

SEDAR stock assessment categories

Operational Stock Assessment

The operational stock assessment category provides management advice quickly and efficiently using previously approved methods and data sources.

- Builds upon approaches developed in previous benchmark and supports incremental improvements.
- Throughput is maximized through a quick and efficient process with few or no public meetings, saving considerable staff time.
- The most recent data available are processed one time based on specifications that are determined in advance (rather than multiple times as is often the case with the current system), saving considerable staff time
- Concise documentation for consistent, standardized public presentation of results.
- Reviews are completed by the Council SSC's (as with current SEDAR update and standard assessments)
- Allows for reasonable flexibility in the model and data to accommodate specific concerns reflected in the Terms of Reference (e.g., previously vetted model approaches and data sets that might be new to the particular stock, or other changes that the SSC feels competent to review).

Steps in the process:

1. Assimilate data necessary for the modeling framework, including the most recently available data. A public meeting (workshop or webinars) should only be required if there is a need to vet the addition of a data stream that is new for the particular stock. (Action: Data Providers)
2. Incorporate data, run the model, and summarize results in a streamlined report. A public meeting (workshop or webinars) should only be required if there is a need to vet changes in the assessment methods previously reviewed and accepted for this particular stock. A change to new software could be considered provided it makes essentially the same calculations and has been reviewed and applied previously to other SEDAR stocks. (Action: Assessment modelers)
3. Review model results. (Action: SSC and Assessment leads)

Expected timeline: 3-6 months

Expected Products: Concise report with an executive summary.

Research Stock Assessment

The research stock assessment category places the emphasis on developing a highly credible stock assessment framework. It should be applied in cases where a new model, hypothesis, or question needs to be answered about a stock/population. It is not intended to provide management advice, but rather set the stage (prototype approach) for operational modeling.

- Serves to answer questions, test hypotheses, or otherwise explore new ideas for assessing a stock or stocks. Establishes scientific credibility of new data types or analysis methods.
- Does not necessarily need to focus on an individual species, such that results might generalize to multiple operational stock assessments.
- Allows for complete flexibility in data and model choice.
- The process should be expected to last up to a year (or more) and involve a series of public meetings. Includes:
 - thorough documentation of new data/methods/performance
 - extensive investigation of model performance
- A hard deadline should be avoided because the necessary steps to achieve a consensus model are too difficult to anticipate. A deadline may hinder options not previously envisioned.
- Reviews should be completed by a panel of independent experts, with the Council SSC's, ultimately providing recommendations for further improvements. Review should be commensurate with the degree of novelty and controversy.

Steps in the process:

1. Schedule the species to be addressed well in advance (2-3 years prior to anticipated completion) so that all relevant data can be processed, analyzed, and finalized for use in the process. Unfortunately much of our data collection involves archiving samples for later analysis. Thus, archived samples for genetics, reproductive measures, and age determination require a fair amount of lead time to complete. Determine stock boundaries as needed. (Action: Data Providers begin data preparations)
2. Hold workshop(s) to assimilate all available data for the species of interest, but not necessarily the most recent data (14 months prior to anticipated completion). Public meetings to be held and input from fishermen will be valuable in understanding the data and its potential uses. Document the proceedings and decisions, particularly where recommendations depart from previously established best practices. (Action: Participants complete assessment report)

3. Data explorations will guide the structure and type of modeling to be built. Build a modeling framework to answer the question/hypothesis. Consider multiple models. Document the final modeling framework being proposed. (Action: Participants complete assessment report)
4. Review modeling framework proposal. Receive recommendations for operational model framework. (Action: CIE and SSC Review and comment on assessment, complete a review report)

Expected timeline: 9-14 months from data workshop completion, but could be longer depending on the hypothesis or question. For example, a question that requires new data collection to answer might require a longer time frame.

Expected Products: Data workshop report, Assessment workshop report, Review report, and an approved/accepted model for use in future operational assessments.

Figure 1. Hypothetical example of two year cycle of the research and operational assessment tracks for five analysts. After two years the results would include 3 research track assessments completed and 10 operational assessments providing management advice. Long term averages for a staff of 5 analysts would work out to 1-2 research track assessments per year and 4-6 operational assessments per year, depending on how many research tracks are chosen in a year.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Research Track Assessment	Stock 1												Stock 2											
Research Track Assessment													Stock 3											
Operational Assessment						Stock 4																		
Operational Assessment				Stock 5							Stock 6							Stock 1						
Operational Assessment	Stock 7						Stock 8								Stock 9									
Operational Assessment					Stock 10							Stock 11							Stock 12					



NOAA
FISHERIES
SEFSC

Erik H. Williams

Beaufort, NC Laboratory

SEDAR Stock Assessments:

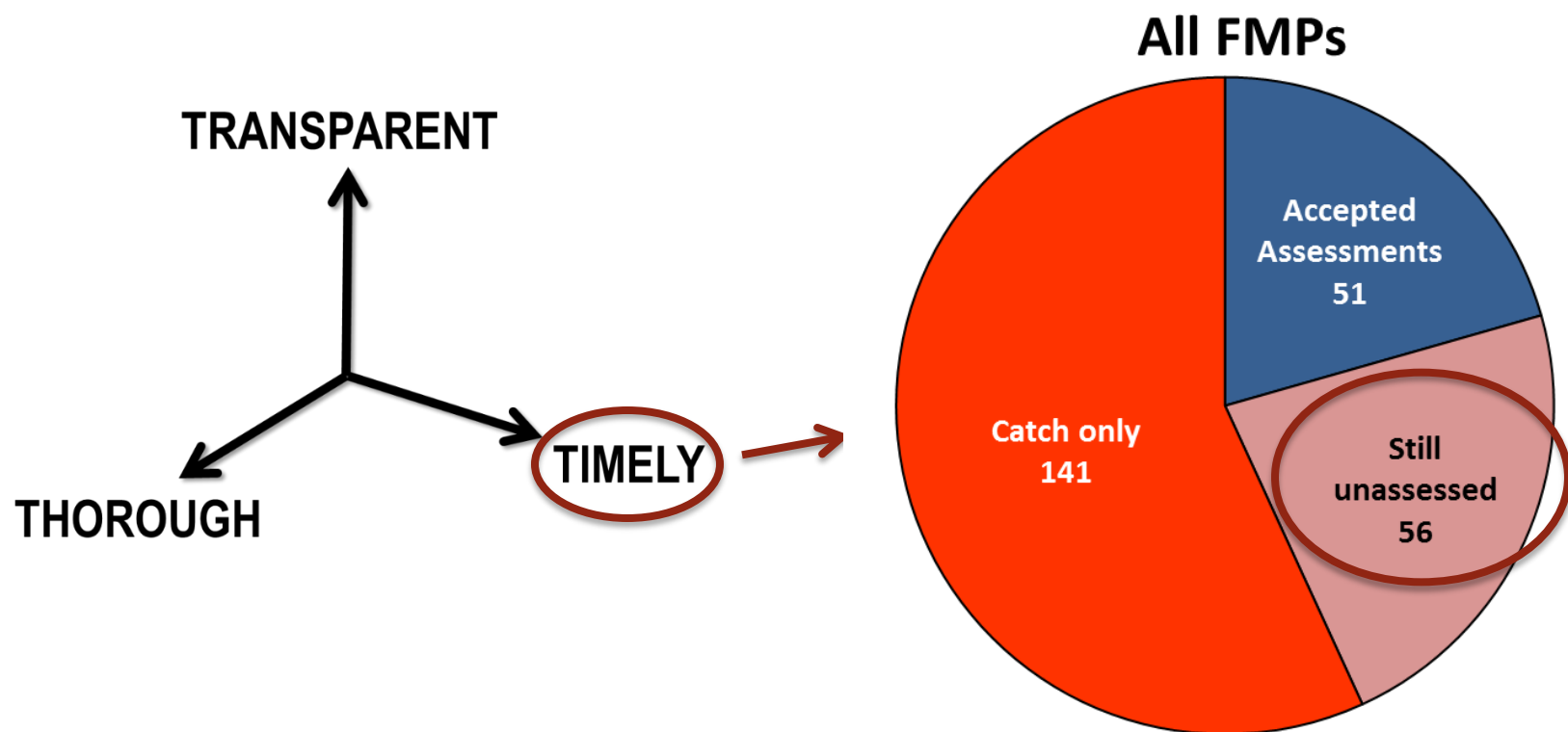
Transitioning from
Benchmarks/Updates
to
Research/Operational



NOAA FISHERIES

The problem: Balancing the three T's

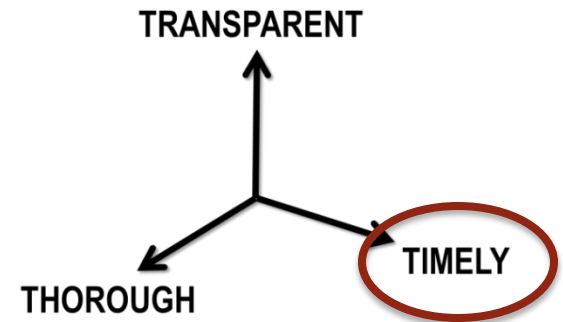
Existing combination of benchmark, standard and update assessments is very transparent, reasonably thorough, but too slow for the demand



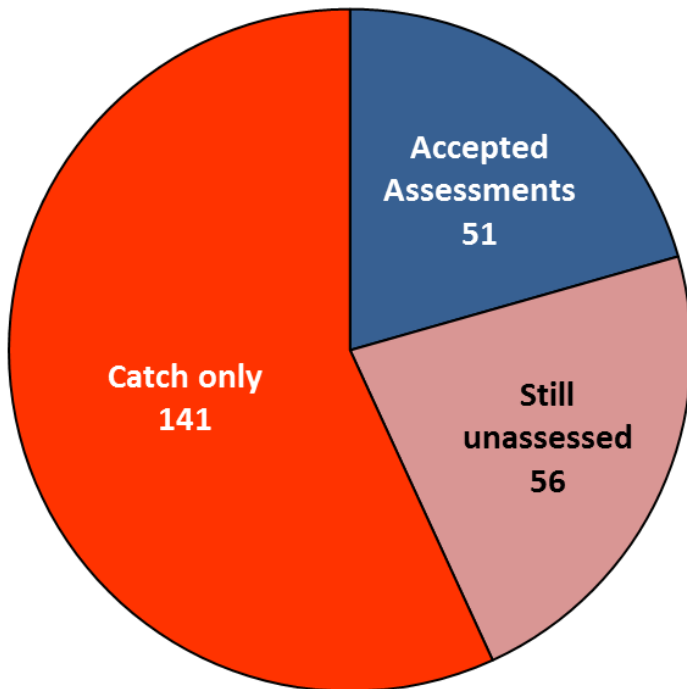
**Data from Gulf of Mexico and South Atlantic, last updated 2015*

Balancing the three T's

Current assessment rates are too slow ≈ 1 per year per person



All FMPs



Potential assessment leads: 20 people**

Stocks that can be assessed: 107

Assessment rate in current processes: 1 pyr^{-1}

Average time between assessments: 5.3 years

***Hypothetical and illustrative staff size, actual staff size is smaller and fluctuates*

**Data from Gulf of Mexico and South Atlantic, last updated 2015*

Existing process

Benchmark

Intended to complete a thorough evaluation that accommodates the input of stakeholders and reviewers while under strict deadlines for providing management advice

Standard

Address specific concerns (expressed in the TORS) without deviating too much from previous benchmark

Update

Deviates as little as possible from previous benchmark

Existing process

Benchmark

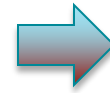
Intended to complete a thorough evaluation that accommodates the input of stakeholders and reviewers while under strict deadlines for providing management advice

Standard

Address specific concerns (expressed in the TORS) without deviating too much from previous benchmark

Update

Deviates as little as possible from previous benchmark



Issues

Data providers have difficulty meeting deadlines because key decisions made along the way can change what is required

Results often criticized by reviewers, but there is little time to address their concerns

Deadlines are pushed and often missed

Word “benchmark” implies “best” to many when in fact it is the first time some components have been examined and implemented

Existing process

Benchmark

Intended to complete a thorough evaluation that accommodates the input of stakeholders and reviewers while under strict deadlines for providing management advice



Issues

Data providers have difficulty
Can't address suggestions
Deadlines pushed or missed
Loaded language (Benchmark)

Standard

Address specific concerns (expressed in the TORS) without deviating too much from previous benchmark



Reasonably fast, but sometimes criticized by stakeholders who think a "benchmark" is better

Update

Deviates as little as possible from previous benchmark



Fast, but often criticized by stakeholders who think a "benchmark" is better and would like more involvement.

Existing process

Benchmark

Intended to complete a thorough evaluation that accommodates the input of stakeholders and reviewers while under strict deadlines for providing management advice

Standard

Address specific concerns (expressed in the TORS) without deviating too much from previous benchmark

Update

Deviates as little as possible from previous benchmark



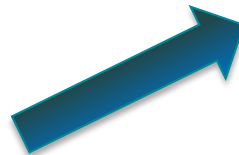
Proposed Changes

Research Cycle

Like a Benchmark, but not intended to produce assessment results for immediate advice to management. The goal is to build a robust tool that will be used to develop timely advice.

Operational Assessment

May follow existing Standard or Update Processes: Designated analysts apply the tool developed by the Research Assessment to the most recent data sets to produce timely management advice.



Research Cycle

- Test, document and review assessment approaches, incorporate new research findings, and evaluate new data streams;
- Conducted similar to current benchmark process with an assessment panel, IPT-style communication and 1-2 workshops
- Review panel meeting with independent external participants (e.g., CIE)
- Findings thoroughly documented as an assessment report, and possibly a NOAA Tech Memo or journal publication commensurate with the degree of novelty of the methods.
- Unresolved issues and ideas for future improvements reported to begin the next cycle of research.
- Not intended to produce assessment results for immediate advice to management, but once vetted, will be operationalized

Operational assessments

- Produce timely advice to management
- Conducted by designated analysts using a suite of previously reviewed procedures and data sets, in consultation with an advisory body comprised of scientists and stakeholders with local expertise
- Minor changes to previous approaches may be considered, if agreed to by the SSC as part of the TORs.
- Findings documented succinctly with an executive summary that makes fishery management advice clearly and quickly accessible
- Anomalies, concerns and research recommendations are documented and made available for future considerations

Advantages of new approach

During research cycles

- Analysts can focus on more thoroughly addressing the major concerns of scientists and stakeholders without the conflicting pressure of finishing the assessment in time for management deadlines
- Suggestions from reviewers can be incorporated and used in the operational phase
- Data providers are not under pressure to provide the most recent data or repeatedly revise inputs
- More opportunities for scientific research that advance the state of the art

During operational assessments

- Standardized, pre-approved approaches will be used such that
 - Implementation errors will be reduced and throughput increased (analysts can focus on updating inputs, implementing only minor changes, and model diagnostics)
 - Assessments will be more reproducible and require less advanced technical skills
 - Data providers will be able to produce inputs more quickly and with minimal effort
- Emphasis will be placed on succinct communication of management advice in plain language (rather than the details of the assessment)

How will it work?

Below is a hypothetical example of two years in the SEDAR cycle with five lead assessment analysts available.

- After two years, 3 research track assessments and 10 operational assessments would be complete
- Long term averages with 5 analysts
 - 1-2 research track assessments per year
 - 4-6 operational assessments per year

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Operational Assessment					Stock 10							Stock 11								Stock 12				

Why make this change now?

We are fast approaching SEDAR 60

- This has provided a tremendous amount of experience and knowledge about the required data, modeling, and communications for our stock assessments
 - Use this experience and knowledge to make the process more efficient.
 - The wheel has been well thought out, designed and built – now lets put it to regular use and not try to re-think it.

Where do we want to be in 20 years?

- Not unreasonable to have annual population estimates for every managed stock
 - This is a step in that direction, shifting us toward more timeliness and efficiency

Questions?

SEDAR Research Track Implementation Minor Modifications – Extended Assessment Stage Approach

This document provides an initial approach for implementing the Research Track process that involves relatively minor changes to the existing benchmark approach. The assessment stage is doubled in length from 3 to 6 months. The expectation to provide management advice following the review workshop is removed, and the Operational Assessment stage added. The suggested timeline is based on the Research Track proposal presented at the September 2016 SEDAR Steering Committee Meeting.

Research Track: Stock ID Process - ~ 4.5 months

- Need to clearly identify process and timeline for determining Stock ID for Research Track assessments
- **Timing:** timing for Stock ID decision should follow the SEDAR Data Best Practices timeline (final decision should be available in advance of the Data Scoping call; ideally ~4-5 months in advance of Data Workshop)
- **Method:** In-person workshop or series of webinars; will be dependent on project, available budget, and if possible, will be decided in advance when developing schedule
- **Process:** The process outlined below is based on feedback received from the SEDAR Steering Committee regarding the Stock ID & Meristics workshop. It is streamlined and simplified somewhat, to provide a potentially more manageable, long-term approach for determining stock ID. Note that some additional options for this step are provided at the end of this document.
- **Recommended Approach**
 1. Stock ID Work Group will develop Stock ID recommendation (via workshop or series of webinars) and document findings in Stock ID Work Group report.
 - a. The Work Group will be similar to those convened for Blueline Tilefish and Gray Snapper.
 - b. Will include SSC & Technical representatives from all Cooperators and Councils likely affected
 2. Independent Peer Review of the Stock ID recommendations, by a panel to include SSC, mgmt. rep, assessment rep, and optional slots for additional expertise.
 - a. Anticipate being held via webinar to control costs
 - b. Panelists shall be independent of those on the Stock ID workgroup.
 - c. Workgroup chair will present findings to this group.
 - d. Need to address biological and management risks within the Charge and TORs.
 3. Science and Management Leadership Call; to be held when a change in Stock ID is recommended that causes a stock to cross Cooperator boundaries; will involve Cooperators, Management (Regional Office), and Science (Science Center) entities; Leadership Group will resolve the discrepancy and provide guidance on the appropriate TORs to provide the necessary and appropriate management parameters

Research Track: Data Stage ~ 4.5 months

- Data Stage in the Research Track will follow the Data Best Practices timeline
 - If not, what should the timeline look like?

- Terminal Year
 - It is acknowledged that the data in the Research Track will not always be the most up-to-date
 - Recommend that a terminal year be established for datasets to ensure a reasonable base line.
 - Consider the Scamp assessment starting in 2018, the terminal year could be 2015
 - Could reduce unexpected outcomes in the Operational assessment
 - Could help ensure data are available for the Operational assessment
 - Datasets with information more recent than the base terminal year will be accepted.
- Data Best Practices timeline represents 'hard deadlines' for the data providers, meaning that they, for the most part, will not be expected to contribute further to the assessment
 - Is there an expectation that data providers will need to go back and reproduce datasets/analyses throughout the Research Track process. e.g., an alternative way of aggregating catch (and thus length and age comps) is considered?
- Final deliverable from the Data Stage is a DW report, similar to current DW report.
 - Data will be summarized through the baseline terminal year of each dataset. Need to ensure there is clear record with justification for each data decision as necessary for review
 - Does the current DW report outline capture the key information that needs to be documented? Should other info be added? Can some info be omitted?
- Working papers and reference documents will continue.

Research Track: Assessment Stage – 6 months

- Assessment stage of the Research Track will be operationally similar to current 'IPT' approach (e.g. milestone webinars held approximately monthly with informal communication between analysts and Panel members, as necessary)
 - Are the current webinar milestones appropriate (with the exception of any addressing status)
 - Consideration of in-person workshops – timing, topics, justification
- Timeline doubled for model development to approximately 6 months.
 - Is this adequate time, considering that there should not be data delays due to ensuring a recent terminal year?
- Final deliverable from the Assessment Stage will be a report similar to current AW report in terms of documenting the assessment method and uncertainties.
 - The report will not provide status determinations.
 - The report will focus more on factors that influence model performance than specific results.
 - The report will document the models considered and provide justification for the chosen model approach.
 - Working papers can be used to document the details of topics explored during the research track, with recommendations and resolution of alternatives explored in working papers addressed in the AW report.

- The AW Report will include clear and specific recommendations for the data and model approach to be applied in the Operational Assessment.
- Report should address projection methods, considerations and details. Include recommendations for assuming fishery conditions between TY and year 1.

Research Track: Review Stage, 2 months

- There are limitations on scheduling flexibility that are beyond our control.
 - Per CIE contact: RW month will need to be set 6 months in advance
 - RW dates will need to be set 3 months in advance;
 - Additionally will need to allow time to find available meeting space for workshop (timing for this is largely dependent on workshop location – shorter in Beaufort, longer in Miami or St. Pete.) 3 months lead time may not always be enough to guarantee preferred locations.
- Final deliverable from the Review Stage will be a summary RW report and separate individual CIE reviewer reports
- The RW will not be asked to provide status recommendations
- RW composition and general approach unchanged

Research Track: Final Deliverable

- The final research track deliverable will be a composite report similar to current SAR – Intro, DW, AW, RW reports merged into final SAR.
- The final SAR deliverable will be disseminated similar to what is done now (e.g. prior to SSC review final SAR distributed via memo to relevant Cooperators & participants and posted to SEDAR website)
 - Dissemination dates are required for the mandated Peer Review Plans.
- Dissemination of the Final SAR will conclude SEDAR's management of the Research Track. (no change from current practices)

Research Track: Post SEDAR Process and SSC Review, 12+ months

- Administrative record keeping shifts to the Cooperator for post-dissemination activities.
 - SSC comments regarding the RT and how they are implemented in the RT will be documented by the Council-SSC Administrative Record.
 - Councils requested to provide relevant SSC reports to SEDAR for posting with the assessment on the SEDAR website
- Research Track results presented to the SSC by the analytical team, and to the Council if requested (no change from current practices)
- To save time and travel, the SSC review of the RT should include guidance for the Operational assessment.
 - Should the analytical team be allowed to begin addressing model issues or improvements prior to the SSC Review of the Research Track?
 - For example, sometimes reviewers make recommendations based on hypotheticals that do not pan out. The SSC could resolve such issues and recommend whether such recommendations should be carried forth to the OA...evaluate if the change did what a reviewer thought it might?

- The ability to do this may be determined by the timeline between the RT and the SSC review. However, if this is considered useful the time can be provided.
- After analytical team incorporates reviewer and SSC comments, is it necessary to have some level of review before the Operational Assessment proceeds?

Operational Assessment

- What level of support is expected from SEDAR staff (e.g. develop ToR, schedule/deadlines, etc)? Will role be dependent on how much additional work needs to be done per reviewer and SSC comments/feedback (e.g. continuum between current Standard and Update support)?
- Who determines whether Operational assessment will be conducted more similar to current Standard or Update assessment? What are the relevant considerations? Should the SSC make recommendations?
- Do Operational Assessments need to always have the most recent data? Will all datasets need to be updated and/or will it be specified in the ToR?

Example Research Track Timeline Dec 2016 – May 2018 (~18 months)

- **Stock ID: Dec 2016 – mid April 2017 (~4.5 months)**
 - Stock ID Data Scoping - Work Group Report completion: Dec 2016 - mid-Feb 2017
 - Stock ID Review Process: mid-Feb 2017 – mid-April 2017
- **Data Stage: May 2017 – mid Sept 2017 (~4.5 months)**
 - Data Scoping Call through DW report completion
 - Following the SEDAR Data Best Practices timeline
 - Target terminal year: 2015
- **Assessment Stage: mid October 2017 – March 2018 (~6 months)**
 - Pre-Assessment Webinar through AW report completion
 - Assessment development time doubled
- **Review Stage: April 2018 – May 2018 (~2 months)**
 - Distribution of Reviewer Materials through RW report completion
- **Final Research Track SAR dissemination: early June 2018**
 - Concludes SEDAR role
- **Operational Assessment Completed**
 - September 2018 for a 2017 Terminal year.

SEDAR Research Track & Operational Assessments Process Development
Working Group Discussions and Recommendations
4/21/2017

Background and Introduction

The 2018 SEDAR schedule includes two SEDAR Research Track Assessments (SA/GoM Scamp and Atlantic Cobia). Due to the timing of these assessments (scheduled to start the first and second quarters of 2018), draft SEDAR guidelines for the Research Track and Operational Assessment process need to be developed for initial SEDAR Steering Committee review at their May 2017 meeting. Additional SEDAR Steering Committee review and preliminary approval of the approach will occur at their September 2017 meeting. Final approval of SEDAR SOPPs addressing the Research Track process will be withheld until an assessment is completed under the research track approach and the process evaluated.

SEDAR staff drafted a general outline based on our understanding of the Research Track process as described at the September 2016 SEDAR Steering Committee meeting. This initial draft builds on the existing SEDAR Benchmark process and in many ways remains similar to the current benchmark approach. We have identified a number of questions on which we would like feedback and guidance from this working group, including SEFSC data and analytical team leads, before moving into the detailed process documents such as project schedules, TORs and SEDAR SOPPs.

The information here was meant to serve as a starting point for discussions by the working group. It is organized around the primary steps of the Research Track process, as we believe it will be more efficient to first discuss the concept or vision for the research track before delving into the details of the process, such as schedules and TORs.

Summary of Progress and Discussions

To date, SEDAR staff has facilitated two webinars with SEFSC team leads to discuss the Research Track approach. During the first webinar a draft of this document was provided that laid out a number of decision points. It also included a general research track application and timeline, based on applying the suggested timeline of the September 2016 proposal to the existing benchmark process and including more recent developments such as the data best practices timeline and the stock ID resolution process.

On the first webinar (February 15), the group discussion focused on broad, overarching topics of the Research Track/Operational assessment approach. The intent was to develop a vision for how the process would operate and consider topics such as guiding principles and triggers. Most of the discussion from this webinar is documented in topic I below.

On the second webinar (March 1) the group reviewed the notes from the first webinar, continued those discussions, and went a bit further into the process details with a focus on how the Stock ID and Data stages would work under Research Track Assessments. Next steps identified on the second webinar included the SEFSC analytical teams developing an example Scope of Work/Work Schedule document for Scamp, which could potentially serve as a template for future RT assessments. Key discussion points from this webinar are summarized, but there was not a push to get consensus, so it is unclear whether this feedback represents the full consensus of the group.

A third webinar was scheduled (April 12) to discuss the draft Scamp Scope of Work, but was subsequently canceled due to low participant availability and inadequate progress on the Scope of Work document. The SEFSC intends to provide a draft Scamp Scope of Work for the SEDAR Steering Committee briefing book.

Workgroup Participants

SEFSC, Miami Assessment Team: Clay Porch, Shannon Cass-Calay
SEFSC, Beaufort Assessment Team: Erik Williams, Kyle Shertzer
SEFSC, HMS Assessment Team: Enric Cortes
SEFSC, Data Team: Steve Turner, David Gloeckner
SEDAR: John Carmichael, Julie Neer, Julia Byrd

Navigating this document

This document was modified following workgroup webinars to address group recommendations and questions. Italics and occasional sub-headers are used to help differentiate the original text of this document from the discussion and recommendations.

Research Track Process and Guidance Development Overview (initial plans)

1. Steering Committee endorses concept: September 2016
2. General Approach developed – Winter/early Spring 2017
 - a. SEDAR staff conceptual draft: January 2017
 - b. Working group (SEFSC team leads) reviews Concept: by February 8
 - c. Webinar discussion with SEDAR & SEFSC leads – February 15.
 - *The group did not reach consensus on the overall concept and driving factors, and was therefore unable to address process details. Additional webinars were recommended.*
 - *Second webinar held March 1. Complexity of the process becoming apparent; additional discussion desired; suggested developing an example “scope of work” to describe the details of a particular assessment project.*
 - *Third webinar scheduled April 12; cancelled.*
 - d. First draft of Approach, addressing process Outline, Schedule, TOR frameworks- with emphasis on stock ID process – late February-early March – developed by SEDAR, review by SEFSC leads. (Not completed)
 - e. Draft Approach provided to SOPPs Team – potentially necessary by mid-March (depend on steering committee meeting scheduling – should be settled by Feb 1) (Not completed)
(The SOPPs team was proposed by the Steering Committee to review initial SOPPs recommendations. It will include representatives from all the SEDAR Cooperators.)
NOTE: Not all Cooperators have identified SOPPs team members. SEDAR staff did not pursue this beyond the initial request due to the lack of progress at the workgroup stage, and resulting lack of a document for the SOPPs group to review.
 - f. Draft Approach for SEDAR Steering Committee Briefing Book: April 20 to May 19, depending on when meeting is scheduled. Not completed. Summary documents detailing deliberations so far provided for the Steering Committee. Includes a decision document with various research track options and a draft statement of work.

3. SEDAR Steering Committee Review & Comment: May 2017
4. Further development of process, including SOPPs, TORs and Schedules: Summer 2017
5. Steering Committee Review of entire approach and approval for initial Scamp and Cobia applications: September 2017
6. Implementation of approach for Scamp and Cobia: 2018-2019
7. Process evaluated: mid 2019
8. Final Steering Committee approval of SOPPs and guidance information (e.g., default TORs, schedules): September 2019.

I. OVERARCHING TOPICS

The workgroup recommended at the start of the first webinar that the best way to initiate this discussion was to first consider a number of overarching topics to define the research track process with the goal of developing a "Vision." Points raised during this discussion, which occupied most of the first webinar, are summarized in the bullets below.

Why adopt the Research Track and Operational Assessments?

- *Anticipated to increase overall productivity by focusing more on Operational assessments*
- *Benchmark process timeline impediments*
 - *Deadlines missed early in process (data stage) reduce time available for the Assessment stage which is often working under a hard deadline to meet the scheduled review*
 - *Current timeline doesn't allow opportunity to explore all relevant data and hinders ability to thoroughly evaluate other modeling approaches*
 - *Can often get good suggestions from review process and/or through the SSC review, but current benchmark process does not provide an opportunity for these suggestions to be incorporated until the species is scheduled for another assessment*

What is the VISION for the Research Track Process?

- *Emphasis on developing a highly credible stock assessment framework*
- *Serves to answer questions, test hypotheses, or otherwise explore new ideas for assessing a stock or stocks*
- *Allows for complete flexibility in data and model choice*
- *Process expected to last up to a year or more and involves a series of public meetings; includes thorough documentation of new data/method/performance and extensive investigation of model performance*
- *Review completed by a Panel of independent experts, with the Council SSC's (or Cooperator equivalent) ultimately providing recommendations for further improvement; review should be commensurate with the degree of novelty and controversy*
- *Engages more people (including researchers) early on in the assessment process*

What triggers a Research Track Assessment?

- *Triggers for Research Track Assessment include:*
 - *First time assessments*

- *Major issue identified in previous assessment that SSC feels justify the research track approach and independent peer review*
- *SEFSC recommendation that an assessment needs significant additional work to incorporate new datasets, new modeling techniques or apply a new model framework*
- *Addressing 'global' issues that affect multiple species and assessments (e.g. model changes, new data source, etc.)*
- *Default should be to conduct an Operational assessment (with the exception of first time assessments).*
 - *Burden of proof on group (e.g. Cooperators, SEFSC, etc.) requesting RT assessment*
 - *Change from an Operational Assessment to RT Assessment has implications on the timeline, when mgmt. advice will be provided, etc.*

What are the Research Track Data Expectations, and how do they differ from the current approach?

- *Not necessary to have the level of data completeness and timeliness expected for the current benchmark process.*
- *Preliminary, incomplete or provisional data are okay because the process will focus more on concepts and approaches.*
- *Not necessary to have most recent years of data, expected that most recent info will be included in the following operational assessment.*
- *Intent is to reduce the need for data providers to do lots of work re-compiling or re-analyzing data during RT process; not necessary, and potentially not possible, for data to be compiled during the data workshop in multiple ways to address various assessment assumptions*
- *Data providers will need to be given guidelines on what data are needed and how they should be compiled and provided; the focus will be on flexibility to allow exploration of hypothesis during the assessment phase; data providers should only have to provide data once and analysts can aggregate as necessary throughout the process*
- *Expect to establish a soft or target terminal year, while recognizing that not all datasets may reach it, and that the terminal year may not be as 'recent' as expected under the current benchmark process.*
- *A data step goal will be to identify all available datasets early in process – even if some datasets cannot initially be provided, as long as analytical team is aware of the dataset and it can be submitted at a future date*
- *Implications for ageing labs: if stock has not been assessed before, need to plan 2-3 years in advance for enough ages to be provided; this timeframe would not be as critical for stocks that have been assessed before*
- *Ensure appropriate timing for data compilation is incorporated when developing project schedules. Data Best Practices deadlines may require revision to adapt to the Research Track approach.*

What are the guiding forces for Research Track Assessments (e.g. science and hypothesis testing vs management needs) and how should conflicts be resolved in the guiding forces?

- *Research track should be driven by science and the hypothesis testing necessary to give a robust assessment*

- *The timeline is flexible but not completely open ended - a target end date is required for planning the project and scheduling the peer review.*
- *It is recognized that data and model explorations may continue indefinitely. SEFSC may need to do work in advance of SEDAR RT to help provide reasonable limits on the issues to be addressed in a Research Track, and to develop an appropriate project timeline given the scope of work.*
- *Potential triggers or exceptions should be identified that allow deviation from the planned timeline, and a process derived for evaluating the triggers and providing appropriate guidance by the leadership level (Cooperators and Steering Committee)*
- **Proposed Approach:**
 - *SEFSC will develop an initial Scope of Work. When a Research Track assessment is requested by a Cooperator, SEFSC will conduct preliminary evaluations to prepare a proposed Scope of Work. The Scope of Work will identify potential issues, research and internal and external data sources; provide guidance on the timeline; recommend initial Terms of Reference including model techniques to evaluate*
 - *The recommended Scope of Work should provide options (preliminary hypotheses) and corresponding timelines for addressing the research and assessment needs within a reasonable timeline*
 - *The Scope of Work should identify triggers and key milestones within the process that will identify if and when changes to the timeline are needed (e.g. end of Data Stage, few months into Assessment stage, etc.). The intent is that the triggers and milestones be developed to allow flexibility for the process to respond to issues that arise.*
 - *The Scope of Work should be developed and reviewed by the appropriate cooperator before being brought to the Steering Committee for project scheduling. The Cooperator is free to pursue whatever technical review of the preliminary Scope of Work it deems necessary and appropriate.*
 - *Initial requests that trigger SEFSC development of a Research Track Scope of Work need not be made at the Steering Committee, and can be addressed by the Cooperator directly to the SEFSC.*

What factors drive the timeline?

- *SEFSC RT Proposal timeline, supported by the Steering Committee, indicates completion 9-14 months after DW*
- *CIE timeline:*
 - *1 year in advance of a Peer Review: Identify the quarter in which the review will occur*
 - *CIE timeline allows for flexibility of +/- one quarter*
 - *Changing fiscal years in subsequent steps may create issues that cause delay.*
 - *4 months in advance of the review: identify the month the review will occur*
 - *2 months in advance of the review: identify the dates of the review.*
- *There was discussion of withholding review planning until the assessment is complete.*
 - *This offers maximum flexibility, but will likely cause substantial delay in review (~6 months?) and lengthen overall timeline beyond that proposed to Steering Committee.*
 - *Some concern was raised that the added delay could detract from the review, as the key personnel will become involved in other assessment projects between AW report completion and the review.*

- *Also concerns that the project will become open-ended, making it difficult to plan subsequent projects.*
- *Potential option for scheduling review:*
 - *Have a routinely scheduled review (same month/dates every year) that is not tied to any particular assessment project.*
 - *At the 4 month point required by the CIE, the specific species, # of species, etc. would be identified.*
 - *This could potentially allow more flexibility within RT while still meeting CIE review timeline. It may also result in some reviews being cancelled because the work is not complete, and difficulty in managing the review workload if multiple projects reach their end point near the same time. It is not clear how this would play out in the CIE process.*

II. Details and relation to existing process components

A. Project Schedule

- Because the Operational Assessment provides required management information, its timing and data deadlines should be included on the Research Track assessment schedule. A detailed Operational Assessment deadline will be prepared closer to its start, along with its TORs, similar to what is done now for standard and update assessments.

B. Research Track: Stock ID Process - ~ 4.5 months

- Need to clearly identify process and timeline for determining Stock ID for Research Track assessments
- **Timing:** timing for Stock ID decision should follow the SEDAR Data Best Practices timeline (final decision should be available in advance of the Data Scoping call; ideally ~4-5 months in advance of Data Workshop)
- **Method:** In-person workshop or series of webinars; will be dependent on project, available budget, and if possible, will be decided in advance when developing schedule
- **Process:** The process outlined below is based on feedback received from the SEDAR Steering Committee regarding the Stock ID & Meristics workshop. It is streamlined and simplified somewhat, to provide a potentially more manageable, long-term approach for determining stock ID. Note that some additional options for this step are provided at the end of this document.
- **Recommended Approach**
 1. Stock ID Work Group will develop Stock ID recommendation (via workshop or series of webinars) and document findings in Stock ID Work Group report.
 - a. The Work Group will be similar to those convened for Blueline Tilefish and Gray Snapper.
 - b. Will include SSC & Technical representatives from all Cooperators and Councils likely affected
 2. Independent Peer Review of the Stock ID recommendations, by a panel to include SSC, mgmt. rep, assessment rep, and optional slots for additional expertise.
 - a. Anticipate being held via webinar to control costs
 - b. Panelists shall be independent of those on the Stock ID workgroup.
 - c. Workgroup chair will present findings to this group.
 - d. Need to address biological and management risks within the Charge and TORs.
 3. Science and Management Leadership Call; to be held when a change in Stock ID is recommended that causes a stock to cross Cooperator boundaries; will involve Cooperators, Management (Regional Office), and Science (Science Center) entities; Leadership Group will resolve the discrepancy and provide guidance on the appropriate TORs to provide the necessary and appropriate management parameters

SEFSC Feedback on Stock ID from Second Research Track Webinar

- *Separate stock ID stage not needed; stock ID hypotheses would be tested and recommendations would be made during RT process; unclear when this would happen in the process – SEFSC wants*

flexibility in timing, but this decision impacts all data compilation and analyses, so if this decision is made late in process could impact timeline

- *In recent SEDARs, decisions for unit stock made using provisional data which has been problematic; current Benchmark timing doesn't allow all data to be available to make stock ID decision*
- *SEDAR Data Best Practice Data Timeline noted that Stock ID was one of the decisions that needed to be made early in the process since it affects all available datasets; the timing for the Stock ID decision for the RT does not necessarily have to follow what was recommended through SEDAR Data BP*
- *Need to ensure all Cooperators that could be affected by Stock ID decisions are involved in process*
- *Need to consider effect of assessment and management advice when making stock ID recommendations*
- *Need to clarify the differences between population unit and assessment and/or management unit; if multiple populations are identified, it doesn't mean the assessment or management must follow those populations units*
- *Burden of proof needs to be met when assessment stock structure recommendations do not follow Cooperator jurisdictions*
- *Stock ID decisions will affect compilation/analysis of all datasets; need to provide guidance (e.g. what are hypotheses) to data providers near beginning of RT assessment so they are able to prepare and analyze their data to test hypotheses*
- *Will need to balance the amount of flexibility desired in the stock ID decision with what is actually feasible (e.g. workload, timeline) for data providers and analytical team*

C. Research Track: Data Stage ~ 4.5 months

Recommendations from the first webinar that are relevant to the Data Stage have been cut and pasted as italicized text into the appropriate topics within the 'Data Stage' section of this document that follows.

- *Research Track Data Expectations*
 - *Not necessary to have the level of data completeness and timeliness expected for the current benchmark process.*
 - *Preliminary, incomplete or provisional data are okay because the process will focus more on concepts and approaches.*
 - *A data step goal will be to identify all available datasets early in process – even if some datasets cannot initially be provided, as long as analytical team is aware of the dataset and it can be submitted at a future date*
- *Timing*
 - *Data Stage in the Research Track should follow the Data Best Practices timeline*
 - *If not, what should the timeline look like?*
 - *Ensure appropriate timing for data compilation is incorporated when developing project schedules. Data Best Practices deadlines may require revision to adapt to the Research Track approach.*

- *Implications for ageing labs: if stock has not been assessed before, need to plan 2-3 years in advance for enough ages to be provided; this timeframe would not be as critical for stocks that have been assessed before*
- Terminal Year
 - *Not necessary to have most recent years of data, expected that most recent info will be included in the following operational assessment.*
 - Recommend that a terminal year be established for datasets to ensure a reasonable baseline; *establish a soft or target terminal year, while recognizing that not all datasets may reach it, and that the terminal year may not be as 'recent' as expected under the current benchmark process.*
 - Consider the Scamp assessment starting in 2018, the terminal year could be 2015
 - Could reduce unexpected outcomes in the Operational assessment
 - Could help ensure data are available for the Operational assessment
 - Datasets with information more recent than the target terminal year will be accepted.
- Data Best Practices timeline represents 'hard deadlines' for the data providers, meaning that they, for the most part, will not be expected to contribute further to the assessment
 - Is there an expectation that data providers will need to go back and reproduce datasets/analyses throughout the Research Track process. e.g., an alternative way of aggregating catch (and thus length and age comps) is considered?
 - *Feedback from first webinar:*
 - *Intent is to reduce the need for data providers to do lots of work re-compiling or re-analyzing data during RT process; not necessary, and potentially not possible, for data to be compiled during the data workshop in multiple ways to address various assessment assumptions*
 - *Data providers will need to be given guidelines on what data are needed and how they should be compiled and provided; the focus will be on flexibility to allow exploration of hypothesis during the assessment phase; data providers should only have to provide data once and analysts can aggregate as necessary throughout the process*
- Final deliverable from the Data Stage is a DW report, similar to current DW report.
 - Data will be summarized through the baseline terminal year of each dataset. Need to ensure there is clear record with justification for each data decision as necessary for review
 - Does the current DW report outline capture the key information that needs to be documented? Should other info be added? Can some info be omitted?
 - Per initial (Feb 15) webinar discussions: DW report's role should be to document all data decisions; important to document sequence of events which led to decisions and include figures/tables to illustrate why made

decisions; not necessary for this to include final data tables; may need to develop new DW report outline

- Working papers and reference documents will continue.

SEFSC Feedback from Second Research Track Webinar

- *Role of Data Stage significantly changing from what is currently done under Benchmark assessments; focus more on exploring hypotheses; need to develop guidance for data providers so it is clear what the expectations are for participating in RT and how they should prepare for RT assessments*
- *Lead analytical team will contact researchers/data providers/SSCs/Council staff/etc. to identify available data to inform development of Scope of Work; Scope of Work developed prior to start of RT assessment*
- *Separate stock ID process not needed; stock id hypotheses would be tested and recommendations would be made during RT process; unclear when this would happen in the process – SEFSC reps noted wanted flexibility in this, but this decision impacts all data compilation and analyses, so if this decision is made late in process could impact timeline*
- *Data providers initially provide raw data at lowest aggregated level possible; participate in compiling, analyzing, developing recommendations on data similar to what they do now under Benchmark DW*
- *Set stopping points throughout entire RT process where analysts consult with data providers*
- *Near end of Assessment Stage, when analysts have configuration(s) would like to take to review, check in with data providers to request data in the identified configuration(s) so that model(s) can be run for the review; data providers will be empowered to decide whether or not they can provide the updated data based on their workload at the time of the request*
- *Need to identify available data sources early in the RT process; this should be done prior to developing Scope of Work and draft ToRs*
- *Data don't need to be exact in RT process (focus on concepts; does not provide mgmt. advice); try to align data the best you can with assessment model decisions/configurations (e.g. stock structure, fleet structure, etc.), but don't need to match exactly; BUT getting data close to recommended configuration(s) for review will help ensure that fewer unidentified issues arise in Operational assessments*
- *Under RT, there doesn't seem to be as clear of a delineation between Data and Assessment stages as there is now under Benchmark process*
- *Distinction between provisional data vs. analytical products (growth models, CPUE, reproduction analysis, comps); data providers that produce analytical products may need to be more heavily involved throughout RT process than those that provide raw data*
- *Potential disconnect between RT data intent and expectations? – RT intent is to reduce the need for data providers to do a lot of work recompiling/reanalyzing data during RT assessment; BUT focus of RT Data Stage is exploring hypotheses; in order to evaluate hypotheses will need to look at data for hypotheses being considered – which likely means recompiling/reanalyzing the data in multiple ways; this could potentially increase workload of analyst, data providers, or both*

- *Data providers understand their data best; should participate in the decisions regarding how their data are used*
- *Unclear who would be responsible for recompiling/reanalyzing data to explore hypotheses under RT assessments; each region may want to continue to handle the process more similarly to what is currently done within their region for Benchmarks (e.g. South Atlantic seems to rely more on multiple data providers and GoM seems to rely more on lead analyst)*
- *Unclear whether data providers will be expected to produce same products as do now under Benchmark DW; these products rely on some key decisions (e.g. stock structure) that are currently recommended be made early in the process*
- *Interest in having data providers participate throughout RT process with analytical team; need to develop guidelines so expectations for data providers are clear; workload and/or time commitment may be different based on whether providing raw data or analytical products (e.g. growth model, comps, etc.)*
- *Potential workload issue for data providers? - if expected to participate throughout RT process (and potentially pull/compile/analyze data at the beginning and end of the process) and expected to compile/analyze data for increasing number of Operational Assessments – do data providers have capacity to do this?*

D. Research Track: Assessment Stage – 6 months

- Assessment stage of the Research Track will be operationally similar to current 'IPT' approach (e.g. milestone webinars held approximately monthly with informal communication between analysts and Panel members, as necessary)
 - Are the current webinar milestones appropriate (with the exception of any addressing status)
 - Consideration of in-person workshops – timing, topics, justification
- Timeline doubled for model development to approximately 6 months.
 - Is this adequate time, considering that there should not be data delays due to ensuring a recent terminal year?
- Final deliverable from the Assessment Stage will be a report similar to current AW report in terms of documenting the assessment method and uncertainties.
 - The report will not provide status determinations.
 - The report will focus more on factors that influence model performance than specific results.
 - The report will document the models considered and provide justification for the chosen model approach.
 - Working papers can be used to document the details of topics explored during the research track, with recommendations and resolution of alternatives explored in working papers addressed in the AW report.
 - The AW Report will include clear and specific recommendations for the data and model approach to be applied in the Operational Assessment.
 - Report should address projection methods, considerations and details. Include recommendations for assuming fishery conditions between TY and year 1.

E. Research Track: Review Stage, 2 months

- There are limitations on scheduling flexibility that are beyond our control. CIE timeline is as follows:
 - 1 year in advance: identify the quarter in which year will occur
 - CIE timeline allows for flexibility of +/- a quarter
 - Changing fiscal years in subsequent steps may create issues that cause delay
 - 4 months in advance of the review: identify the month the review will occur
 - 2 months in advance: identify the dates of the review
 - Additionally will need to allow time to find available meeting space for workshop (timing for this is largely dependent on workshop location – shorter in Beaufort, longer in Miami or St. Pete.) 2 months lead time may not always be enough to guarantee preferred locations.
- Final deliverable from the Review Stage will be a summary RW report and separate individual CIE reviewer reports
- The RW will not be asked to provide status recommendations
- RW composition and general approach unchanged

SEFSC Feedback from Second Research Track Webinar

- *Need to clarify what product will be reviewed at the end of RT and what the reviewers are expected to evaluate; what will the review ToRs include?*
- *Intent to have reviewers evaluate data/model decisions but not actual assessment model?*
- *Will reviewers be able to evaluate decisions if they do not review a working model, model diagnostics, etc.?*
- *Will this complicate things for the Operational Assessments (e.g. have unforeseen issues arise that don't get vetted during the RT)?*

F Research Track: Final Deliverable

- The final research track deliverable will be a composite report similar to current SAR – Intro, DW, AW, RW reports merged into final SAR.
- The final SAR deliverable will be disseminated similar to what is done now (e.g. prior to SSC review final SAR distributed via memo to relevant Cooperators & participants and posted to SEDAR website)
 - Dissemination dates are required for the mandated Peer Review Plans.
- Dissemination of the Final SAR will conclude SEDAR's management of the Research Track. (no change from current practices)

G. Research Track: Post SEDAR Process and SSC Review, 12+ months

- Administrative record keeping shifts to the Cooperator for post-dissemination activities.
 - SSC comments regarding the RT and how they are implemented in the RT will be documented by the Council-SSC Administrative Record.
 - Councils requested to provide relevant SSC reports to SEDAR for posting with the assessment on the SEDAR website

- Research Track results presented to the SSC by the analytical team, and to the Council if requested (no change from current practices)
- To save time and travel, the SSC review of the RT should include guidance for the Operational assessment.
 - Should the analytical team be allowed to begin addressing model issues or improvements prior to the SSC Review of the Research Track?
 - For example, sometimes reviewers make recommendations based on hypotheticals that do not pan out. The SSC could resolve such issues and recommend whether such recommendations should be carried forth to the OA...evaluate if the change did what a reviewer thought it might?
 - The ability to do this may be determined by the timeline between the RT and the SSC review. However, if this is considered useful the time can be provided.
- After analytical team incorporates reviewer and SSC comments, is it necessary to have some level of review before the Operational Assessment proceeds?

H. Operational Assessment

- What level of support is expected from SEDAR staff (e.g. develop ToR, schedule/deadlines, etc)? Will role be dependent on how much additional work needs to be done per reviewer and SSC comments/feedback (e.g. continuum between current Standard and Update support)?
- Who determines whether Operational assessment will be conducted more similar to current Standard or Update assessment? What are the relevant considerations? Should the SSC make recommendations?
- Do Operational Assessments need to always have the most recent data? Will all datasets need to be updated and/or will it be specified in the ToR?

Appendix 1: Example South Atlantic and Gulf of Mexico Scamp Schedule

Research Track Timeline: Dec 2017 – June 2019 (~18 months)

(Based on timing of activities provided in the September 2016 proposal, and Steering Committee recommended timing of Operational Assessments following the Research Track)

- **Stock ID: Dec 2017 – mid April 2018 (~4.5 months)**
 - Stock ID Data Scoping - Work Group Report completion: Dec 2017 - mid-Feb 2018
 - Stock ID Review Process: mid-Feb 2018 – mid-April 2018
- **Data Stage: May 2018 – Sept 2018 (~4.5 months)**
 - Data Scoping Call through DW report completion
- **Assessment Stage: October 2018 – March 2019 (~6 months)**
 - Pre-Assessment Webinar through AW report completion
- **Review Stage: April 2019 – May 2019 (~2 months)**
 - Distribution of Reviewer Materials through RW report completion
 - “Hard” deadlines to meet CIE planning requirements
- **Final Research Track SAR dissemination: early June 2019**

Operational Assessment Example Timeline: July 2019 – July 2020.

- Review by SSCs: July 2019 – October 2019
- Operational Model Development & addressing Reviewer & SSC concerns: November 2019 – September 2020.

Appendix 2 : Additional Options for Stock ID

OPTION 1 – This sequence is most similar to how the process of stock ID evaluation and review was discussed at the Steering Committee in September 2017. That discussion was primarily directed toward the comprehensive workshop at which stock ID for multiple species was planned.

1. Stock ID Work Group will develop Stock ID recommendation (via workshop or series of webinars) and document findings in Stock ID Work Group report
2. Independent Peer Review of the Stock ID recommendations (to include CIE reviewers, SSC, mgmt. rep, assessment rep, optional slot for additional expertise). Requested by the Steering Committee for the comprehensive workshop.
 - Adds 8 weeks if held as a panel review: 2 weeks for Stock ID report completion, 1 week to distribute, 2 weeks review time, 1 week workshop, 2 weeks to complete report.
 - Steering Committee recommended that this level of independent review could be handled through CIE desk reviews in the research track process.
 - If handled by CIE desk reviews, it will require 8 weeks minimum.
3. SSC (or appropriate technical review body) review of Stock ID report and Independent peer review findings, by all Cooperators affected by the Stock ID recommendations; each Cooperator will conduct its own review, according to its own policies; joint meetings may be convened if deemed necessary by the appropriate Cooperators and/or SEDAR Steering Committee.
 - Adds a minimum of 6 weeks to the timeline: three weeks to receive and distribute reports from step 3, 1 week meeting, 2 weeks for SSC to complete report.
 - SEDAR Concern: this could result in multiple full SSC opinions on the stock ID and independent review recommendations, and no joint effort to resolve differences.
4. Science and Management Leadership Call; to be held when a change in Stock ID is recommended that causes a stock to cross Cooperator boundaries; will involve Cooperators, Management (Regional Office), and Science (Science Center) entities; Leadership Group will resolve the discrepancy and provide guidance on the appropriate ToRs to provide the necessary and appropriate management parameters
 - Add 4 weeks: 3 weeks to receive, distribute, review report and 1 week to finalize recommendations
 - Could be placed in the position of attempting to resolve divergent technical opinions from multiple technical bodies.

OPTION 2 – This includes similar steps as option 1, but shuffles the independent peer review and cooperator review. This allows the joint review of all cooperators to come after the individual review by each cooperator.

1. Stock ID Work Group will develop Stock ID recommendation (via workshop or series of webinars) and document findings in Stock ID Work Group report
2. CIE desk reviews of the Stock ID recommendations (Option)

- a. Adds 8 weeks
- 3. Cooperators may conduct additional reviews by their full SSCs
 - a. Adds 6 weeks
 - b. No presentation by work group chair planned. Must be handled by the SSC rep on the work group.
 - c. Recommend that this be held after the CIE desk review is received, if the desk review is desired, to ensure this group and the independent group that follows have the same information.
- 4. Independent Peer Review of the Stock ID recommendations, including comments on those recommendations by CIE desk review (if used) and SSCs, by a panel to include SSC, mgmt. rep, assessment rep, and optional slots for additional expertise)
 - a. Presume this would not include CIE reps if the desk review is chosen.
 - b. Recommend this be held via webinar to control costs.
 - i. Will that affect CIE representation if desired at this stage?
 - c. Members should be independent of the work group.
 - i. Are there other concerns over independence given the preceding full SSC review?
 - d. Presentations
 - i. Stock ID workgroup findings presented to the this group by the stock ID workgroup chair
 - ii. SSC review findings provided in report, or by presentation of an SSC rep other than the review representative. If travel involved, will be at Cooperator expense
 - e. This gives an opportunity for a joint body to review and resolve possible differences between technical groups.
- 5. Science and Management Leadership Call; to be held when a change in Stock ID is recommended that causes a stock to cross Cooperator boundaries; will involve Cooperators, Management (Regional Office), and Science (Science Center) entities; Leadership Group will resolve the discrepancy and provide guidance on the appropriate ToRs to provide the necessary and appropriate management parameters

SEDAR Research Track Process

Decision Document

SEDAR Steering Committee

May 5, 2017

This document summarizes several alternatives for implementing the SEDAR Research Track process. It was developed by SEDAR staff to help the Steering Committee evaluate approaches to Research Track assessments that emerged during webinar deliberations with SEFSC, since the Research Track Working Group did not reach consensus on a preferred approach for implementing the Research Track process. The alternatives shown here were defined and described by SEDAR staff based on notes taken during the webinars, and provided to working group members for review prior to the SEDAR Steering Committee meeting. Full details of the webinar deliberations and provided in a separate document , provided as Attachment 6 for the May 5, 2017 Steering Committee Meeting.

Summary of Alternatives:

1. Status quo
2. Extended AW Timeline
3. Research phase prior to SEDAR phase
4. Hypothesis driven Research Track
5. Modified Benchmark Process

I. Status Quo

This is included for thoroughness. The Committee could choose to proceed with the existing benchmark, standard, and update process.

Pros	Cons
No process changes needed	Extremely deadline oriented
familiarity	Difficulty accommodating unexpected challenges
output rate relatively well known	Extended terminal year – dissemination delay
Roles & responsibilities defined and known	Reviewer suggestions not readily addressed
Favors transparency	Not timely
Follows recent data best practices approach	Difficult to obtain effective constituent feedback, particularly in the AW webinar process

II. Extended AW timeline.

This is the approach originally put forward by SEDAR staff as a starting point to merge the principles and timeline of the Research Track as proposed in September 2017 with the existing SEDAR process. The approach for resolving stock ID, through a workshop and peer review, is included at the start of the process. It suggests only moderate changes to the general benchmark process as now followed, primarily to extend the assessment development window and adds the Operational Assessment (which removes the expectation to provide management

advice following the peer review). The data process is preserved, but the expectation to complete an assessment dataset with the most recent data is eliminated.

1. Stock ID Process: (4.5 months) resolved prior to data workshop, includes a peer review and final consideration by regional leadership group as described by the Steering Committee in September 2016.
2. Data Stage: (4.5 months) following the Data Best Practices timeline, and a data report deliverable similar to the current process. Primary change is a shift in focus from completing an assessment input dataset with most up to date information to identifying and evaluating data issues; may rely upon preliminary or provisional data for recent years.
3. Assessment Stage: (6 months) similar to the existing benchmark process, with the time allotted doubled from 3 to 6 months, and removing the expectation to provide management advice in the assessment report.
4. Peer Review Stage: (2 months) similar to existing peer review workshop. Includes CIE, so CIE deadlines affect timing for the peer review and assessment stage conclusion. SEDAR role concludes upon report dissemination (same as with current process).
5. Post SEDAR: (9 months) Research Track assessment tool is revised per the peer review, reviewed by SSCs, updated data obtained. Administrative record responsibilities shift to assessment agency and cooperator.
6. Operational assessment: (3 mos) Operational assessment prepared with most recent data similar to existing update process. Cooperators approve TORs that define the nature of the OA and the role of their technical reviewers. Goal is to complete the Operational Assessment within 12 months of the peer review.

Pros	Cons
Minor process changes needed	Remains deadline oriented
Familiarity	May not easily accommodate all unexpected data or modeling challenges
Reduces delay between terminal year and management advice	Follows current sequential decision making process (DW to AW to RW)
Roles & responsibilities defined and known	Difficult to obtain effective constituent feedback, particularly in the AW webinar process
Favors transparency	
Extended AW timeline to aid thoroughness	
Adds Operational Assessment: Reviewer suggestions can be addressed	
Follows data best practices approach	

III. Pre-Research Approach

This approach is a potential compromise discussed during the workgroup webinars, in response to suggestions that the Research Track should be hypothesis driven rather than timeline driven. In this version, the lead assessment agency (e.g., SEFSC) conducts an initial research phase to identify assessment approaches and develop models for further consideration through a typical SEDAR benchmark process. It essentially shifts the hypothesis driven research component to the analytical agency and removes that aspect of the process from SEDAR. While this was discussed on the second webinar, the group did not reach consensus on the details or a preferred method of implementing this alternative.

1. **Assessment Request:** A cooperator notifies the Steering Committee that a new assessment (i.e., “benchmark”) is desired of a particular species. This will ideally happen during the Committee deliberation of future priorities.
2. **Research Stage:** (no specific deadline) The lead assessment agency (i.e., SEFSC) will conduct research on how best to assess the chosen stock. They will solicit and evaluate data, develop and evaluate assessment models, per their standard practices. Stock ID will be addressed during this stage, and a proposed stock definition provided in the TORs for the next stage. SEDAR will not be involved in this stage. Once the analysts have developed an appropriate approach, they will inform the Steering Committee and Cooperator, and the stock will be added to the SEDAR assessment schedule for assessment development at the next available opportunity. The research deliverable will include a summary of the proposed modelling approach, results of the research leading up to the preferred model selection, and proposed Terms of Reference for the SEDAR stage to follow.
3. **SEDAR Stage:** (12-15 months) The stock will be scheduled by the Steering Committee, and the SEDAR process will proceed through the Data, Assessment and Review steps similar to the existing benchmark process. Management advice will be provided following the peer review model. Timelines could be slightly shortened from the status quo since the scope of the assessment is better defined and preliminary data are already available.

Pros	Cons
Minor process changes needed in the SEDAR phase	No set timeline for when the SEDAR phase will begin
Familiarity	Resources required for Research phase may be difficult to estimate
Roles & responsibilities defined and known	May still result in terminal year-dissemination delays
Favors transparency in the SEDAR phase	Logistics and organizational burden on the analytical agency
Open, hypothesis-driven research stage can accommodate unexpected challenges	May be difficult to provide transparency during the research phase
Follows data best practices approach	

IV. Open Research Track

This alternative represents an open, hypothesis driven research track approach. The typical SEDAR benchmark steps of data and assessment are somewhat merged to meet the needs of hypothesis testing, and the peer review is not scheduled until the analytical team determines the model is adequately developed.

1. Data Stage: (?) data compilation and evaluation step similar to the existing data workshop. Focus is on identifying potential data, data issues and solutions rather than assessment datasets; reliance upon preliminary or provisional data; data provided in disaggregated formats for further exploration by the analytical team.
2. Assessment Stage: (no deadline) data are explored and evaluated, models developed and evaluated based on hypothesis testing. Stock ID is addressed through this stage. May include regular meetings similar to the current AW webinar process, with added data provider representation. Reduced reliance on specific milestones to meet at each meeting, with discussion points based instead on model issues that develop.
3. Peer Review Stage: (2 months) Peer review is not scheduled until the analytical team has completed model development. Once scheduled, peer review is similar to existing review workshop. Peer review will evaluate the stock ID recommendation, and will not provide management advice.
4. Post SEDAR: (12+ months) Research Track assessment tool is revised per the peer review, reviewed by SSCs, updated data obtained. Administrative record responsibilities shift to assessment agency and cooperator.
5. Operational assessment: (time may vary) Operational assessment prepared with most recent data similar to existing update process. Cooperators approve TORs that define the nature of the OA and the role of their technical reviewers.

Pros	Cons
Greatest flexibility to address data and assessment issues	Lack of a set timeline may be challenging for management
Operational assessment reduces terminal year-dissemination delays	Does not follow data best practices timeline
	Effective public involvement & transparency may be difficult during protracted assessment stage.
	Extended, open-ended commitment for data providers
	Performance of model may change once provisional data are updated

	Potential for additional delays in scheduling RW due to CIE timeline
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V. Modified Benchmark Process

This alternative represents a modification of the existing benchmark process to add a research oriented, hypothesis driven assessment stage between a typical SEDAR data and review workshop. Logistically, it is essentially a merging of alternative 2 and 3. Depending on how the Steering Committee is willing to view deadlines and driving factors, the assessment development phase could be structured around specific milestones and timelines, as per the existing process, or it could be more hypothesis driven.

1. Stock ID Process: (4.5 months) resolved prior to data workshop, includes a peer review and final consideration by regional leadership group as described by the Steering Committee in September 2016.
2. Data Stage: (4.5 months) following the Data Best Practices timeline, and a data report deliverable similar to the current process. Reduced focus on the most timely data and providing complete assessment datasets, to allow greater consideration of alternatives and identifying issues require research consideration.
3. Assessment Stage: (6 months to no specific deadline) focus is on model development and evaluation. Could include a panel of scientists that will work with the analysts, similar to existing AW panels.
4. Pre-Review Workshop: (4 months) Similar to existing Standard workshops. Once the assessment stage is complete and the assessment tool developed, the data and method will be reviewed. Final data review handled through webinars devoted to each data area, completed before the pre-review workshop (in-person). Goal of the workshop is model review and evaluation, consideration of uncertainties and sensitivities, development of projections. Participants include those from the assessment stage and ~2 independent scientists (from SSC or other experts), fishermen and other constituent reps.
5. Peer Review Stage: (2 months) similar to existing peer review workshop. Includes CIE, so CIE deadlines affect timing for the peer review and assessment stage conclusion. SEDAR role concludes upon report dissemination (same as with current process).
6. Post SEDAR: (9 months) Research Track assessment tool is revised per the peer review, reviewed by SSCs, updated data obtained. Administrative record responsibilities shift to assessment agency and cooperator.
7. Operational assessment: (3 months) Operational assessment prepared with most recent data similar to existing update process. Cooperators approve TORs that define the nature of the OA and the role of their technical reviewers.

Pros	Cons
Familiarity	May not easily accommodate all unexpected data or modeling challenges
Reduces delay between terminal year and management advice	Follows current sequential decision making process (DW to AW to RW)
Roles & responsibilities defined and known	
Favors transparency; the pre-research phase expected to increase the effectiveness of constituent feedback on the assessment model	
Extended AW timeline to aid thoroughness	
Adds Operational Assessment: Reviewer suggestions can be addressed	
Follows data best practices approach	

Comparison

Alternative	Management Advice	Duration ¹	
1. Status Quo	Following RW	15 mos	No changes
2. Extended AW	Operational Assessment	30 mos	Similar to the Sept. 2016 proposal. Extra time compared to status quo is due to the Operational Assessment (12 mos) and the added AW time (3 mos).
3. Pre-SEDAR Research	Following RW	12 mos +	Allows for research phase without the SEDAR council process limitations. Duration is 12 mos. once the SEDAR benchmark phase begins.
4. Open Research Track	Operational Assessment	Unk	Hypothesis driven process with the most flexibility to address assessment issues. Duration could be defined if boundaries are placed on the time for research and development.
5. Modified Benchmark	Operational Assessment	30 mos to unk	Attempt to resolve differences between hypothesis driven open research and the SEDAR council process

1. Duration based on the time from stock ID to management advice.