SSC Reports
September 2021 SAFMC Meeting

SSC_July2021_Report_FINAL.pdf

Report of SSC Meeting
July 28, 2021

SSC Report To The Council
Session I
September 2021 SAFMC Meeting

SSC_July2021_Report_FINAL.pdf

Report of SSC Meeting
May 2021

SSC recommendations re: Combined ABC Control Rule Alternatives

A Category 4 stock should be defined as:

"a stock for which there is no formal stock assessment accepted to provide OFL and ABC recommendations (reviewed through SEDAR or SSC)"

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SSC recommendations re: Combined ABC Control Rule Alternatives

Regarding Action 1 Alternative 2, SSC recommends:

- More careful separation of values used to determine scientific uncertainty vs management risk
- Both assessment and biological uncertainty need to be considered in establishing the P*
- SSC should maintain the ability to consider susceptibility scores in their portion of the control rule given scientific uncertainty is the SSC's purview

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ABC Control Rule Recommendations for Category 4 Stocks

- Working Group reviewed and suggest a revised process for Cat4 ABC Control Rule
- Concluded:
  - "One size fits all" approach insufficient. Stock- or complex-specific OFL/ABC-setting methods needed.
    - Life histories varied
    - Spectrum of data quality/quantity
    - Variety among fisheries
  - Data availability summary indicated alternative to ad hoc (recent average) approach for many stocks/complexes may be possible
- SSC reviewed and approved the Working Group's recommended revisions to the ABC Control Rule for Category 4 Stocks (ABC_CR_Cat4_WGReport_Final.pdf)

ABC Control Rule Recommendations for Cat4 stock ABC-setting process

1. Flexible
   - Wording should be general enough to allow the methods applied to a given stock to be updated as new data and better-performing approaches become available
   - Should not require revision to the Council's Comprehensive ABC Control Rule Amendment
2. Customizable
   - Recent studies demonstrate "one size fits all" data-limited approach does not produce robust advice for management
   - Stock-specific methods should be developed and updated as new data and methods become available

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ABC Control Rule Recommendations for Cat4 stock ABC-setting process

3. Responsive
   - ABC-setting approaches derived from an OFL estimate should incorporate the Council's stock-specific risk tolerance
4. Adaptable
   - Process must account for inevitable changes in fishery, data availability and quality, and other unforeseen circumstances
   - Recommend Empirical Harvest Strategies (EHS) or Harvest Control Rules (HCR) accompany all Category 4 ABCs

ABC Control Rule Recommendations for Cat4 stock ABC-setting process

- EHS are appropriate for stocks whose ABC is set using monitoring data (e.g., landings-only)
- HCRs are appropriate for stocks to which data-limited models have been applied to estimate stock biomass and exploitation
- Both EHS and HCR should include provisions for deviations from the rule such as:
  - Episodic events
  - Catch estimate outliers (either anomalously high or low)
  - New developments in the fishery

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Recommended Category 4 ABC CR

The ABC for Category 4 stocks and complexes will be set based on expert judgment of the SSC using all available fishery-dependent and fishery-independent data.

The exact method recommended by the SSC for determining the ABC will be stock- or complex-specific and depend on the quality and quantity of data available.

A list of potential ABC-setting methods for stocks with varying types and quantities of reliable data will be generated then reviewed, and updated regularly by the SSC as stock-specific data changes and new innovations in data-limited methodologies become available.

For some stocks, adopting a multimodel ensemble or superensemble approach to determining an OFL/ABC may be appropriate.

Recommended Category 4 ABC CR

If a stock has adequate information to adopt a data-limited method for estimating an OFL, the ABC will be set using the Council's Comprehensive ABC Control Rule Amendment (*pending*) that explicitly incorporates the Council's risk tolerance for the stock.

If an OFL cannot be estimated, an ABC will be set directly using a data-limited approach that uses monitoring data only.

If the available data are adequate, methods that estimate an OFL (i.e., involve estimation of MSY or risk of overfishing) are preferred over methods that only provide an ABC (e.g. catch-only).

Category 4 stock ABC recommendations should be accompanied by an Empirical Harvest Strategy (EHS) or Harvest Control Rule (HCR), as appropriate, for consideration by the Council.

All methods and assumptions should be well documented and clearly justified.

Recommended Category 4 ABC CR

All current ABC recommendations for Category 4 stocks will stand until the SSC recommends and the Council adopts new ABCs.

If the species is bycatch in another fishery, the SSC may recommend the Council adjust management of the directed fishery as well as a means to reduce interactions or mortality, if necessary.

The SSC can recommend to the Council that a stock be made an Ecosystem Species and will recommend an ABC using this Control Rule until such time as the relevant FMP is amended accordingly.

Recommended plan

If Council adopts recommendations…

- Solicit regional feedback of data availability
- SSC, in consultation with SEP, recommend prioritization of stocks/complexes
- Council approves prioritization and WG to develop new recommended ABCs
- SSC will regularly review and update data availability and method options tables
- SEP will comment on all EHS/HCR recommendations
- SSC will review WG ABCs and recommend to Council

SSC/Working Group Conclusion

- Implementation of this OFL/ABC-setting process for Category 4 stocks will require an investment of time
- **Will require formation of long-standing Category 4 Working Group for the SSC**
- Should result in more responsive and robust management advice that is tailored to meet the needs and challenges of each Category 4 stock

Carry-Overs

SSC was asked to review previous recommendations and provide additional feedback on carry-overs given recent guidance from NMFS

- SSC was concerned that the proposed process we reviewed will take too long to be effective. New/revised process should improve efficiency and timeliness.
- The SSC agreed with NMFS Guidance on Carry-Overs (pdf page 33)
- If carry-overs are allowed in situations for which species distribution changes have occurred, this may lead to localized depletion
- Changing the ACL/ABC may increase uncertainty in stock projections, particularly if bycatch is an issue

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Carry-Overs

How should precision of catch estimates be considered?

- Council should look to the Center for more information on how best to include the PSE into projections given this may vary from stock to stock due to differences among stocks with regards to productivity, generation time, stock assessment frequency, etc.

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Carry-Overs

How should uncertainty of catch estimates be considered in determining the allowable carry-over amount?

- If catch PSE is high, may be difficult to determine whether an underage has actually occurred
- To be confident that an underage occurred, estimated catch should be more than two standard deviations below the ACL
- Formal analysis of projection methodologies and their associated assumptions used to set ABC/ACLs would need to be conducted

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SSC Report To The Snapper Grouper Committee September 2021 SAFMC Meeting

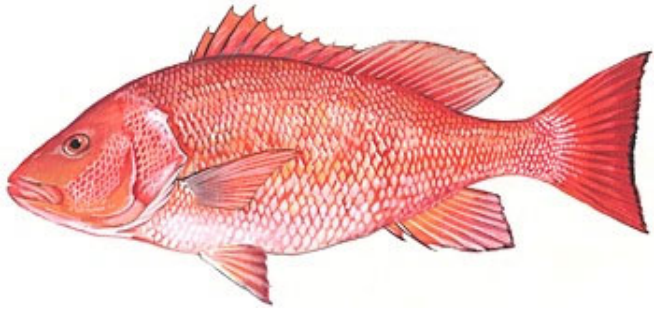
SSC_July2021_Report_FINAL.pdf

Report of SSC Meeting
July 28, 2021

Red Snapper Assessment Projections

SSC reviewed several aspects of projection methodology:

1. Discard mortality calculations/assumptions
2. Timeframe for assumed future recruitment
3. Method for incorporating discard mortality in projections
4. Alternative projections modeling approach that shifts discards to landings



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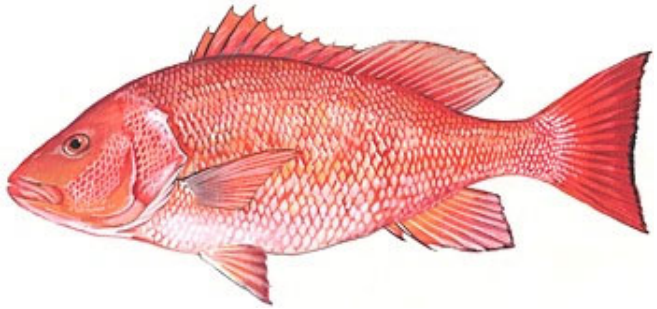
Red Snapper Assessment Projections

1) Discard mortality calculations/assumptions

- Clarified confusion regarding methodology
- **SSC agreed with assessment panel's assumption of 75% change in fish from one impairment category to another in the SEDAR 73 Working Paper 15 discard mortality calculations**
- Projection outcomes not very sensitive to discard mortality assumptions
- SSC recommended discard mortality calculations and assumptions be updated and reviewed in future assessments



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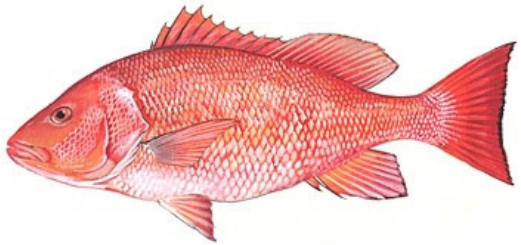
Red Snapper Assessment Projections

2) Timeframe for assumed future recruitment

- **SSC supported use of alternative recruitment assumption requested by the Council (2010–2019, "recent mean recruitment")**
- This scenario takes into account recruitment variability, both high and low values, that appears to have occurred over last 10 years



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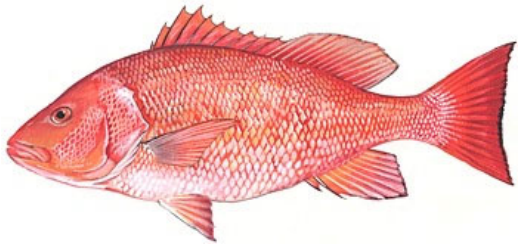
Red Snapper Assessment Projections

2) Timeframe for assumed future recruitment (cont'd):

- Management restrictions have likely contributed to increased recruitment in recent years
- **However, the SSC cautioned that there is no theoretical support for assuming continued high recruitment over the next five years**:
  - No apparent stock-recruitment relationship
  - Lack ability to predict future recruitment
  - High degree of uncertainty in any recruitment assumption
  - Higher recent recruitment may not be expected to continue even in the near future.



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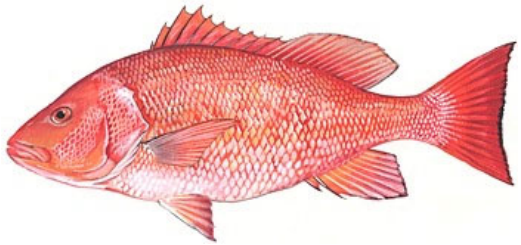
Red Snapper Assessment Projections

3) Method for incorporating discard mortality in projections

- SSC supported the SEFSC's proposed "mixed" approach because:
  - Uses prevailing conditions (requirement to have descender device onboard)
  - Prevents rebuilding "goal post" from changing
  - Avoids penalizing the fishery for attempting to reduce bycatch mortality



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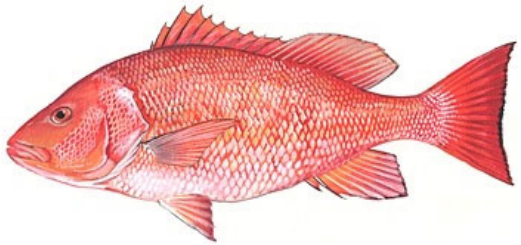
Red Snapper Assessment Projections

4) Alternative projections modeling approach that shifts discards to landings

- **SSC recommended discards not be shifted to landings** until spawning stock biomass substantially increases
- Counterintuitive to increase landings while simultaneously attempting to reduce fishing mortality by approximately half
- Shifting discards to landings would offset the benefits of increased descending device usage
- **Descending devices alone will not be sufficient to reduce fishing mortality to a sustainable level**



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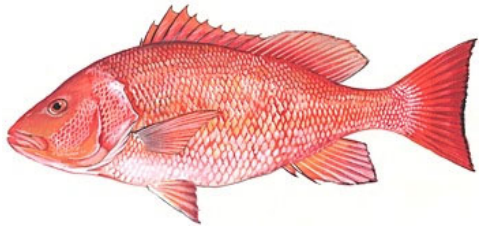
Red Snapper Catch Level Recommendations

- OFL based on projection scenario 13 (Attachment 5: last 10-yr mean recruitment, Mixed, F30%, No reallocation of F toward landings)
- Assumes lower fishing mortality rate than the catch based on $F_{Rebuild}$; therefore, the addition of a buffer between OFL and ABC is not recommended.
- SSC noted that projections assuming mean recruitment over last 10-years indicate stock should rebuild more quickly than 2044
- However, uncertainty in recruitment may be underestimated



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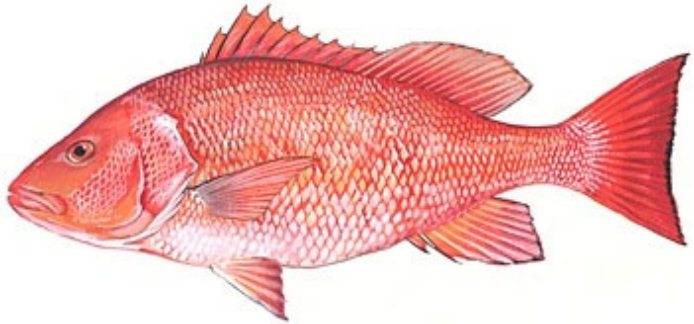
Red Snapper Catch Level Recommendations

The SSC cautioned that:

- Additional uncertainty is not being accounted for when OFL and ABC are set equal to each other
- **Setting OFL=ABC=ACL for a species with a probability of rebuild = 0.5 is the riskiest action the Council can legally take**



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Red Snapper Catch Level Recommendations

Table 1
Page 9

Criteria	Deterministic	Probabilistic
Overfished evaluation (SSB/SSB_{MSY})	0.44	0.49
Overfishing evaluation	2.20	1.95
MFMT (F_{MSY})	0.21	0.21
SSB_{MSY} (eggs 1E8)	635426.4	594630.2
MSST (eggs 1E8)	476569.8	445972.6
MSY (1000 lbs. ww)	404.7	407.78
Y at 75% F_{MSY} (1000 lbs. ww)	398.97	401.84
ABC Control Rule Adjustment	17.5%	
P-Star	In a rebuilding plan	
M	0.11	

OFL RECOMMENDATIONS

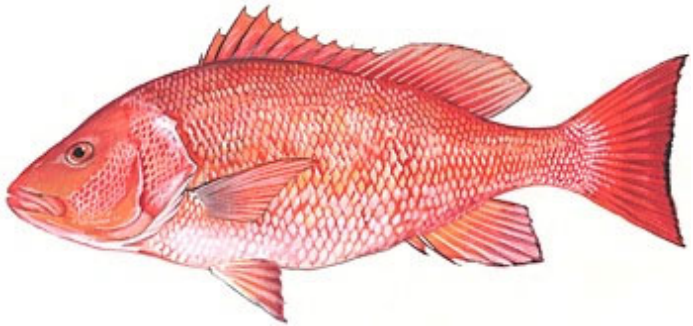
Year	Landed LBS	Discard LBS	Landed Number	Discard Number
2022	284,000	983,000	25,000	195,000
2023	327,000	1,036,000	28,000	202,000
2024	368,000	1,076,000	31,000	207,000
2025	408,000	1,104,000	33,000	210,000
2026	446,000	1,122,000	35,000	211,000

ABC RECOMMENDATIONS

Year	Landed LBS	Discard LBS	Landed Number	Discard Number
2022	284,000	983,000	25,000	195,000
2023	327,000	1,036,000	28,000	202,000
2024	368,000	1,076,000	31,000	207,000
2025	408,000	1,104,000	33,000	210,000
2026	446,000	1,122,000	35,000	211,000

SSC Review of Red Snapper %SPR Analysis

- Analysis predicated on base assessment model and a Beverton-Holt stock-recruitment model
- Results dependent on accurate estimates of natural mortality, selectivity, and fecundity
- **This analysis indicated there is no support for SPR levels equal to or lower than 30%.**
- Implied steepness at lower SPR levels would be unrealistically high despite high recent recruitment
- SEFSC meta-analysis suggested an SPR of 38% is the closest proxy of F_{MSY}



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SSC Review of Red Snapper %SPR Analysis

Caveats and notes:

- Rebuilding under SPR of 30% indicates $F_{30\%}$ may not be too low for this stock
- YPR did not decrease when changing from an SPR of 30% to 40%, implying a more conservative SPR alternative (e.g., 40%) would not substantially reduce yield
- SPR of 40% widely used as a F_{MSY} proxy (NEFSC, MAFMC, NPFMC)
- **Recommend repeating analysis in future stock assessments**

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