SEFSC Recommendation to Revise the Definition of Optimal Yield

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Optimal Yield

- The term "optimum", with respect to the yield from a fishery, means the amount of fish which—

  (A) will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities, and taking into account the protection of marine ecosystems;

  (B) is prescribed as such on the basis of the maximum sustainable yield from the fishery, ***as reduced by*** any relevant economic, social, or ecological factor; and

  (C) in the case of an overfished fishery, provides for rebuilding to a level consistent with producing the maximum sustainable yield in such fishery.

Current SSC Preferred Option (Sept 2019)

- Action 4 (Defining optimum yield)
- The SSC (and IPT) reiterated previous discussions where OY is difficult to define because of the lack of quantitative socioeconomic data. The SSC stated that it was imperative to convey all extensive discussions the group has had on defining OY, and that the Council consider these discussions in their management decisions for OY.

Current SSC Preferred Option (Sept 2019)

- **Motion: In Action 4, any values in the range presented under Alternative 2 are acceptable.**
  - Alternative 2: For reef fish stocks and red drum where OY is undefined, OY, implicitly accounting for relevant economic, social, or ecological factors, would be the yield from fishing at:
    - Option 2a. 50% of F_{MSY} proxy.
    - Option 2b. 75% of F_{MSY} proxy.
    - Option 2c. 90% of F_{MSY} proxy.
- ***Motion carried 17-2 with 1 absent and 1 abstention.***

Boilerplate SEDAR Terms of Reference

- Stock projections shall be developed in accordance with the following: Scenarios to evaluate
    1. Project F_{MSY} or proxy
    2. ***Project F_{OY} (75% of F_{MSY}, or proxy)***
    3. Project Frebuild if overfished
    4. Project F = 0 if overfished
- Most often, OY has been defined as the equilibrium yield that results when fishing at F_{OY} (item 2 above).
- In some cases OY has been defined as 75% of MSY

SEFSC Recommendations for OY

- Lacking a process to produce a quantitative estimate of OY that includes all relevant considerations, the Science Center recommends:
- OY, implicitly accounting for relevant economic, social, or *ecological factors*, would be a multiplier of MSY < 1.0. For example:
    - Option A. 50% of MSY
    - Option B. 75% of MSY
    - Option C. 90% of MSY ***** the SEFSC notes that this option most closely corresponds with OY = equilibrium yield when fishing at 75%FMSY*****

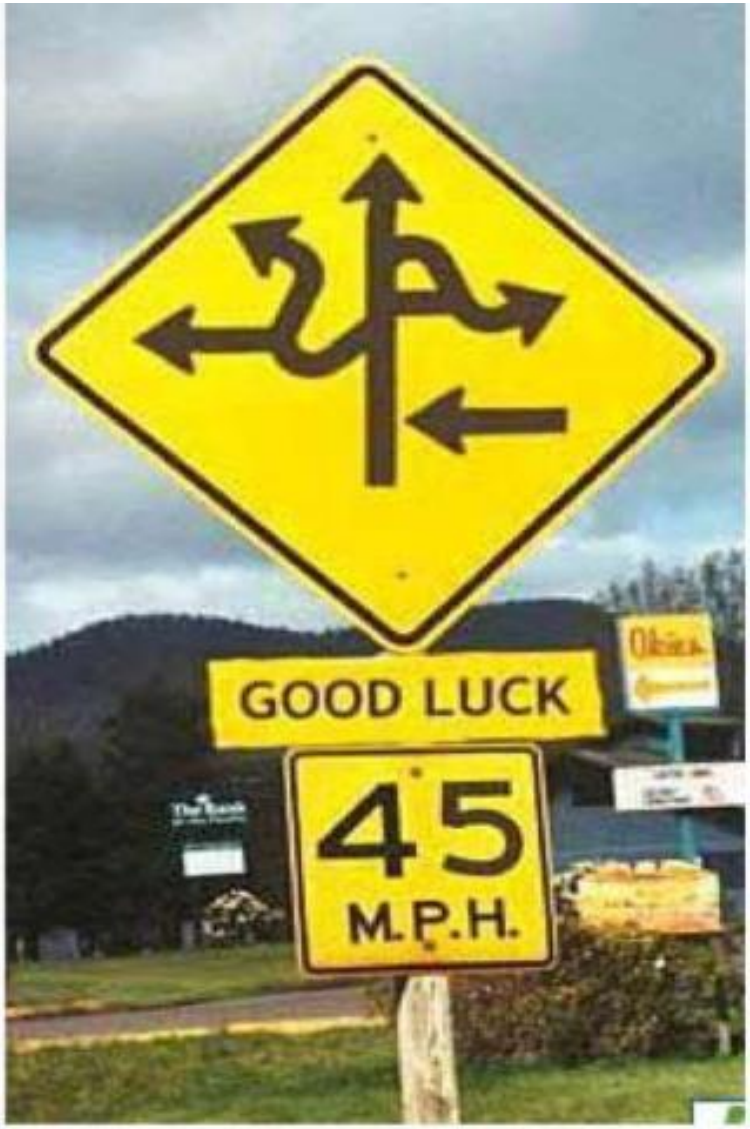
Science Center Rationale

1. It is less intuitive to determine how much to reduce F than to reduce catch (i.e., a 25% reduction in F usually amounts to about a 10% reduction in long-term yield - because the stock grows more with less fishing.
2. It sometimes occurs that the calculated long-term yield at FOY is ***greater*** than the calculated long-term yield at FMSY proxy, e.g., the calculated long-term yield at 75% of FSPR30 in some cases might be greater than at FSPR30! This is an artifact of using proxies.
3. The SSC's recommended approach requires an additional set of projections.

Further Thoughts when using SPR proxies

- The SEFSC notes that the various landing calculations we provide (OFL/ABC/long-term) to achieve a given SPR level ***already*** take into account extensive consideration of social and economic factors that lead the council to its current mix/allocation of fisheries (even if not derived based on quantitative analyses).
- Current projections account for the Council's specific allocations.

Further Thoughts

- The long-term yield that achieves the SPR target is lower with the Council's mix/allocation of fisheries than it would be with optimal selection patterns
- Therefore the long-term yield with the Council's mix/allocation of fisheries can be regarded as a proxy for OY, and the maximum long-term yield as a proxy for MSY (meeting the definition in MSA: OY = MSY as reduced by any relevant economic, social..)
- The options on slide 6 can be regarded as further reducing OY to accommodate relevant *ecological* factors

Questions?