POSSIBLE DIRECTIONS FOR DATA-LIMITED STOCKS

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Data-limited is in the eye of the beholder

Alaska

- Tier 6: Time series of reliable catch data

Caribbean

- Majority of stocks: No time series of reliable catch data

Large proportion of stocks are in the data-limited category, yet ACLs are expected.

History of data-limited stocks

- They've been largely "resource-limited" because:
  - They're not as important as other stocks.
  - They're part of a multi-species fishery.
  - They're part of a complex.
  - They're bycatch.
  - They're expected to eventually move into higher level assessment tiers.

History of data-limited stocks

- Scalar approaches
  - Restrepo et al.
  - Modified methods
  - New ORCS approach to be released soon.
- Move towards more sophisticated methods
  - DB-SRA
  - DCAC
- MSRA has now forced the issue

What is our goal for data-limited stocks?

- Make them data-rich stocks? Move them up through the tiers?
  - Not realistic.
  - Don’t have resources/data/time.
  - Won’t be plugging most of them into SCA Models.
  - Many species are too rare.
  - Will likely be working with many of these species “as they are” for the foreseeable future.

- Are ACLs possible for many of these stocks?
  - Been debated.
  - Subject for another meeting.
  - Regardless, ACLs are required.

Approaches for dealing with data-limited stocks: Start with triage

- Unassessed Stocks: range from those available for sophisticated assessments to those not being able to be assessed at all, with everything in between…
  - *Should we treat all data-limited stocks alike?*
    - *Should we increase data collection and work on assessments for all of them?*
  - *Should we treat all data-adequate stocks alike?*
    - *Are there some we can use data-limited approaches on to improve throughput?*

Need to do a cost-benefit analysis

Triage:

Separate unassessed stocks into:

1) Stocks that are assessable right now with data and methods we already have
   - Issue is assessment capacity/throughput
2) Stocks that would be assessable within 3-5 years if we take some action now
   - Need timely and focused science input
3) Stocks that still would not be assessable even in 5 years
   - Explore alternative/emerging methods to generate catch level recommendations

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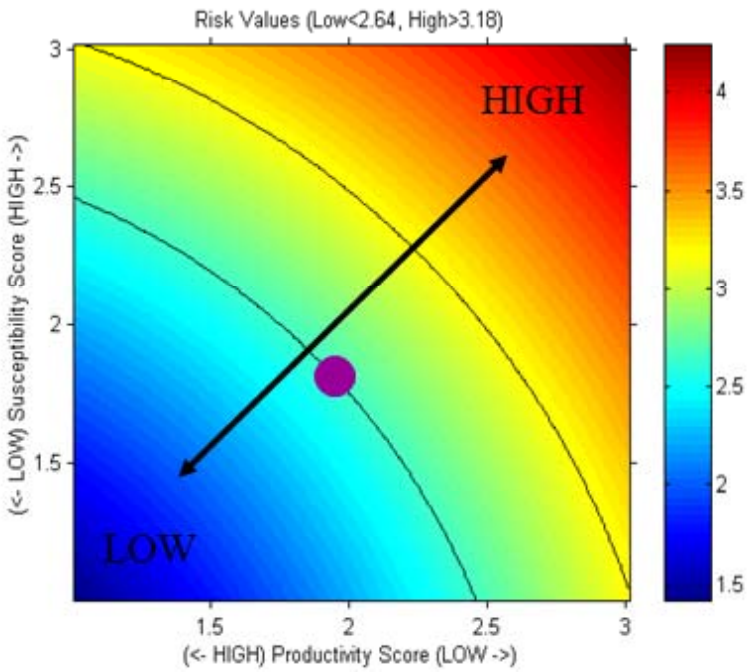
Triage:

Within categories, stocks need to be triaged to prioritize resources (data collection and assessment). This can be done using many possible criteria:

- Economic value to the fishery
  - Catch
  - Bycatch implications
- Productivity / Vulnerability
  - PSA Analysis
  - Other risk assessment methods
- Value to ecosystem
- Other



1) Stocks that are assessable right now with data and methods we already have

- Subject of later talks and discussion.

2) Stocks that would be assessable within 3-5 years if we take some action now

- Focus data collection not necessarily to reach “data-rich” tiers, but to allow use of data-limited approaches.
  - *Leads to more realistic expectations and more reasonable resource expenditures*
  - *For some stocks it may not be possible to get catch data with low enough error to be useful (law of diminishing returns)*
- Explore cooperative research/experimental fisheries as a way to collect better data.

2) Stocks that would be assessable within 3-5 years if we take some action now

Consider the use of emerging methods such as:

- DB-SRA or DCAC
  - Often requires reconstructing historic catch records.
- Length-based assessment methods
  - Average length approaches (e.g., Gedamke-Hoenig approach)
  - Length inside/outside MPAs
- Density-based control rules (MPA)
  - If sufficient time since MPA creation.

Is the implementation of a stock complex approach appropriate?

Use ORCS approach in the mean time.

3) Stocks that still would not be assessable within 5 years

Identify if any assessment methods exist with long term potential given the data that can practically be collected with the resources available.

- If so, and if triage identifies a sufficient priority, move forward.

Until and unless an assessment method can be applied:

- Is the implementation of a stock complex approach appropriate?
- Use the ORCS approach in the mean time if a reliable time series of catch exists.

For many data-limited stocks, life history information is desperately needed

- Basic life history info lacking
  - Supports development of PSA and other uses of life history theory to guide risk assessment/vulnerability analyses

  e.g., maximum age (relatively easy to get)
  - *Get this information by aging 10 largest fish caught*
  - *Example: Rosy rockfish <4", but actually 40 years max age*
- Growth
- Size- and age-at-maturity, reproductive periodicity, reproductive pattern (hermaphroditic or gonochoristic?)

TRIGGER QUESTIONS

- Can we triage the current “unknown status” stocks into those that are feasible to assess in the next 3-5 years, and those that are not? Can we then prioritize stocks in those categories?
- What’s the most important first step to take when trying to provide advice in a data-limited situation?
- Which of the possible directions proposed for data-limited stocks can most realistically and beneficially be implemented over the next 3-5 years?

Which of these can most realistically and beneficially be implemented over the next 3-5 years?

1. Reconstruct catch data for DB-SRA/DCAC approaches.
2. Collect length data for length-based approaches.
3. Collect density data for density-based approaches.
4. MSE work to test effectiveness of alternative methods.
5. Collect life history information.
6. Develop and apply triage criteria to prioritize stocks.
7. Improve criteria for stock complexes.
8. Improve overall data collection (e.g. catch, surveys).
9. Others?