

Scamp Research Track Scope of Work and Work Schedule

Potential issues and areas for research (based on recommendations from previous data-rich Gulf of Mexico red and gag grouper assessments):

Life History:

- Stock structure
- Explore growth model alternatives (account for size limits)
- Consider forms of reproductive potential if necessary: (1) SSB-combined for male & female, (2) SSB-female only, and (3) SSB-eggs based upon annual fecundity.
- Modeling hermaphroditism
- Develop a standard protocol for ensuring that appropriate uncertainty in recruitment is applied when developing projections.

Fishery:

- Species identification issues in landings and discards
- Evaluate existing and new methods to estimate historical landings and discards
- Evaluate technique used to apply sample weights to landings
- Determine appropriate methods to deal with changing selectivity in fisheries over time, particularly changing selectivity related to management actions or targeting of specific cohorts
- Explore method for incorporating IFQ data into discard estimate and size composition
- Assess reliability of effort data in logbook data

Measures of Population Abundance:

- Explore effects of the IFQ on the fishery-dependent indices
- Develop a standard version of the appropriate programming code in R to alleviate issues with different statistical models
- Pursue development of indices of abundance from observer data

Ecosystem Considerations:

- Incorporate red tide mortality and determine how best to model episodic mortality (if feasible)

Strawman timeline with examples of research/hypotheses.

Year	Month	Details	
1	1 - 5	Tasks	<ul style="list-style-type: none"> • Research stock identification to determine the spatial structure of the assessment (e.g., combined SA & GOM assessment, or separated by region?).
		Milestones	Stock ID Workshop reviewing stock structure
	5 - 9	Tasks	<ul style="list-style-type: none"> • Determine data availability and reliability. • Compile raw data (stratify data if necessary). • Explore data hypotheses corresponding to modeling approach selected for analysis. <p><i>Life History Example</i> Explore growth model alternatives if necessary.</p> <p><i>Fishery Example</i> Consider species identification issues in commercial and recreational landings and discards.</p> <p><i>Indices Example</i> Explore effects of the IFQ on the fishery-dependent indices.</p>
		Milestones	<p>Pre-Data Workshop Webinar reviewing available data sources</p> <p>Data Workshop discussing available data, developing hypotheses, and deciding on potential modeling platforms and/or model structure based on data inputs</p> <p>Post-Data Workshop Webinar reviewing progress on data hypotheses and model type/structure chosen</p>
	10 - 12	Tasks	<ul style="list-style-type: none"> • Continue exploring data hypotheses. • Model development using available data. • Identify any additional data analyses/hypotheses that may have developed during initial modeling. • Plan sensitivity model runs to investigate various data issues and assumptions made.
		Milestones	<p>Assessment Webinar I reviewing progress on model development, data hypotheses and identifying any new data issues/hypotheses.</p> <p>Assessment Webinar II reviewing progress on model development, data hypotheses and identifying any new data issues/hypotheses.</p> <p>Assessment Webinar III reviewing progress on model development, data hypotheses and identifying any new data issues/hypotheses.</p>

Year	Month	Details	
2	1 - 3	Tasks	<ul style="list-style-type: none"> • Complete exploration of data hypotheses. • Continue model development using available data. • Conduct sensitivity model runs to investigate various data issues and assumptions made. • Identify any additional data analyses/hypotheses for future research to be addressed during operational assessment. • Prepare assessment report including data decisions and model assumptions if ready for review.
		Milestones	<p>Assessment Webinar IV reviewing progress on model development, data hypotheses and identifying any new data issues/hypotheses.</p> <p>Assessment Webinar V reviewing progress on model development, data hypotheses and identifying any new data issues/hypotheses. Discuss with panel how close assessment is to being near a useable product. If ready for review, schedule review. If not ready for review, repeat Months 1 – 3 Tasks for Months 4-5 and longer as needed.</p>
	4-5	Tasks	• Repeat previous tasks if necessary
		Milestones	• Assessment Webinars if necessary
	Two months after assessment “completed”	Tasks	• Prepare for review
		Milestones	Review Workshop if AW Panel agrees that data decisions and modeling approach are ready for review
3	Nine months after Review completed	Tasks	<ul style="list-style-type: none"> • Make changes to model based on recommendations from review. • Present Research Track to the SSCs • Obtain updated data • Identify any additional data analyses/hypotheses for future research to be addressed during operational assessment.
		Milestones	Complete Benchmark Track Assessment and start preparation for operational assessment.
	Three months duration	Tasks	• Develop operational assessment with most recent data
		Milestones	• Provide management advice

Recommend Initial Terms of Reference Including Model Techniques to Evaluate

Scamp Research Track Assessment Terms of Reference April 19, 2017 Draft

1. Review, discuss, and tabulate available life history information, measures of population abundance, commercial and recreational fisheries catch and discards, length and age composition, fishing effort, fishery selectivity, and stock depletion.
2. Consider species identification issues between scamp and yellowmouth grouper within each data source and correct for these instances as appropriate and where possible.
3. Develop population assessment models (e.g., statistical catch-at-age, surplus production, data-limited, etc.) that are compatible with available data and document input data, model assumptions and configuration, and equations for each model considered.
 - Consider a scamp only model and a scamp/yellowmouth grouper model if feasible.
4. Provide recommendations for future research and data collection.
5. Prepare Workshop report providing complete documentation of workshop actions and decisions in accordance with project schedule deadlines.

Review Workshop Terms of Reference

1. Evaluate the data used in the assessment, including discussion of the strengths and weaknesses of data sources and decisions, and consider the following:
 - a) Are data decisions made by the DW and AW sound and robust?
 - b) Are data uncertainties acknowledged, reported, and within normal or expected levels?
 - c) Are data decisions explicitly stated and justified?
 - d) Are data applied properly within the assessment model?
 - e) Are input data series reliable and sufficient to support the assessment approach?
2. Evaluate and discuss the strengths and weaknesses of the methods used to assess the stock, taking into account the available data, and considering the following:
 - a) Are methods scientifically sound and robust?
 - b) Are the methods appropriate for the available data?
 - c) Are assessment models configured properly and used in a manner consistent with standard practices?
3. Consider how uncertainties in the assessment, and their potential consequences, are addressed.

- a) Comment on the degree to which methods used to evaluate uncertainty reflect and capture the significant sources of uncertainty in the population, data sources, and assessment methods.
4. Consider the research recommendations provided by the Data and Assessment workshops and make any additional recommendations or prioritizations warranted.
 - a) Clearly denote research and monitoring that could improve the reliability of, and information provided by, future operational assessments.
 - b) Provide recommendations on possible ways to improve the Research Track Assessment process.
 - c) Provide recommendations on possible ways to improve the SEDAR process.
5. Provide guidance on key improvements in data or modeling approaches that should be considered for the operational assessment.
6. Prepare a Peer Review Summary summarizing the Panel's evaluation of the Research Track stock assessment and addressing each Term of Reference.