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# Modification of Spiny Lobster Management Reference Points Based on SEDAR 57 Stock Assessments

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

173rd Caribbean Fishery Management Council Meeting  
April 27-28, 2021

# Review from December 2020 Council Meeting

Draft framework amendment to the island-based FMPs would update spiny lobster management reference points following the accepted SEDAR 57 stock assessments and the change from Tier 4 to Tier 3 under the ABC Control Rule.

Reviewed two actions included in the draft amendment:

- 1 - Update spiny lobster OFL/ABC/ACLs using constant-catch or variable-catch approach.
- 2 - Update accountability measure (AM) trigger for spiny lobster.

# Requests from December 2020 Council Meeting

- Council requested SEFSC update OFL projections and ABC estimates for Puerto Rico using complete 2019 landings data adjusted using 2019 expansion factors.
- Council requested SSC review updated OFLs/ABCs, discuss the OFL/ABC “shelf-life”, and provide input on using an arithmetic versus geometric average to trigger an AM.
- IPT to update framework amendment following SSC meeting and add in a high-level comparison of alternatives.

# Outcomes from February 2021 SSC Meeting

Specific to Action 1 (setting OFLs, ABCs, and ACLs):

- The SSC agreed to allow the Chair to approve the updated OFL projections and ABC estimates for Puerto Rico.
- The SSC continues to recommend ABCs for 2021-2023.
- If subsequent rulemaking with updated OFLs/ABCs/ACLs not in place by the end of 2023, the SSC recommends the OFL/ABC for 2024 and later be equal to the OFL/ABC set for 2023 under the variable-catch approach.

Specific to Action 2 (AM trigger):

- The SSC recommend the Council continue using an arithmetic mean for ACL monitoring purposes.

# Changes to Draft Amendment

- Updated OFLs/ABCs/ACLs for Puerto Rico using complete 2019 landings data and 2019 expansion factors.
- Set OFLs/ABCs/ACLs for 2024 and later based on SSC recommendation from February meeting.
- Ramp-up alternative in Action 2 replaced with an alternative that uses a 3-year arithmetic average of landings as the AM trigger.
- Added high-level comparison of alternatives (physical, biological/ecological, economic, social, administrative effects).
- Chapter 3 - description of environments added, incorporating by reference information from the island-based FMPs.
- References and Appendices were added.



# Modification of Spiny Lobster Management Reference Points Based on SEDAR 57 Stock Assessments



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

Version 2.0  
April 2021



# Action 1 – Spiny Lobster OFLs, ABCs, and ACLs

Alternative 1 – No Action. The OFL proxy, ABC, and ACL (which equals OY) for spiny lobster would remain as specified under the Puerto Rico FMP, St. Thomas and St. John FMP, and St. Croix FMP.

| Fishery Management Plan | Spiny Lobster SYL* | Spiny Lobster ABC | Spiny Lobster ACL |
|-------------------------|--------------------|-------------------|-------------------|
| Puerto Rico             | 924,968            | 554,981           | 527,232           |
| St. Thomas and St. John | 367,035            | 220,221           | 209,210           |
| St. Croix               | 346,541            | 207,925           | 197,528           |

\* Under Tier 4 of the ABC Control Rule included in each FMP, the SYL was quantified and used as the OFL proxy

Alternative 1 would be inconsistent with the requirements of the Magnuson-Stevens Act and National Standard 2 Guidelines.

# Action 1 – Variable versus Constant Approach

## Alternative 2: Variable-catch OFLs and ABCs for spiny lobster

| Year  | Puerto Rico OFL | Puerto Rico ABC | St. Thomas/ St. John OFL | St. Thomas/ St. John ABC | St. Croix OFL | St. Croix ABC |
|-------|-----------------|-----------------|--------------------------|--------------------------|---------------|---------------|
| 2021  | 444,020         | 391,587         | 195,223                  | 172,170                  | 200,020       | 176,400       |
| 2022  | 440,387         | 388,383         | 165,021                  | 145,534                  | 159,452       | 140,623       |
| 2023  | 438,001         | 386,279         | 150,497                  | 132,725                  | 144,219       | 127,189       |
| 2024+ | 438,001         | 386,279         | 150,497                  | 132,725                  | 144,219       | 127,189       |

## Alternative 3: Constant-catch OFLs and ABCs for spiny lobster

| Year        | Puerto Rico OFL | Puerto Rico ABC | St. Thomas/ St. John OFL | St. Thomas/ St. John ABC | St. Croix OFL | St. Croix ABC |
|-------------|-----------------|-----------------|--------------------------|--------------------------|---------------|---------------|
| 2021 - 2023 | 440,803         | 388,750         | 170,247                  | 150,143                  | 167,897       | 148,071       |
| 2024+       | 438,001         | 386,279         | 150,497                  | 132,725                  | 144,219       | 127,189       |

# Action 1 – Setting ACL Sub-alternatives

## Sub-alternatives 2a-2c: Variable-catch ACLs

| Island/Island Group     | Year  | Sub-alternative 2a<br>(ACL = ABC) | Sub-alternative 2b<br>(ACL = ABC * 0.95) | Sub-alternative 2c<br>(ACL = ABC * 0.90) |
|-------------------------|-------|-----------------------------------|--|--|
| Puerto Rico             | 2021  | 391,587                           | 372,008                                  | 352,428                                  |
|                         | 2022  | 388,383                           | 368,964                                  | 349,545                                  |
|                         | 2023+ | 386,279                           | 366,965                                  | 347,651                                  |
| St. Thomas/<br>St. John | 2021  | 172,170                           | 163,562                                  | 154,953                                  |
|                         | 2022  | 145,534                           | 138,257                                  | 130,981                                  |
|                         | 2023+ | 132,725                           | 126,089                                  | 119,453                                  |
| St. Croix               | 2021  | 176,400                           | 167,580                                  | 158,760                                  |
|                         | 2022  | 140,623                           | 133,592                                  | 126,561                                  |
|                         | 2023+ | 127,189                           | 120,830                                  | 114,470                                  |

The ACLs for 2024 and later would be equal to the values specified for 2023.

# Action 1 – Setting ACL Sub-alternatives

## Sub-alternatives 3a-3c: Constant-catch ACLs

| Island/Island Group     | Year        | Sub-alternative 3a<br>(ACL = ABC) | Sub-alternative 3b<br>(ACL = ABC * 0.95) | Sub-alternative 3c<br>(ACL = ABC * 0.90) |
|-------------------------|-------------|-----------------------------------|--|--|
| Puerto Rico             | 2021-2023   | 388,750                           | 369,313                                  | 349,875                                  |
|                         | 2024+       | 386,279                           | 366,965                                  | 347,651                                  |
| St. Thomas/<br>St. John | 2021 - 2023 | 150,143                           | 142,636                                  | 135,129                                  |
|                         | 2024+       | 132,725                           | 126,089                                  | 119,453                                  |
| St. Croix               | 2021 - 2023 | 148,071                           | 140,667                                  | 133,264                                  |
|                         | 2024+       | 127,189                           | 120,830                                  | 114,470                                  |

The ACLs for 2024 and later would be set equal to the values specified for 2023 under the variable-catch approach.

The Council could select a different alternative and sub-alternative for each island/island group.

# Action 1 – Comparison of Alternatives

ACLs under Alternative 1 could result in reduced biological benefits to the stock through a greater risk of overfishing based on SEDAR 57 outcomes.

The total catch (sum of annual ACLs) under Alternative 2 is the same as the total catch under Alternative 3 (see table), so equal biological benefits.

Alternative 3 (constant ACLs) could have greater socio-economic benefits.

| Year         | Puerto Rico ACLs |                  | St. Thomas/St. John ACLs |                | St. Croix ACLs |                |
|--------------|------------------|------------------|--------------------------|----------------|----------------|----------------|
|              | Sub-alt. 2b      | Sub-alt. 3b      | Sub-alt. 2b              | Sub-alt. 3b    | Sub-alt. 2b    | Sub-alt. 3b    |
| 2021         | 372,008          | 369,313          | 163,562                  | 142,636        | 167,580        | 140,667        |
| 2022         | 368,964          | 369,313          | 138,257                  | 142,636        | 133,592        | 140,667        |
| 2023         | 366,965          | 369,313          | 126,089                  | 142,636        | 120,830        | 140,667        |
| 2024+        | 366,965          | 366,965          | 126,089                  | 126,089        | 120,830        | 120,830        |
| <b>Total</b> | <b>1,474,902</b> | <b>1,474,904</b> | <b>553,997</b>           | <b>553,997</b> | <b>542,832</b> | <b>542,831</b> |

# Action 2 – Revise the Spiny Lobster AM Trigger

Alternative 1 - No Action. An AM would be triggered if spiny lobster landings from the following years exceeded the spiny lobster ACL:

- (1) Landings from 2018
- (2) Landings from 2019
- (3) Two-year average of landings (2019 and 2020)
- (4) **Three-year average of landings** (2019, 2020, and 2021)
- (5) Thereafter, a progressive running three-year average.

# Action 2 – Alternatives

**Alternative 2.** Use the average of the most recent **three years** of spiny lobster landings to trigger an AM. An AM is triggered if average landings exceeded average ACLs in place during those years. The years of landings used to trigger an AM can be adjusted to account for the best scientific information available.

**Alternative 3.** Use the most recent **single year** of spiny lobster landings to trigger an AM. An AM is triggered if landings exceeded the ACL in place during that year. The years of landings used to trigger an AM can be adjusted to account for the best scientific information available.

# Action 2 – Comparison of Alternatives

| Fishing Year | Most Recent Landings Available* | AM Trigger Alternative 1**     | AM Trigger Alternative 2       | AM Trigger Alternative 3 |
|--------------|---------------------------------|--------------------------------|--------------------------------|--------------------------|
| 2022         | 2020                            | Single year (2020)             | Three-year average (2018-2020) | Single year (2020)       |
| 2023         | 2021                            | Single year (2021)             | Three-year average (2019-2021) | Single year (2021)       |
| 2024         | 2022                            | Two-year average (2021-2022)   | Three-year average (2020-2022) | Single year (2022)       |
| 2025         | 2023                            | Three-year average (2021-2023) | Three-year average (2021-2023) | Single year (2023)       |
| 2026         | 2024                            | Three-year average (2022-2024) | Three-year average (2022-2024) | Single year (2024)       |

\* Complete landings are generally available two years after when the fishing occurred (i.e., the fishing year).

\*\* This analysis uses different years for Alternative 1 than specified in the IBFMPs for simplicity in comparing the alternatives.

# Action 2 – Comparison of Alternatives

A multi-year average of landings would be expected to account for biological (e.g., year-class variability) and economic (e.g., market demand) variability in the landings, thereby reducing the probability that an AM would be triggered.

However, if landings in a particular year are very high and a 3-year average is used as the AM trigger, that one year of high landings could be used in the average multiple times, potentially triggering AMs in three consecutive years.

# Action 2 – Comparison of Alternatives

Landings for 2020 are not available at this time, but it is expected that they would be less than the previous years' landings for all islands due to the reduced fishing effort in 2020 during the Covid-19 pandemic.

- If future landings in Puerto Rico are at levels observed in 2018 or 2019, then AMs would likely be triggered under all alternatives.
- Annual landings in the USVI have been less than the ACLs proposed under Action 1. If landings continue at those levels, an AM would not be triggered under any of the Action 2 alternatives.

| Year | Puerto Rico | St. Thomas/<br>St. John | St. Croix |
|------|-------------|-------------------------|-----------|
| 2012 | 385,811     | 83,157                  | 87,073    |
| 2013 | 275,424     | 84,513                  | 59,398    |
| 2014 | 376,779     | 92,261                  | 39,724    |
| 2015 | 418,273     | 109,455                 | 44,963    |
| 2016 | 449,233     | 121,695                 | 31,582    |
| 2017 | 283,221     | 91,911                  | 26,193    |
| 2018 | 520,829     | 86,708                  | 10,970    |
| 2019 | 488,968     | 88,100                  | 15,721    |

# Next Steps

- Council could select preferred alternatives at this meeting.
  - Action 1: select variable or constant-catch approach.
  - Action 1: select management uncertainty reduction buffer to set the ACL from the ABC.
  - Action 2: select the AM trigger for spiny lobster.
- IPT develops framework amendment for final action at the August 2021 Council meeting.
- If requested by Council, staff presents a summary of the draft amendment to District Advisory Panels before the August 2021 Council meeting.



# Questions



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