NOAA FISHERIES

# Progress Report: SEDAR 46: U.S. Caribbean Limited Assessment

# Final selected species

- 6 Stocks, 2 per Island Platform
- Final selection determined by SEDAR panelists

**Species sorted by average annual commercial landings for each island unit**

| Puerto Rico | | St. Thomas | | St. Croix | |
|---|---|---|---|---|---|
| 1 | Yellowtail snapper | 1 | Spiny lobster | 1 | Spiny lobster |
| 2 | Spiny lobster | 2 | Queen triggerfish | 2 | Queen conch |
| 3 | Silk snapper | 3 | Red hind | 3 | Dolphin |
| 4 | Queen conch | 4 | Yellowtail snapper | 4 | Stoplight parrotfish |
| 5 | Lane snapper | 5 | White grunt | 5 | Queen parrotfish |
| 6 | White grunt | 6 | Blue tang | 6 | Queen triggerfish |
| 7 | King mackerel | | | 7 | Redtail parrotfish |
| 8 | Dolphin | | | 8 | White grunt |
| 9 | Queen snapper | | | | |
| 0 | Mutton snapper | | | | |
| 11 | Queen triggerfish | | | | |
| 12 | Hogfish | | | | |






# Conclusions of Review Panel and SSC

- The SEDAR 46 panel ***reviewed*** and ***accepted*** the assessment results during February 2016. Some improvements were recommended.
- The SSC reviewed the assessment during April 2016, and:
  - Commended SEFSC, SERO and partners for the massive and comprehensive work conducted...
  - Pleased with the overall approach and excited about its potential use for providing management advice…
  - Required some improvements before specific results could be used to develop OFL and ABC.
  - ***These improvements will be presented at the August SSC Meeting***.

# Requested Improvements

- Review life-history parameters. In particular:
  - The steepness parameter selected for the STX and STT spiny lobster.
  - The Linf selected for PR hogfish
- Use Then et al. 2015 for natural mortality parameterization.
- Improve the simulation (MSE) by eliminating the biologically implausible parameter combinations (e.g. correlated growth parameters).
- One or more metrics should be developed describing the short term consequences of the management strategies so that aspects of implementation, such as short-term pain and speed of recovery, can be considered.

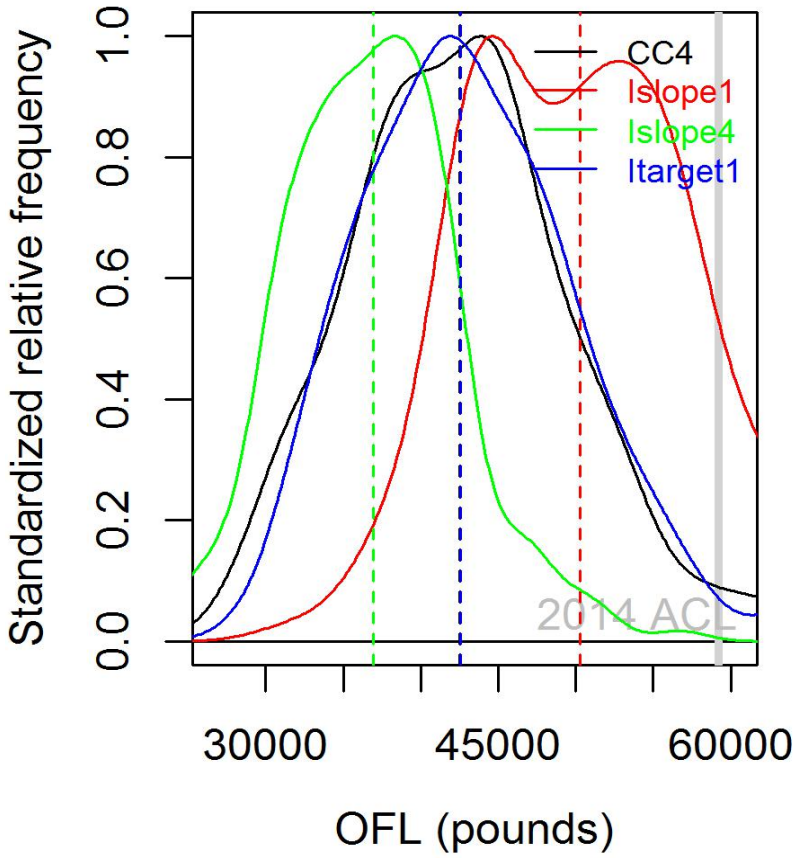
# Recommended Approaches for U.S. Caribbean

- The SEDAR RW and the SSC recommended further investigation of ***Catch***, ***Index*** and ***Target*** (e.g. catch rate) and ***Mean Length*** based data limited approaches because:
    - Required data inputs were available
    - In simulations (MSEs) these methods typically:
        - Did not result in overfishing or overfished status
        - Resulted in relatively stable long-term catches
        - Allowed yields relatively close to hypothetical maximum sustainable yield.

# Example of Provisional Results: Puerto Rico Hogfish

- ***Note: these results will be updated for the August SSC meeting, and are subject to change.***

| METHOD | OFL (lbs) Com+Rec |
|---|---|
| Mean Length (SPR 40) | 50,700 |
| I-slope | 49,368 |
| I-target | 41,765 |
| Constant Catch "4" | 41,262 |
| | |
| ***Catch Comparisons*** | |
| Current ACL | ~60,000 |
| 2012-2014 Catch | 59,946 |



# Next Steps

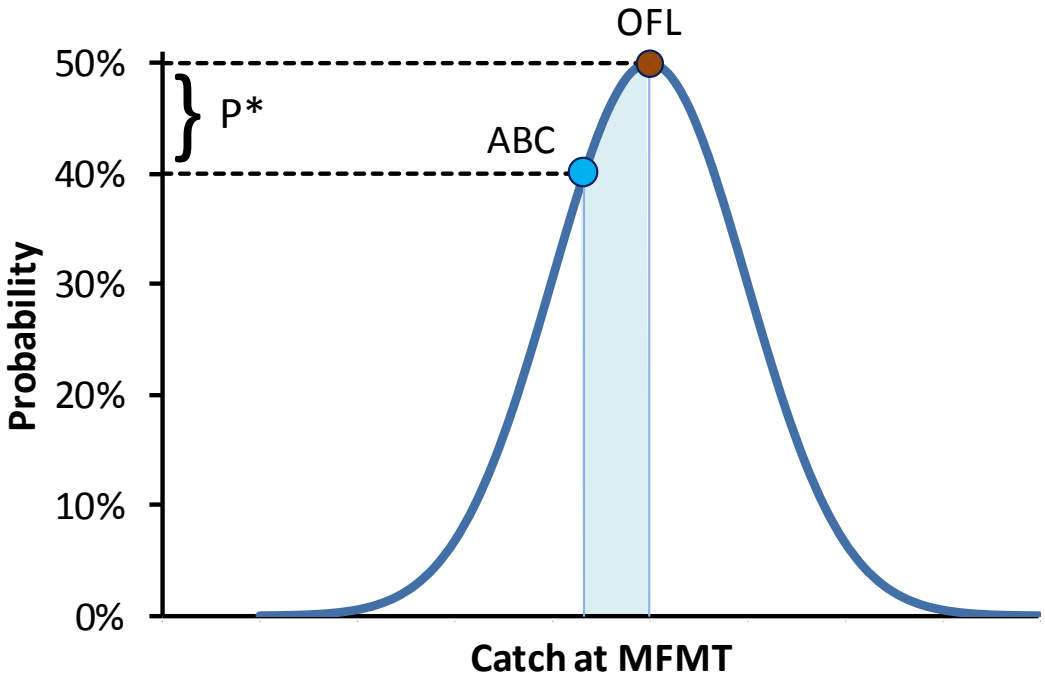
- SEFSC will refine operating models and results for further evaluation by the SSC in August 2016.
- SEFSC, SERO, CFMC and SSC personnel will participate in the ABC control rule working group. An ABC control rule is necessary to calculate OFL and ABC.
- Determine final FMP species and assign indicator species if needed (CFMC/SSC/SERO/SEFSC).

# ABC Control Rule Refresher

- An agreed procedure, codified in the FMP, for setting the ABC for a stock or stock complex as a function of the scientific uncertainty.
- Each Council must establish an ABC control rule based on scientific advice from its SSC.
- The SSC must recommend the ABC to the Council. An SSC may recommend an ABC that differs from the result of the ABC control rule, but must explain why.
- Can involve complex drivers based on measured stock biomass, measured uncertainty, forecasts of environmental effects, etc.
- Can be tiered to accommodate different levels of scientific uncertainty (e.g. data-rich -> data limited -> catch only).

# ABC Control Rule

- The determination of ABC should be based, when possible, on the probability that a catch equal to the stock's ABC would result in overfishing (P*). The probability of overfishing cannot exceed 50% and should be a lower value.



# Moving Forward: Need a flexible ABC control rule

## Need at least 2 tiers describing what to do if

1. If SSC "accepts" the assessment
   - Method for computing OFL (e.g., single base model or average of multiple models)
   - Method for computing ABC (buffering for scientific uncertainty)

   If P* approach taken the Council will need to specify the acceptable probability of overfishing (NS1: it must be less than 50%)

2. If SSC "rejects" the assessment
   - Interim OFL and ABC based on recent landings history (similar to current approach)
   - Include in a complex of species with a collective OFL and ABC

# Species Complexes

Species complexes in the U.S. Caribbean will likely include members that cannot be assessed due to insufficient information.

# Use of Indicator Species

1. In such cases, NMFS and the SEFSC support the use of indicator species to manage species complexes.
2. Stock complexes should be comprised of species with similar geographic range, life history, vulnerability etc.
3. To promote productive and sustainable resources, the SEFSC recommends accountability measures (e.g. closures, effort reductions) for all members of the stock complex when the ACL for an indicator species is exceeded.