFL$, where buffer must be < 0.9



Steps Following an Accepted Assessment

At the June 2020 meeting, the Council requested staff bring options for updating spiny lobster ACLs to the August meeting.

1. Accept the MSY proxy, MFMT, MSST, and OFL from SEDAR 57
2. Update ABC
 - $ABC \leq OFL$ as reduced by scientific uncertainty and acceptable probability of overfishing
3. Update ACL
 - How the ABC used to derive ACL (multi-year or annual ABC)
 - $ACL \leq ABC$ considering the level of management uncertainty

Note: Accountability measures (AM) for spiny lobster may need to be revised.

Options Paper

Staff drafted an options paper for a amendment to the island-based FMPs to modify spiny lobster management reference points based on SEDAR 57.

- Action 1: Update spiny lobster ABC for each island/island group
- Action 2: Update spiny lobster ACL for each island/island group

Modification of Spiny Lobster Management Reference Points Based on SEDAR 57



Options Paper

For a Generic Amendment to the Comprehensive Fishery Management Plans for Puerto Rico, St. Thomas/St. John, and St. Croix

August 2020



NOAA FISHERIES

Action 1 – Update ABC

Under Action 1, the Council would select their P^* for the spiny lobster stock **for each island/island group** and accept the SSC's ABC recommendation associated with that P^* .

- Option 1 – No Action. Retain the ABC for spiny lobster specified in each island-based FMP.

Note: This would not allow for updates to the ABC based on the best scientific information available.

- Options 2-7 correspond to the range of P^* selected by the Council (0.40 – 0.45, respectively).
- The Council selected a P^* of 0.45 at their June 2020 meeting (i.e., Option 7 is the preliminary preferred option).

Action 2 – Update ACL and Optimum Yield

Under Action 2, the Council would select the process for determining ACL and OY from the ABC recommended by the SSC for spiny lobster **in each island/island group** reflecting the Council's management uncertainty.

Note: The ACL can not exceed the recommended ABC.

- Option 1 – No Action. Retain the ACL for spiny lobster specified in each island-based FMP. The ACL was set equal to the OY for the stock.

Note: This would not allow for updates to the ACL (=OY) based on the best scientific information available.



Action 2 – Update ACL

- Option 2 – Set the ACL (and OY) equal to the **ABC recommended by the SSC for each year from 2021 to 2026 (changes every year)**, as reduced by a management uncertainty buffer in one of the sub-options below.

Sub-option 2a. $OY = ACL = ABC$

Sub-option 2b. $OY = ACL = ABC \times 0.95$

Sub-option 2c. $OY = ACL = ABC \times 0.90$

- Option 3 – Set the ACL (and OY) equal to the **minimum ABC recommended by the SSC for the 2021 to 2026 time period (same every year)**, as reduced by a management uncertainty buffer in one of the sub-options below.

Sub-option 3a. $OY = ACL = ABC_{\min 2021-2026}$

Sub-option 3b. $OY = ACL = ABC_{\min 2021-2026} \times 0.95$

Sub-option 3c. $OY = ACL = ABC_{\min 2021-2026} \times 0.90$



Option	Pro	Con
Option 1 (No Action)		<ul style="list-style-type: none"> Not based on best scientific information available (National Standard 2)
Option 2 ACL=ABC ACLs moving towards MSY proxy	<ul style="list-style-type: none"> For STT, gives higher ACLs than option 3 For STX, gives higher ACLs than option 3 For Puerto Rico, generally gives ACLs than option 3 	<ul style="list-style-type: none"> ACL values would change each year Would require revising AMs Data lag could prevent timely evaluation of landings to the ACL, complicating efforts to ensure accountability with the ACL
Option 3 ACL=ABC _{min} ACL would be near level of MSY proxy	<ul style="list-style-type: none"> ACL would be constant catch value Current AM could remain with minimal revisions 	<ul style="list-style-type: none"> ACL would be set based on lowest catch value recommended by SSC Option 3 would not allow for varying levels of catch recommended by SSC



Other Options not Included

- Average value
- Median value
- Maximum value

Year	ABC at P* 0.45	6-year Average ACL = ABC	6-year Average ACL = ABC*0.95	6-year Average ACL = ABC*0.90
2021	164,337	134,316	127,600	120,884
2022	141,736	134,316	127,600	120,884
2023	130,819	134,316	127,600	120,884
2024	125,508	134,316	127,600	120,884
2025	122,625	134,316	127,600	120,884
2026	120,872	134,316	127,600	120,884

MSA and regulations state that the ACL cannot be greater than the ABC recommended by the SSC.



Next Steps

Spiny Lobster Interdisciplinary Planning Team (IPT) works with SEFSC to evaluate other options based on the SSC's **moving catch** ABC recommendation.

Council could request the SSC recommend an acceptable **constant catch** ABC for each island/island group.

IPT will develop the spiny lobster amendment to the island-based FMPs for consideration at the December 2020 Council meeting.

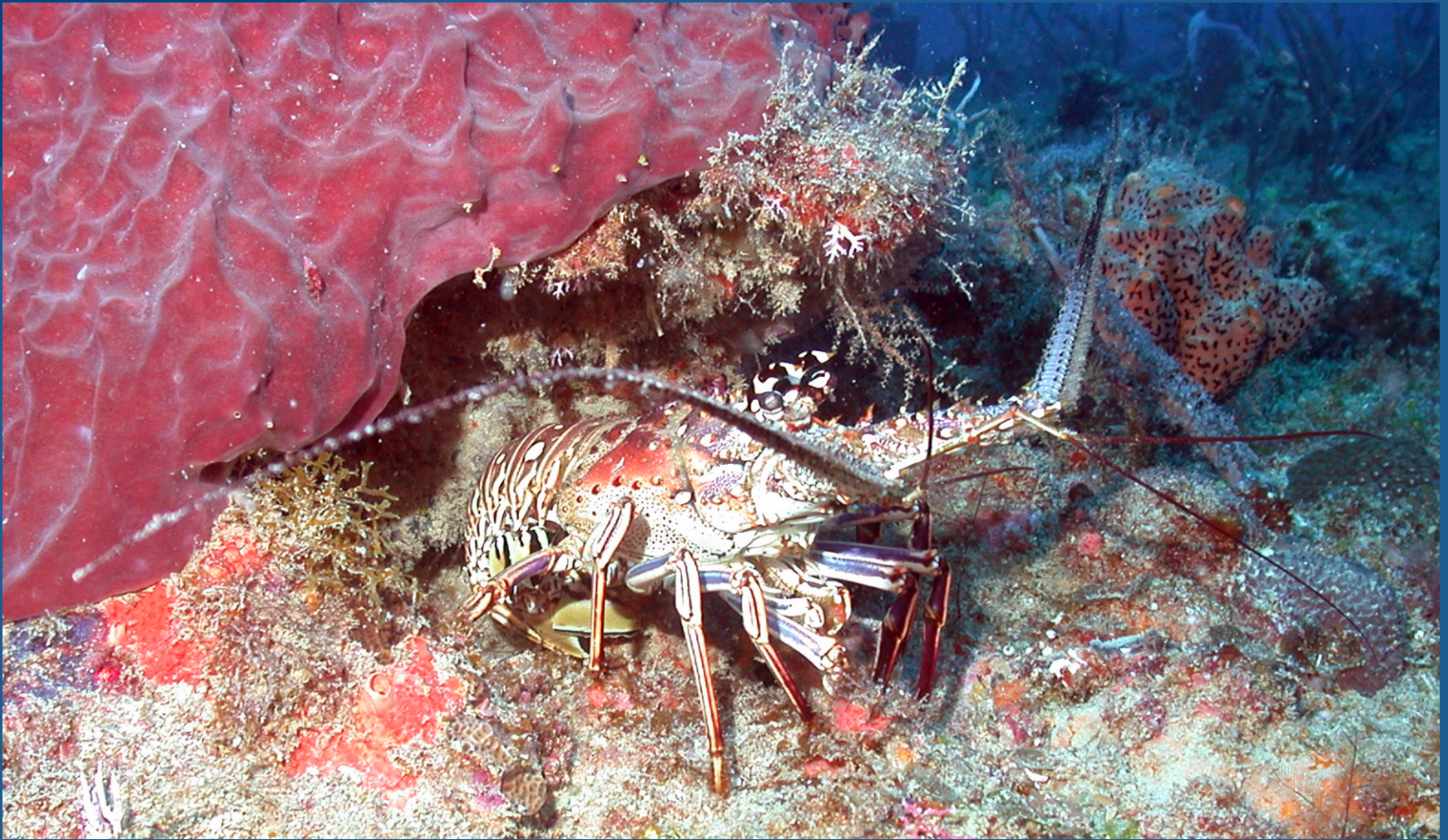


Accountability Measures

- The AM for spiny lobster in the island-based FMPs will use a spin up process to compare landings data **to the spiny lobster ACL**.
 - If an AM is triggered, the length of the spiny lobster fishing season would be reduced the year following the overage determination by the amount necessary to ensure landings do not again **exceed the ACL** in the year of application.
- If Council considers options that result in changing ACLs, the AM for spiny lobster would need to be revised.
 - Could compare a single year of landings to a single year ACL.
 - Could compare an average year of landings to an average ACL.
- Would be added to the amendment as a third action.



Questions



NOAA NCCOS and UNCW



NOAA FISHERIES

ABC at 0.45 P*

Year	Puerto Rico ABC (lbs)	St. Thomas/St. John ABC (lbs)	St. Croix ABC (lbs)
2021	358,283	164,337	174,363
2022	374,958	141,736	139,817
2023	379,319	130,819	126,820
2024	380,229	125,508	121,411
2025	380,604	122,625	118,643
2026	380,903	120,872	116,941



Puerto Rico Preliminary ACLs

Year	Option 1 (No Action)	Option 2a ACL=ABC	Option 2b ACL=ABC*0.95	Option 2c ACL=ABC*0.9	Option 3a ACL=ABC	Option 3b ACL=ABC*0.95	Option 3c ACL=ABC*0.9
2021	527,232	358,283	340,369	322,455	358,283	340,369	322,455
2022	527,232	374,958	356,210	337,462	358,283	340,369	322,455
2023	527,232	379,319	360,353	341,387	358,283	340,369	322,455
2024	527,232	380,229	361,218	342,206	358,283	340,369	322,455
2025	527,232	380,604	361,574	342,544	358,283	340,369	322,455
2026+	527,232	380,903	361,858	342,813	358,283	340,369	322,455



St. Thomas/St. John Preliminary ACLs

Year	Option 1 (No Action)	Option 2a ACL=ABC	Option 2b ACL=ABC*0.95	Option 2c ACL=ABC*0.9	Option 3a ACL=ABC	Option 3b ACL=ABC*0.95	Option 3c ACL=ABC*0.9
2021	209,210	164,337	156,120	147,903	120,872	114,828	108,785
2022	209,210	141,736	134,649	127,562	120,872	114,828	108,785
2023	209,210	130,819	124,278	117,737	120,872	114,828	108,785
2024	209,210	125,508	119,233	112,957	120,872	114,828	108,785
2025	209,210	122,625	116,494	110,363	120,872	114,828	108,785
2026+	209,210	120,872	114,828	108,785	120,872	114,828	108,785



St. Croix Preliminary ACLs

Year	Option 1 (No Action)	Option 2a ACL=ABC	Option 2b ACL=ABC*0.95	Option 2c ACL=ABC*0.9	Option 3a ACL=ABC	Option 3b ACL=ABC*0.95	Option 3c ACL=ABC*0.9
2021	197,528	174,363	165,645	156,927	116,941	111,094	105,247
2022	197,528	139,817	132,826	125,835	116,941	111,094	105,247
2023	197,528	126,820	120,479	114,138	116,941	111,094	105,247
2024	197,528	121,411	115,340	109,270	116,941	111,094	105,247
2025	197,528	118,643	112,711	106,779	116,941	111,094	105,247
2026+	197,528	116,941	111,094	105,247	116,941	111,094	105,247

