

Research Track Reference Documents Overview

This package of documents was assembled to provide a thorough background reference on prior Research Track and assessment productivity deliberations.

1. Assessment Throughput – ACL Workshop (PDF page 3)

This is a presentation made by John Carmichael at a February 2011 workshop convened by NMFS to address the scientific demands of managing under the Reauthorized MSA and updated National Standards. It illustrates how the Steering Committee has grappled with issues of productivity and throughput for many years. Recent changes in SEDAR at the time, such as the move to Benchmark-Standard-Update assessments are noted, and underlying challenges to increasing productivity are reviewed.

2. NEFSC New Process (PDF page 26)

This document was prepared by NEFSC to address the NRCC task of developing a new approach to stock assessment. It provides insight into the early development of the operational and research track assessment concepts, using examples specific to NE stocks.

3. SAFMC Key Stocks (PDF page 66)

Part of the briefing materials for the May 2018 SAFMC SSC meeting, this document describes the “key stocks” concept and regular scheduling of assessments and interim analyses as discussed at the SAFMC and SSC over the last two years.

4. September 2015 SEFSC Research Track Proposal (PDF page 72)

Prior Steering Committee briefing document. It is the initial proposal by SEFSC to the Committee outlining the Research Track concept.

5. May 2016 SEFSC Research Track (PDF page 81)

Prior Steering Committee briefing document. This is a slightly more detailed proposal for the research track.

6. September 2016 SEFSC Research Track Presentation (PDF page 85)

Prior Steering Committee briefing document. This is a presentation on the state of the research track (research cycle) process, including a comparison to the existing SEDAR assessment types.

7. September 2016 SEFSC Research Track (PDF page 98)

Prior Steering Committee briefing document. This is next update provided for document 5, including an example timeline as requested.

8. May 2017 SEFSC Research Track Work Group summary (PDF page 102)

Prior Steering Committee briefing document. This is a summary of the SEDAR-SEFSC research track workgroup’s efforts to define the research track approach.

9. May 2017 SEFSC Research Track Draft Process (PDF page 118)

Prior Steering Committee briefing document. This is the SEDAR staff strawman addressing specific details of the research track approach, developed after several webinars with the SEFSC-SEDAR working group in early 2017.

10. May 2017 SEFSC Research Track Decision Document (PDF page 122)

Prior Steering Committee briefing document. This was provided to the Steering Committee to outline research track implementation options.

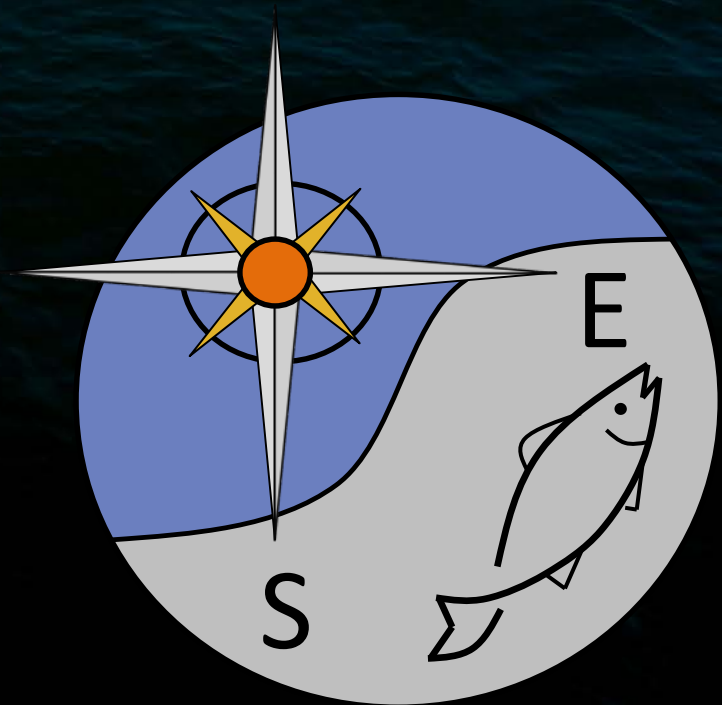
11. August 2017 SEFSC memo to SAFMC (PDF page 128)

This is the SEFSC response to an SAFMC request for clarification on some aspects of the research track process.

ASSESSMENT AND PEER REVIEW THROUGHPUT

ACL Science Workshop
February 15-17, 2011
Silver Spring, Maryland

John Carmichael
SAFMC/SEDAR



Peerus Reviewii



IS THERE A PROBLEM?

- Yes, at least in some areas
 - many unassessed stocks
 - long delay between assessments
 - cumbersome and burdensome

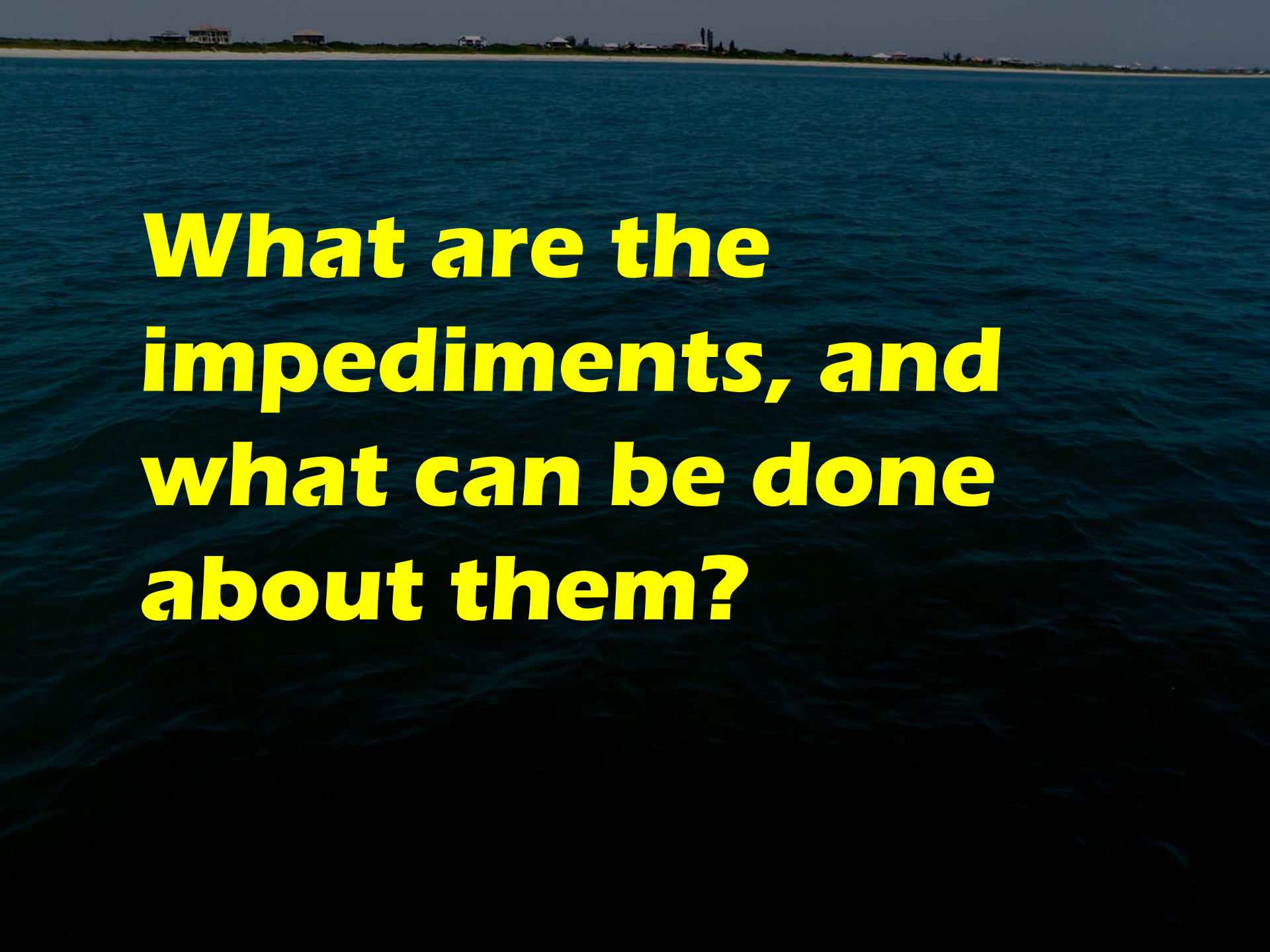
HOW BAD IS IT?

“The process is broken”

- provides too few assessments
- incorporates data that are out of date
 - Terminal year is too long ago
- Inability to respond to developing issues
 - Planning, logistics and data prep take time
 - overallocation of resources = no reserves
- Cumbersome reviews with low consistency

QUOTES FROM CONSTITUENCY

- “I’m all for conservation, as long as you have the data and analysis to back it up”
- “How can you, as a scientist, in good conscience, set an overfishing limit without any analysis or basis” (using your fatally flawed data)
- “How can you destroy my livelihood with nothing more than an average”
- “All the fish counted in your last assessment are dead, you have no idea how many are there now”



**What are the
impediments, and
what can be done
about them?**

ENGINEER JOKE

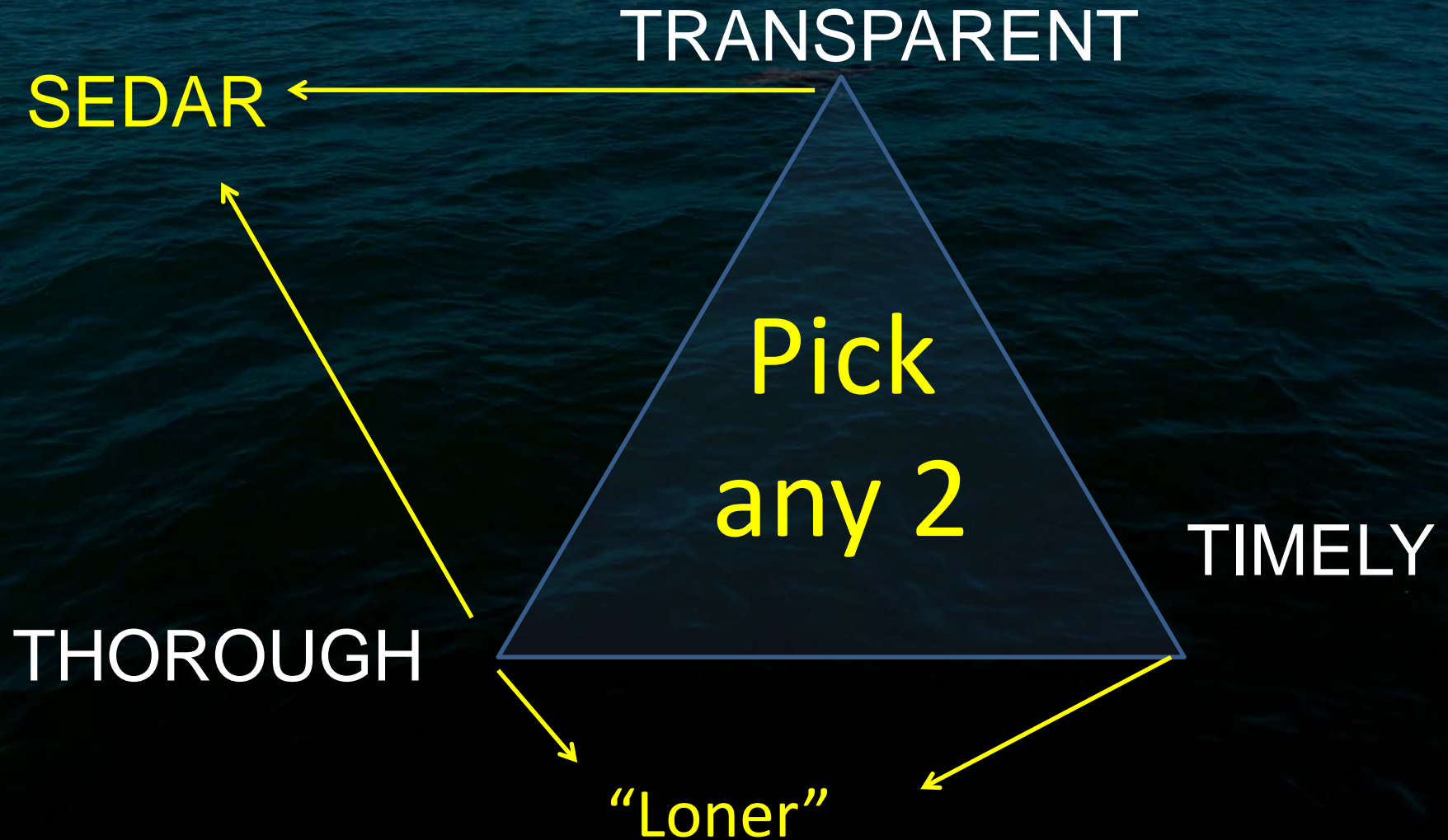
FAST

Pick
any 2

GOOD

CHEAP

FOR PEER REVIEWS





TIME TO SHIFT THE BALANCE

- Timeliness gaining importance
- Need to Increase output

SEDAR considering changes, along with other programs.

Change is always hard.

IMPEDIMENTS TO CHANGE

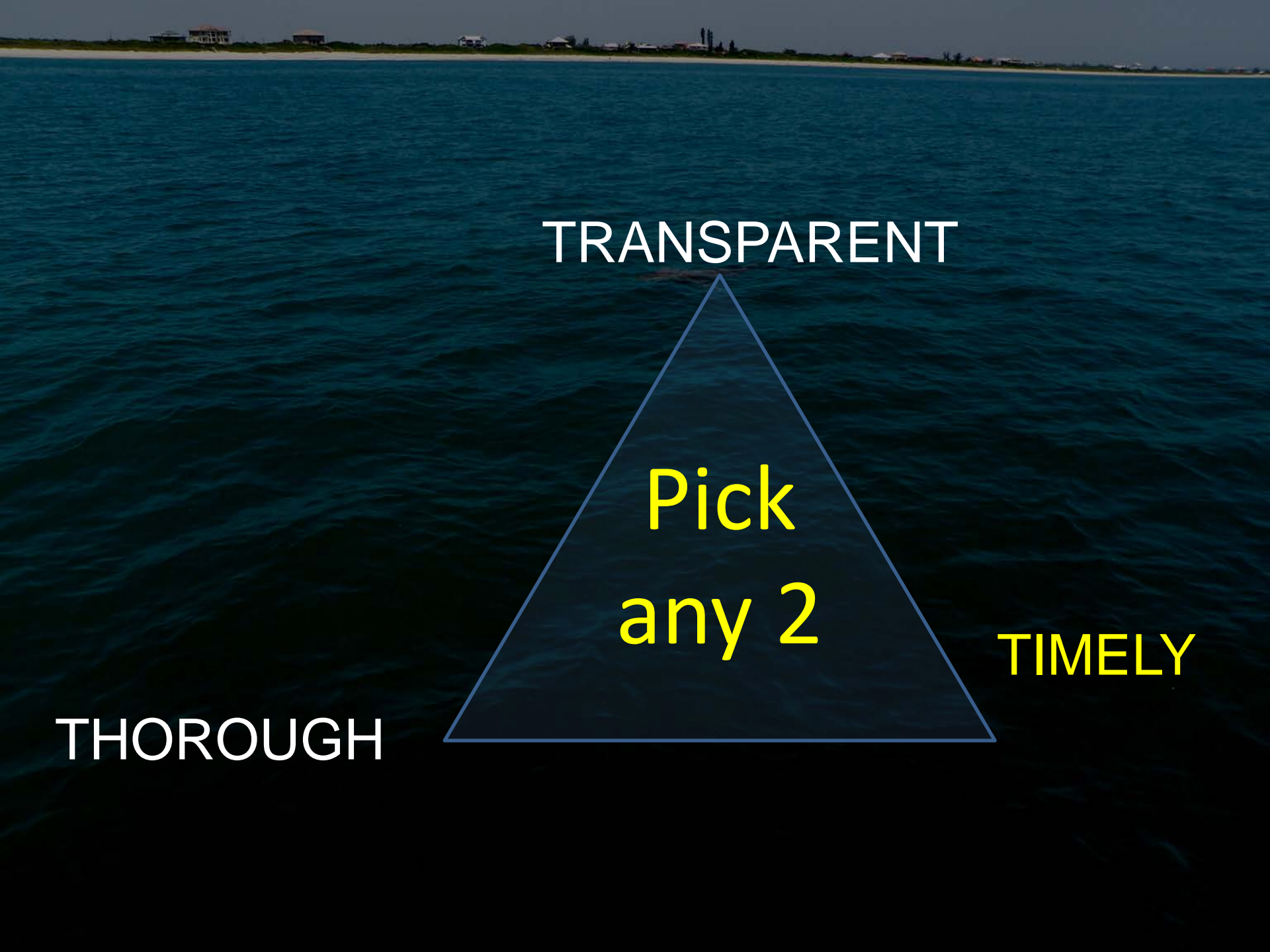
- Resources are fixed, or at least slow to come
- Managers have expectations of scientific sophistication (especially when there are consequences).
- Constituents becoming accustomed to transparency and 'voice'
- Critics know that delays are often favorable
- Procedures become institutionalized
- Peer Reviews are required

TRANSPARENT

Pick
any 2

TIMELY

THOROUGH



TRADEOFFS REQUIRED

Impacts on Transparency and Thoroughness to be more Timely?

- Assessment Process
- Peer Reviews
- Outside assessments
- Management

TRANSPARENCY

- What it is: Availability of information, Public discussion, dissemination
- What it is not: Understanding by all, Influence or decision making
- Impediment: Increased Transparency reduces timeliness and perhaps thoroughness
- Buy-in is now low, less perceived transparency could be a significant negative.

THOROUGHNESS

- What it is - Evaluate data sources, consider appropriate models and prior assessments
- What it is not: Include all data, pursue multiple models, all stocks use most advanced models, all issues discussed at every stage.
- More thorough = less timely, maybe less transparent
- Impediment: Cannot let quest for thoroughness force the assessment to become a research project

ASSESSMENT PROCESS

- Standard models?
- Streamlined Data Access?
- Benchmarks vs. Updates and other things in between
 - Need rules, else viewed as avoiding review
 - May help manage expectations
- Rely more on analysts, less on committees
 - with caution, avoiding personalizing
- Balance new while not backsliding on the existing

OUTSIDE ASSESSMENTS

- Consider other sources
- Concern that QA/QC will occupy as much time as doing the assessment
- Will submitters commit to care and feeding?



PEER REVIEWS

- Fewer Peer Reviews?
 - Focus on benchmarks
- Less intensive peer reviews, handling more stocks?
 - “desk” as opposed to meeting?
 - Feasible for mature programs
- Tiered system of reviews
 - needs for a benchmark differ from those for an update
- SSC and Peer Review Integration
 - Regional differences

AVOID PEER REVIEW REJECTIONS

- Rejections are a huge step backwards and incredible loss of resources (TIME)
- Get something from review, even if assessment 'rejected'
 - Qualitative advice often clear
- Move away from pass-fail scenarios
- Carefully crafted TORs

MANAGED EXPECTATIONS

- Managers may need to accept a lower level of scientific advice
 - Do all stocks need the same (Cadillac) assessment
 - Do we need to age all species
- Specify criteria for multiple years
 - Consider for some stocks
- Constituents accept less participation
- Some issues 'not up for discussion'

THE OPTIMAL SOLUTION ?

That's a big unknown. That's why we are here.

SEDAR now trying to increase timeliness,
without significantly decreasing thoroughness
or transparency.

Changes at all steps, keying on assessment types
of benchmark, standard, and update

The background of the slide is a photograph of a beach and ocean. In the foreground, the ocean is a deep blue with gentle ripples. A dolphin is captured mid-jump, creating a white splash in the water. In the distance, a sandy beach is visible, followed by a line of green trees and several buildings under a clear sky.

THE OPTIMAL SOLUTION

Establish clear objectives for the program

Realistic workload expectations – throughput evaluation

Develop quantifiable measures for evaluating performance in thoroughness, transparency and timeliness.

Commit to scheduled projects to avoid loss of momentum and wasted effort resulting from last minute changes



OPTIMAL SOLUTION

Insights from this meeting could help better balance the demands.

National discussion (and maybe guidance) could help all regions find the appropriate balance and provide important support for the hard compromises to come.

Managers and Policy Makers need to endorse and support the tradeoffs in transparency and thoroughness that are necessary to increase the tempo and be more timely and productive



NOAA Fisheries Response to NRCC Tasking to Develop

A New Process for Assessment of Managed Fishery Resources off the Northeastern United States

Task 2: Develop prioritization and scheduling system for operational assessments - with consideration of the intrinsic biological properties of stock, ripeness of or availability of new fishery-related data and/or research results, changes in stock status (i.e., Overfished; rebuilding program required), rebuilding program status, and miscellaneous external factors. Also considered should be the NRCC role in process, and the management process itself. Finally, develop a strawman schedule of operational assessments.

a. Develop criteria including considerations of the following:

i. Overview of Optimal Timing Concept - The issue of optimal timing of assessments has been addressed in various reports by teams charged with organizing stock assessments at the regional and national level. This report attempts to build on those previous studies. The conceptual framework for a biological rationale is described but there does not appear to be an unequivocal metric for assessment frequency. Ultimately, the assignment of an assessment frequency to each stock is at some point a subjective, but essential step.

If there is any advancement in this essay it is the concept of identifying the relative assessment workload for each stock. The workload is expressed in terms of effort by the lead analyst as well as the indirect effort of colleagues. The indirect efforts include not only technical assistance on logistics but also attending intermediate meetings and so forth. Effort is expressed in units of person months. The total person month effort for each assessment, divided by the assessment frequency provides a measure of annualized person months. The sum of all annualized person months provides a measure of overall staffing needs for the Branch to conduct assessments.

The implications of any particular assessment schedule can be quantified as the sum of the person-months of effort. A scheduling matrix is introduced as a useful tool for evaluating the relative costs of alternative schedules. The scheduling matrix consists of a tableau of species (rows) and years (columns) with zero entries indicating no assessment and ones identifying assessment years. The sum product of the total person-month vector and the schedule vector is the total “cost” of a particular schedule.

This report is a strawman document designed to define the scope of the assessment process conducted by the NEFSC, to identify relevant factors for identifying assessment frequency, and to introduce a structured approach for matching assessment schedules with available staffing.

ii. Biological and Fishery Factors Influencing Assessment Frequency

Life History - A common feature of most previous white papers and planning documents is that the optimal timing of assessments must first begin with the basic biology of the resource and the primary sources of mortality. Factors influencing stock assessment frequency include :

- Underlying life history attributes, e.g.
- Natural mortality (M), Longevity
- Growth (K, max size)
- Reproductive strategy
- Derived quantities such as net reproductive rate or maximum spawning potential.
- Evidence of gradual trends in biological characteristics such as average size or maturity,
- Evidence of abrupt changes such as large-scale recruitment events, i.e., temporal and (occasionally) spatial variation in recruitment.
- A major change in the fishery selectivity (such as an increase in discarding due to a management regulation or development of a new fishery)

There may be some advantages of conducting assessments on groups of stocks that share similar life-history traits, are harvested by similar fisheries, or represent regional differences. For example the “round” groundfish (cod, haddock, white hake, pollock) and “flat” groundfish (e.g. yellowtail flounder, winter flounder, plaice, witch flounder, halibut) would constitute similar life history traits and often support different fleets.

Stock Status - The status of a population with respect to biological reference points for biomass and fishing mortality is another primary determinant of assessment frequency. Current population status can be expressed a fraction of the desired population biomass and the desired fishing mortality rate. For species in a rebuilding program the number of years remaining in the rebuilding schedule is important, especially if management measures need to be adjusted. In general terms the need for stock assessments would increase as the rebuilding deadline approached and as the disparity between rebuilding waypoints and actual abundance increases. The frequency of assessments should increase as the ratio of F/F_{msy} increases, especially when the ratio exceeds one. Conversely, assessment frequency should diminish when B/B_{msy} is above one.

Use of Indicators - The ability to identify conditions that necessitate increased or allow decreased frequency of assessments often depends on the availability of reliable indicators. Although conceptually simple, there does not appear to be any formal framework for decisions. Conflicting trends in underlying information can be addressed in an assessment models, but formal decision-theoretic approaches do not appear to have been used in actual management. Instead managers and scientists often rely on a convergence of evidence approach, gathering information from several different sources to affirm underlying trends. For example a strong year class might be indicated by high abundance in one or more surveys, high rates of discarding, and various reports from fishermen.

For assessments that depend entirely on the use of surveys, it would be advantageous to monitor stock status more frequently, say every two years. Staffing costs for such assessments are relatively low and checking model assumptions is important. Changes in fishery selectivity or pulses of recruitment could invalidate the simple assumptions underlying such models.

Data, Model and Staffing Constraints - The ability to conduct an assessment in a given year depends on a number of factors including the:

- Availability of critical data, especially age data, state surveys, etc.
- Complexity of model (e.g., index assessments can be more frequent).
- Availability of key scientific personnel, especially the lead scientist who may have more than more than one species responsibility.
- Stability of model performance in recent years. Example—models with strong retrospective patterns often require greater allocation of staff resources.
- Need for team efforts to accomplish modeling tasks, especially when technical challenges arise.
- Calibration coefficients for Bigelow to Albatross
- Discard issues
- Hindcasting
- Reformulation of model in response to retrospective patterns.
- The degree of external peer review required. Formal meetings with external reviewers require longer planning horizons.
- Conflicts with other major assessment initiatives.

It is particularly important to identify instances where data or modeling issues are limiting factors for assessments. An assessment that fails due to lack of information on migration patterns, or violations of existing stock boundary assumptions will not improve without new information on these processes.

Forecasting Models - For stocks with reliable forecasting models, assessment frequency can be decreased but all forecasts are ultimately constrained by the need to validate assumptions related to incoming recruitment. As the length of the forecast period increases, predicted population size gradually becomes more dependent on the magnitude of incoming recruitment because the initial population is replaced with assumed levels of recruitment. The degradation of forecast quality is a function of the difference between average predicted recruitment and the realized recruitment in the forecast period. An unobserved sequence of weaker than expected year classes could make catch projections too high, leading to overfishing or delays in rebuilding. The importance of incoming recruitment for defining ACLs depends on when the recruits enter the fishery. A fishery with an average age at entry of say 5 years would be able to could have longer periods between assessments than a species with average age at entry of 2 years.

For a population subjected to an overall mortality annual of Z , the expected average age is $1/Z$. As a rule of thumb, most groundfish stocks would tend to have $F \sim M \sim 0.2$ so that $1/Z \sim 2.5$ years.

iii. Additional Considerations - A suite of other biological, economic, social and political factors can also affect the timing of stock assessments. These are not easily categorized but include such as:

- Interactions among fleets, ports, states for access
- Interactions among fishery management plans, e.g.,
- Haddock in the herring fisheries
- Butterfish in the loligo fishery
- Yellowtail flounder in the scallop fishery
- River herring
- Ecological conditions such as direct evidence of changes in natural mortality
- Spatial variations in populations or fisheries, especially sessile stocks where localized declines may warrant consideration of alternatives (e.g. recruitment events in scallop fishery, or regional declines in commercial LPUE in clam fisheries).
- Concerns about previous assessments particularly if low ACLs impinge on other fisheries.
- National criteria for reporting requirements (e.g. 5 year staleness factor)
- Direct political intervention

Ultimately the purely biological or fishery related considerations will contribute to but not necessarily determine the assessment schedule or optimal frequency.

b. Develop a strawman schedule of operational assessments

i. NEFSC Assessment Responsibilities - The Population Dynamics Branch contributes to the assessments of 62 stocks in the Northeast. The Branch provides assessment information to the New England and Mid-Atlantic Councils and the Atlantic States Marine Fisheries Commission. Of these stocks, Atlantic salmon is assessed in collaboration with US Fish and Wildlife Service and states as part of the US Atlantic Salmon Assessment Committee. Hagfish has not been assessed but data on this resource is now being collected prior to the possible creation of an FMP. ASMFC has lead responsibility for American eel, Atlantic sturgeon, shortnose sturgeon, river herring, American shad, and 3 stocks of American lobster. For the purpose of this planning exercise we will consider 60 stocks (Table 1) with the three management units for American lobster will be considered as one group. Assessment responsibilities for these stocks are summarized in Appendix 1.

Even though several of these species have not been assessed, it is important to remember that any quantitative analyses of these stocks will reduce the amount of staff time available for other stocks. Recent examples include river herring, Atlantic sturgeon, and cusk. Moreover, any stock that presently does not have an approved assessment will require a substantial investment to improve the assessment methodology.

ii. Key Determinants of Assessment Frequency - Table 2 is intended to be a start towards identifying a reduced set of parameters to determine stock assessment frequency. I have selected the primary factors that govern the shelf life of an assessment product and its projections. In general terms stock assessments are needed when status depends primarily on assumptions about the stock recruitment process. Reliance on such assumptions increases as fishing mortality increases, as the mean age of recruitment to the fishery decreases, and as recruitment variability increases. Stocks that are above Bmsy have some buffering, so schedules could be relaxed for such species. The ratio of average age of entry to the fishery and age at maturity is important also. Values below one would be undesirable since unintentional increases in F could rapidly deplete future SSB. The data elements in Table 2 could be changed but it should be recognized that there is unlikely to be a non-arbitrary metric of assessment frequency. Ultimately the assessment frequency will need to be adjusted based on non-biological factors.

iii. Assessment Workload - Table 3 provides a rough idea of the workload associated with each assessment. It attempts to incorporate a broad range of factors but factors in the need for age samples and recent model performance. Assessments that have been or are likely to be controversial have increased workloads. Results suggest that annual assessments of all species would require approximately 76 staff years of which 55 years would be for lead analysts. The sum of the annualized estimates, using the candidate assessment frequencies is approximately 24 staff years. The staffing workload estimates will be refined by further discussions with staff.

iv. Strawman Schedule - The implications of a candidate assessment schedule are explored in Table 4. Table 4 is not intended to be a proposal. Instead it demonstrates several salient features of the assessment process and allows planners to gauge the impacts of various scenarios with respect to total workload. For example the proposed schedule requires about 27 and 29 person years in 2012 and 2013, but drops to 15.8 years in 2014. Alternative schedules could be devised to reduce the effects of bottlenecks and spread workloads out more uniformly. It should be emphasized that any scheduling system that requires nearly full utilization of available staff will greatly diminish scientific research productivity that would otherwise be possible. Moreover, a fully saturated schedule will also be less flexible because the input data, particularly age samples, must be closely matched with the schedule.

Task 3: Define system for delivering operational assessments - Establish general framework for how system will function, outlining:

a. Roles and responsibilities of participant groups: NEFSC; Council and Commission PDTs, working groups, and technical committees; SSCs ; external scientific expertise; public participation - The NRCC will remain responsible for final scheduling of assessments, and for oversight on the general a Terms of Reference for assessments. Operational assessments themselves will be prepared by NEFSC or Council/Commission staff. A senior NEFSC assessment scientist, and the chairs of the Mid-Atlantic and New England SSCs will constitute the Assessment Oversight Panel and will be advised by staff of the NERO, NEFMC, MAFMC, and ASMFC. The public may participate in the deliberations of the AOP. Finally, peer review of operational assessments will be conducted by an Integrated Peer Review team including at least the lead assessor(s), the SSC member responsible for the stock, and an assessment scientist either from outside of NMFS or if from within NMFS, from outside of the lead assessor's working group. Results from the peer review will then be forwarded to the PDT/TC/SSC for the Councils' use in the ABC setting process.

b. Terms of reference - The baseline model, developed as part of a previous benchmark assessment or through the research track, will be used to produce operational assessments. Typically, this will be the model used at the last operational assessment and the process for application of the model will follow Figure 1:

- i. Step 1 - In the year prior to an operational assessment year, the NRCC will meet to determine the final operational assessment schedule for the next year. This schedule will build off of the 2-5 year assessment intervals for stocks that reflect the NEFMC /MAFMC/ASMFC specification setting cycles and stock biology.
- ii. Step 2 - After the NRCC has set the schedule but prior to initiating the operational assessments, each lead assessor will determine how the baseline model will be applied in his/her upcoming operational assessment. Little, if any, change is expected or encouraged in the application of the baseline model in the operational assessments. However, it is incumbent upon the lead assessor to consider all relevant results from the research track, and to explore applying them in the operational track. Each assessment will be guided by the following generic Terms of Reference prepared to guide all operational assessments, with some tailoring to meet the characteristics of individual stocks:
 1. Update all fishery-dependent data (landings, discards, catch-at-age, etc.) and all fishery-independent data (research survey information) used as inputs in the baseline model or in the last operational assessment.
 2. Estimate fishing mortality and stock size for the current year, and update estimates of these parameters in previous years, if these have been revised.
 3. Identify and quantify data and model uncertainty that can be considered for setting Acceptable Biological Catch limits.
 4. If appropriate, update the values of biological reference points (BRPs).
 5. Evaluate stock status with respect to updated status determination criteria.
 6. Perform short-term projections; compare results to rebuilding schedules.

7. Comment on whether assessment diagnostics—or the availability of new types of assessment input data—indicate that a new assessment approach is warranted (i.e., referral to the research track).
 8. Should the baseline model fail when applied in the operational assessment, provide guidance on how stock status might be evaluated. Should an alternative assessment approach not be readily available, provide guidance on the type of scientific and management advice that can be.
- iii. Step 3 - The Assessment Oversight Panel (AOP) will meet with all of the lead stock assessors to review each stock's proposed operational assessment. All stocks proposed for the assessment year will be reviewed by the Assessment Oversight Panel at this meeting(s).
1. The Assessment Oversight Panel will be composed, at a minimum, of a senior NEFSC assessment scientist, and the chairs of the Mid-Atlantic and New England SSCs, and will be advised by staff of the NERO, NEFMC, MAFMC, and ASMFC. Should an SSC Chair be a NEFSC scientist or not have the appropriate skills to technically review assessments, the SSC will appoint an alternative member scientist to the Assessment Oversight Panel.
 2. The Assessment Oversight Panel meeting will be open to the public.
 3. The purpose of the AOC's review is to finalize the Terms of Reference for each assessment and review the assessor's proposed approach for every assessment.
 4. Each assessor is also expected to provide an alternative approach to the assessment should the baseline model fail.
 5. The Assessment Oversight Panel review will focus on any proposed changes in the baseline model proposed by the lead assessor, recognizing that the proposed modeling approach should follow the baseline model as closely as possible (Terms of Reference need development for this review). Other possible approaches to the assessment can be discussed, and proposals from other potential assessors can also be tabled. However, any approaches significantly different from the baseline model will be referred to be research track for study, development, and peer review.
 6. The Assessment Oversight Panel may determine that, based on advice from the lead assessor, that the baseline model will not work; if so, the alternative approach will be implemented in the operational assessment, and the stock will be referred to the research track.

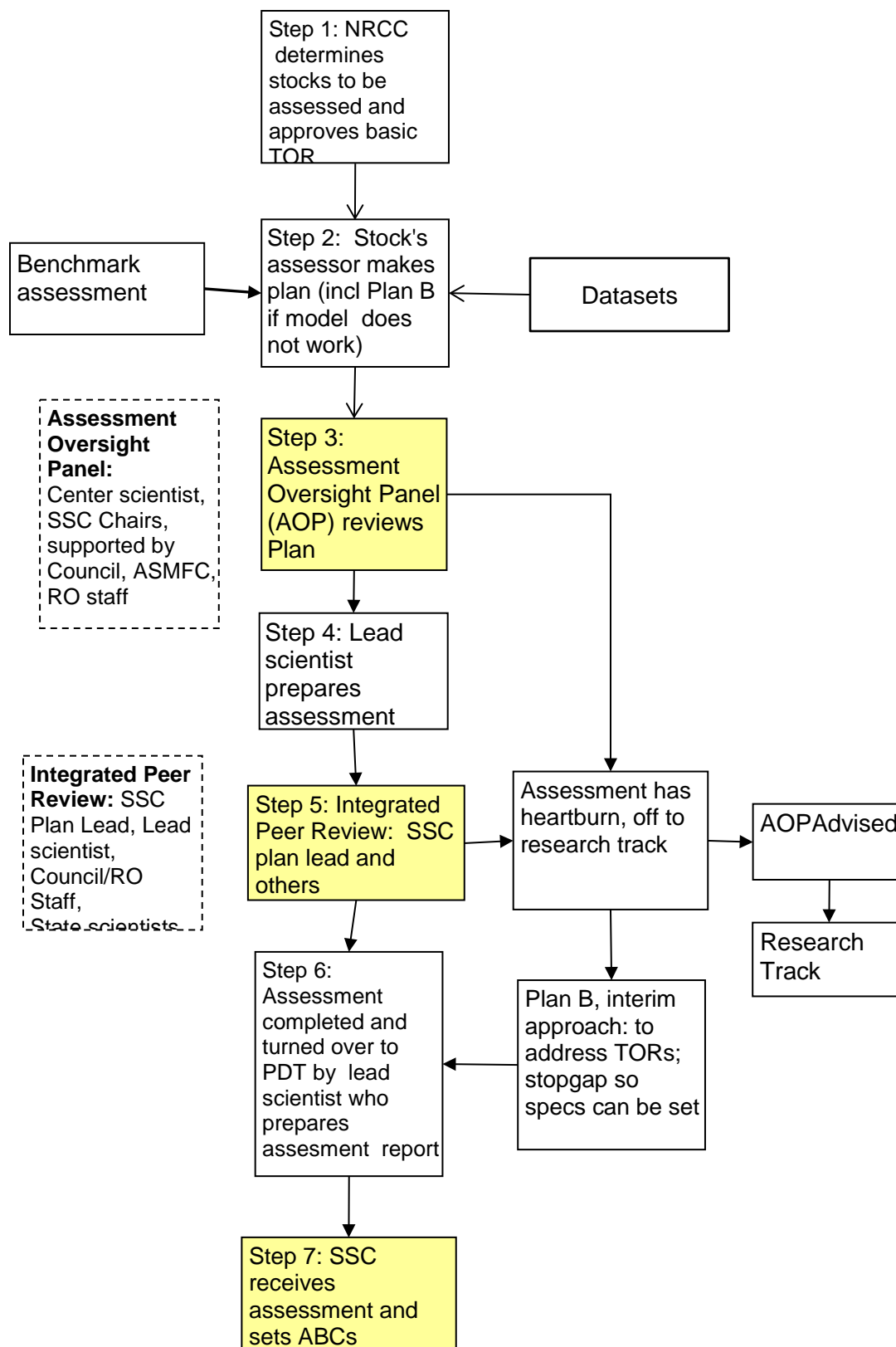


Figure 1. New Stock Assessment Framework

- iv. Step 4 - The operational assessment will then be developed by the lead assessment scientist.
 - v. Step 5 – The operational assessment will be subjected to an Integrated Peer.
 - vi. Step 6 – PDT/TC review of assessment with conclusions forwarded to SSC.
 - vii. Step 7 – SSC review of assessment with ABC recommendations forwarded to Council.
- c. Operational assessment development completion process and finalization - Following the Integrated Peer Review of an operational assessment, two reports will be provided to the appropriate PDT/TC. One report will summarize the results of the Integrated Peer Review (and authored by the Chair of the Integrated Peer Review). The second report will be the assessment document, which will be an NEFSC Reference Document, and will serve as the basis for the stock status determination (and will be authored by the stock's assessment scientist). A standardized template will be used in preparing this report (see attached Appendix Figure 1). The SSC will then review the two reports, and the PDT/TC recommendations. The SSC will also review situations where the Integrated Peer Review determined the baseline model was inappropriate and where the Integrated Peer Review subsequently provided scientific and management guidance based on an alternative approach.
- d. Process for identifying interim year stock evaluation metrics through operational assessment - In years between operational assessments, the PDT/TC will provide assessment data and information to the SSC. Such information could include: a) Recent survey indices, and recent landings and discard estimates, b) projections based on the last operational assessment, and c) resource status and/or fishery performance metrics. The PDT/TC (as supported by the NEFSC) will be responsible for obtaining the above data, updating projections, and providing the relevant information to the SSC.
- e. Peer review of operational assessment outputs (uncertainties, interim year stock evaluation metrics, etc.), Process to be applied (integrated/internal, handoff/external) - The operational assessment will be subjected to an Integrated Peer Review by a team including at least the lead assessor(s), the SSC member responsible for the stock, and an assessment scientist either from outside of NMFS or if from within NMFS, from outside of the lead assessor's working group. Terms of Reference remain to be developed for the Integrated Peer Review. The Integrated Peer Review will make the determination whether the completed operational assessment is technically sufficient to (a) evaluate stock status and (b) provide scientific advice; (c) successfully address the Terms of Reference. The Integrated Peer Review may determine that application of the baseline model in the operational assessment has not worked; if so, the alternative approach to the assessment will be implemented, and the stock will be referred to the research track.
- f. Define amount of latitude/modification of methods is permissible from established assessment baseline - A stock assessment will be a candidate for development of a new (or substantially revised) assessment approach via the research track if one or more of the following criteria apply, as determined during the peer review of the operational assessment:
- i. A change in stock definition is contemplated.
 - ii. Diagnostics from the operational assessment indicate the assessment model is inadequate to continue to serve as a scientific basis for management.
 - iii. New types of input data are available which, if incorporated into the assessment, might significantly change the assessment results. A significant change is one in which the

- estimates of stock size and OFL might differ by a stock specific amount (e.g., 20-30% for groundfish) from the assessment estimates without incorporating such new types of data.
- iv. A significant retrospective pattern has become evident in the assessment estimates of stock size, fishing mortality, or recruitment.
 - v. A significantly different value of natural mortality (e.g., derived from analysis of trophic interactions) is considered appropriate in characterizing non-fishing stock dynamics.
 - vi. Significant changes in management practices have occurred that have markedly reduced the accuracy and utility of the existing assessment data inputs, or significantly diminished the reliability or validity of the assessment model itself.
 - vii. If any of the above criteria are met, the issue will be referred (through the Center Director/appropriate SSC Chair) to the research track for development of a new baseline model. However, until the issue is resolved for use in an operational assessment, either the existing baseline model or the alternative assessment approach will be followed. Note that not all topics referred to the research track will indicate that the baseline model is an inappropriate analytic tool.
 - viii. If the assessment is considered acceptable by the Integrated Peer Review but involves significant deviations from the approach outlined from in the Assessment Oversight Panel review, then the assessment may be referred back to the Assessment Oversight Panel with a brief description of changes that were made from what was agreed to during the Assessment Oversight Panel review. The Assessment Oversight Panel can then review as necessary (and likely by correspondence) the assessment, and determine the course of action for the assessment.
- a. Protocols for incorporation of results into fishery management plans (as needed, i.e., regulatory changes or specifications process) – See Task 5, but an example of how the process would work (compared to the prior years) is shown in the Figure 2.

Task 4: Define system for research track - Establish general framework for how system will function, outlining:

- a. Roles and responsibilities of participant groups: NEFSC; Council and Commission PDTs, working groups, and technical committees; SSCs; external scientific expertise, and public participation - SSC Chairs, and the NEFSC Science and Research Director will refer stocks to the NEFSC for development of new approaches to the assessment through the research track. The NRCC will be responsible, as appropriate, with prioritizing the research projects. External experts will participate in the development and peer review of the research, and the public will be invited to sit in on the peer review.
- b. Protocols for remand, re-examination, addressing errors or new information (as needed) - The research track will be used to develop improved stock assessment models and approaches, and will not provide stock status determinations. Three general types of research projects will be referred to the research track: (1) stocks where the analytic method works but some biological issue requires investigation (e.g., stock structure), (2) stocks where application of the baseline model has not worked, or where a competing model has been suggested as a better analytic approach, and (3) stocks where an acceptable assessment has not yet been developed. The research track is not, however, meant as the repository for a host of research items. A stock assessment will be a candidate for development of a new (or substantially revised) assessment approach via the research track if one or more of the following criteria apply, as determined during the peer review of the operational assessment:
 - i. A change in stock definition is contemplated.
 - ii. Diagnostics from the operational assessment indicate the assessment model is inadequate to continue to serve as a scientific basis for management.
 - iii. New types of input data are available which, if incorporated into the assessment, might significantly change the assessment results. A significant change is one in which the estimates of stock size and OFL might differ by a stock specific amount (e.g., 20-30% for groundfish) from the assessment estimates without incorporating such new types of data.
 - iv. A significant retrospective pattern has become evident in the assessment estimates of stock size, fishing mortality, or recruitment.
 - v. A significantly different value of natural mortality (e.g., derived from analysis of trophic interactions) is considered appropriate in characterizing non-fishing stock dynamics.
 - vi. Significant changes in management practices have occurred that have markedly reduced the accuracy and utility of the existing assessment data inputs, or significantly diminished the reliability or validity of the assessment model itself.
- c. Terms of Reference – TORs for research track activities will vary depending on the reason for forwarding a project to the research track. Research track TORs for new baseline assessment models would include:
 - i. Develop scientifically valid methodologies and models to serve as the baseline model in future operational assessments. All new assessment models/approaches will be tested on datasets from the last operational assessment.

- ii. Identify a framework /protocol for using available data to monitor the fishery and stock, and for setting specifications during the interval between operational assessments.
 - iii. Identify the metrics most useful to monitor in evaluating whether a management change may be needed
 - iv. Develop BRPs that are consistent with any newly-developed assessment model or methodologies
 - v. Suggest alternative approaches to assessing the stock should the baseline model fail when applied in a future operational assessment
- d. Peer review of transitional assessment results - Work products developed in the research track will undergo an independent peer review process, which may be similar to that used in the Stock Assessment Review Committee/SARC (e.g., a sequential peer review involving the Center for Independent Experts and chaired by an SSC member).
- e. Process for transitioning a research assessment to an operational assessment baseline - The timing of research within the research track should be such that all work is completed and peer reviewed before the next scheduled operational assessment. At end of research track:
 - i. A decision will be made by the peer reviewers as to whether (a) the work products are adequate to replace the existing baseline model; (b) the new model or methods can be run either from the assessment model toolbox or through other available software; and (c) the revised/new BRPs are technically appropriate.
 - ii. Once accepted by the peer review panel, the new assessment model/approach will become the new baseline model.
 - iii. To facilitate timely incorporation of new, peer-reviewed baseline research into the operational track, the NRCC will review the operational assessment schedule in response to research track output and may amend the operational assessment schedule, subject to the availability of resources.

Task 5: Develop transition plan - Establish general framework for how system will function, outlining:

- a. Identify FMPs that would require regulatory changes to be more responsive to scientific advice. To better match available resources to management needs, because the current assessment process cannot meet the increased management needs of an annual catch limit (ACL)-based management program for every fishery. If the current practices are significantly changed, FMPs and implementing regulations will need to be amended accordingly.

There are currently 50 managed stocks in the Northeast Region, in 13 Fishery Management Plans (FMPs), managed under Magnuson-Stevens Act (MSA) authority. Each FMP and its implementing regulations describe a process for setting specifications or making framework adjustments to the fishery on a periodic basis.

Although the MSA requires ACLs to be set for each stock in a fishery, ACLs can be set for more than 1 year at a time (e.g., a 3-year specification action could set ACLs for each of the 3 years; the ACLs could be the same for each year in the cycle, or different). With the exception of Atlantic salmon, for which there is no fishery, the authority currently exists, or will likely soon exist through the MAFMC's Omnibus ACL/AM Amendment, in every FMP, for setting multi-year specifications (see Table 5). The currently authorized specification periods are from 2 to 5 years, but generally are 2 or 3 years. In the Mid-Atlantic, the ACLs and related specifications are established through specification actions, which are implemented through proposed and final rulemaking. In New England, fishery specifications are established through Framework Adjustments, which are also implemented through proposed and final rulemaking.

While the authority for multi-year specification setting has existed in most fisheries for several years, it has been used only to a limited extent. In the Mid-Atlantic, only the surfclam and ocean quahog fisheries have routinely been managed through multi-year specifications, though tilefish has been operating under a constant-catch scenario, pending the next stock assessment. Two-year specifications were set for the summer flounder fishery once, but the specifications were subsequently changed in the second year in response to new information; multi-year specifications in this fishery have not been used again. In New England, the scallop, groundfish, skate, and monkfish fisheries are managed through biennial Framework Adjustments; the herring fishery is currently under a 3-year specification cycle, and it is anticipated that the small-mesh groundfish species will be managed through 3-year specifications, beginning in FY 2012. In some cases (e.g., groundfish and scallops), "biennial" adjustments in New England have established specifications for 3 years, as a default in case the next biennial adjustment specifications are delayed.

If use of multi-year specifications is to be expanded, the ACL Working Group has recommended that there be objective criteria identified that would be used to determine a rational schedule for operational assessments; biologically-based criteria are being developed by the Task 2 Working Group ("Develop prioritization and scheduling system for operational assessments"). These criteria are based on the properties of each stock, including such factors as life history, stock condition,

recruitment patterns, stock resilience, etc. It is envisioned that these criteria would be used, at least in part, to determine the optimal frequency of operational assessments for each stock or group of stocks, and that the operational assessments would be coupled with specification/adjustment processes to convert the results of the assessments into management action. In addition to the biological criteria, there are other aspects of management that should be considered by the NRCC in determining the frequency of assessments and specification setting; these other factors are discussed under item 5.b. below.

If, based on the criteria developed by the Task 2 Working Group and consideration of the information described under item b. below, the NRCC concludes that the optimal frequency of assessment and specification setting for a stock is not consistent with the authority in the FMP (e.g., if the NRCC determines that assessments and specifications for surfclams be done every 7 years, but the Surfclam Ocean Quahog FMP only allows specifications to be set for up to 3 years), then that FMP will need to be amended to provide that authority. This could be done through either an FMP amendment or framework action, as appropriate, either as part of another action (i.e., combined with changes to other management measures in the FMP), or as a stand-alone action. Such a change should be relatively straightforward, from a technical standpoint. If the optimal frequency of assessment and specification setting is within the existing authority in an FMP, no change to the FMP or implementing regulations would be required.

Each FMP and its implementing regulations define the fishing year for each stock or groups of stocks (see Table 6). Fishing years can be changed, if doing so would spread workloads or make it easier to use the most recent scientific and/or fishery information for the operational assessment and associated specification setting. The issues associated with changing fishing years are discussed in item c. below. If the NRCC determines that the timing of assessments and/or the resultant specifications is such that it is desirable and/or necessary to change the starting date of any fishing year, this could be accomplished through either an FMP amendment or framework action, as appropriate to the FMP, with an associated proposed and final rule to change the implementing regulations. This would require analysis of the environmental, economic, and social impacts of such a change.

Each FMP and its implementing regulations also describe a process for specification setting or framework adjustments, including the parties involved (e.g., Plan Development Teams (PDTs), Fishery Management Action Teams (FMATs), Technical Committees, Monitoring Committees, Councils, Scientific and Statistical Committees (SSCs), etc.) and their respective roles; the timing of the process; and the range of specifications and/or adjustments that can be made through that process. If the new assessment/specification process approved by the NRCC requires changes to the existing process in a given FMP, there would need to be a change to that FMP and to its implementing regulations to define the new process for setting specifications and/or adjustments.

If multi-year specifications are used more extensively, which is recommended by the ACL Working Group, it is likely that the Councils will want some way to ensure that the specifications for out-years

(e.g., years 2 and 3 in a 3-year specification cycle) are still appropriate. The approaches to doing this are discussed in item d. below. If the Councils choose to provide for out-year adjustments or responses to new information, establishing the process and criteria to be used to do that may require changes to the FMP and its implementing regulations. This could be done through an FMP amendment or framework, as appropriate to the FMP, and implemented through proposed and final rulemaking, which would likely be relatively straightforward. If the existing process in an FMP is sufficient to accommodate the adjustment approach (e.g., if the Council chooses to use the current specification process to make the out-year adjustment), no changes to the FMP or regulations would be necessary.

Summary/Recommendations: Changes in multi-year authorities, fishing years, specification processes, and/or out-year adjustment procedures that result from the NRCC's decisions on the new assessment process will need to be made through FMP amendments or frameworks, as appropriate to the FMP, with accompanying changes to the implementing regulations, and the expected impacts of those changes will need to be analyzed as part of that process. If multiple FMPs need to be amended, an omnibus amendment could be an efficient way to accomplish this. The regulatory sections of 50 CFR that would potentially need to be amended are listed in Tables 6 and 7 (these could be different if/when the MAFMC's Omnibus ACL/AM amendment is implemented). The administrative/regulatory changes would take several months for the Councils to develop, and 5 -7 months for NMFS to review, approve, and implement.

- b. Define optimal duration of specifications by stock (connected to Task 2) - To match assessment advice to the management cycle, provide greater stability and predictability to the process and for the industry, and streamline the process to better balance workloads of Council and NMFS staff. Staggering the assessment and specification processes for different fisheries and/or stocks would spread out the assessment and specification setting workloads.

As discussed above under item 5.a., authority already exists to use multi-year specifications, and any additional authorities could be obtained through FMP amendments and/or frameworks, if necessary. To rationalize the frequency of operational assessments and the setting of multi-year specifications, the ACL Working Group has recommended that criteria should be established to determine the most appropriate duration of specifications for each stock and/or fishery. The Task 2 Working Group is developing biologically-based criteria for this purpose, to consider such things as life histories, generation times, stock status, stock resiliency, etc. However, there are other issues that are also relevant to these decisions, such as the importance of the fishery (value, number of participants, etc.), the stability of the fishery and the resources, whether the stock is overfished or experiencing overfishing, where the stock is relative to the end of a rebuilding plan, past performance of the management program, etc. Table 8 summarizes information for each managed stock that could be relevant for determining optimal assessment and specification cycles, but does not include the results of the Task 2 workgroup, which are not yet available. A first cut at estimating what appropriate assessment and specification frequencies might look like is also provided, as a strawman for further discussion. The frequencies vary from 3 to 7 years. The largest

challenge will be the 20 multispecies stocks; it would be very difficult to assess all 20 stocks in the same year. It is possible, however, that the multispecies stocks could be grouped in such a way that the most important stocks (e.g., cod, haddock, yellowtail flounder, etc.) are assessed more often than the minor stocks (e.g., ocean pout, wolffish, cusk, halibut, etc.), and/or that groups of stocks could be assessed at staggered times (e.g., the roundfish in the same year, and the flatfish in a different year).

Summary/Recommendations: For the proposed process of operational assessments to make meaningful and necessary changes to better match assessment resources to management needs, the use of multi-year specifications will need to be expanded. To rationalize the decision process, it is recommended that there be science-based criteria developed (by Task 2 Working Group), and that other factors such as those in Table 8 also be considered by the NRCC, such that the assessment/specification process can be optimized consistent with available assessment resources. The implications of doing this are explored further under item c. below. One hurdle to be overcome is the timing of the start-up of a new process, because the benefits of a staggered assessment/specification process will not be realized immediately.

- c. Examine modifications to fishing years, specifications cycles to optimize available resources (i.e., offset FMPs by years, change seasons to better synchronize with survey data and analytical availability) - Establish a schedule that ensures that operational assessment results are available at the right times to feed into the Councils' specification/adjustment processes; stagger the process such that the assessment workloads are manageable with existing resources.; and make best use of scientific and fishery-dependent data in the operational assessment and specification setting process.

Table 6 shows the current fishing years for Northeast MSA-managed stocks. Most fishing years are based on calendar years, and begin on January 1. Four fishing years (groundfish, spiny dogfish, skates, and monkfish) start May 1. Two fishing years (scallop and red crab) begin on March 1. Only one fishing year (tilefish) begins November 1. The current staggered fishing years provide some administrative benefits, in that they spread out the specification processes such that not all specifications are being developed, submitted, reviewed, published, and implemented at the same time. On the other hand, having different fishing years for different fisheries could be more confusing to the public and the industry than a standard fishing year across all fisheries. Also, having fishing years not aligned with calendar years causes some complications in data reporting and use in assessments (assessments are generally based on calendar year data, and specifications for some fisheries are not). A downside of having all fishing years begin January 1 is that the specification packages and implementing rules must be processed late in the year, when holidays and weather can cause delays, and when many Federal agencies, including other regions of NMFS, are trying to get year-end actions in place and published in the Federal Register.

Making changes to fishing years to facilitate availability of assessment and/or data (surveys, landings data, recreational data, etc.) is administratively straightforward, but may be complicated by

resistance from the fishing industry, since there are practical aspects of the timing of the fishing year such as fish availability (inshore/offshore, north/south, among different states or regions, etc.), fish prices, fish quality, weather, etc. For example, recent attempts to change the Atlantic sea scallop fishing year were vigorously opposed by industry. Nevertheless, this remains an available mechanism to better align scientific advice and the management process, as well as to stagger assessments and specification setting within the same year.

The ability to change fishing years is not explicitly frameworked in any FMP, though the frameworkable measure descriptions for many fisheries are broad (see Table 7). FMP amendments would likely be needed to change the fishing years in most, if not all, FMPs, given recent litigation that found that frameworking options may be narrower than previously assumed. The impacts of any changes to a fishing year would need to be analyzed along with the amendment.

Changes to the specification/adjustment processes are listed as frameworkable measures in several FMPs (Atlantic Mackerel, Squid, Butterfish; NE Multispecies; Summer Flounder, Scup, and Black Seabass; Tilefish), and may be possible under the broad interpretation of frameworkable measures in others (Table 7). Depending on the FMP and the magnitude and impacts of such changes, they could be accomplished through FMP amendments or frameworks.

The staggering of specification/adjustment cycles will be necessary to accomplish meaningful resource-smoothing, i.e., to ensure that assessment resources are deployed to provide the necessary scientific advice on a schedule that is appropriate to each fishery. The frequency of assessments and specifications will depend on the results of the Working Group for Task 2 regarding biological criteria for assessment frequency, and on the other factors discussed above in item b., and in Table 8. Regardless of the final decisions on assessment/specification frequency made by the NRCC, it will be necessary to schedule assessments such that they meet the timelines of the Council and ASMFC processes (i.e., that the final operational assessment results feed into the management process in a way to allow them to be used quickly), and that they are sufficiently spaced to allow the assessment process to be completed with existing resources. In addition, to allow flexibility in making out-year changes to multi-year specifications, changes to the analyses accompanying the specification/adjustment actions will be necessary (see item 5.e. below).

The current status of specification and adjustment schedules is shown in Table 9, and the frequency and timing of specifications and adjustments based on the strawman assumptions in Table 8 are shown in Table 10. There would be a significant start-up workload, because the new process would necessitate a large number of specifications/adjustments to be performed in the first year as the new processes and schedules are phased in. The information in Table 10 is for illustrative purposes, and is subject to change based on decisions by the NRCC. Table 11 illustrates an example comparing the status quo process with the proposed operational/research track process.

Summary/Recommendations: Changing fishing years is possible, but may be opposed by the industry, if there are significant practical implications of the changes. Nevertheless, it is a tool

available to stagger the starts of fishing years and/or to align assessments and specification setting with the availability of input data. It will be necessary to stagger the operational assessments and specification setting for different fisheries, consistent with biological and management factors discussed under item b. above. The start-up of the new process will require a large investment of resources to transition to the new process, since most fisheries will need initial specifications set in the first year or two, before the staggered schedules are effective at spreading out the assessments and specification setting.

- d. Discuss issues/policy for interim year modifications to established multiple year specifications. - If multi-year specifications are used more extensively, and there are limited resources available to provide assessment advice to the Councils and/or ASMFC outside of the operational assessment process, there needs to be a way to ensure that the specifications remain appropriate throughout the specification cycle, through an out-year examination process, with at least some ability to make changes, if deemed necessary (not through MSA emergency or interim rules).

Under multi-year specifications, there needs to be some assurance that the original specifications remain adequate to protect the stocks from overfishing, to rebuild overfished stocks in the specified time frame, and to prevent ACLs from being exceeded. There also will be industry/public interest in determining whether the stock status has improved more than anticipated, such that the catch levels could be increased in the out-years. However, there will be no operational assessment possible while the multi-year specifications are in place. This will require a disciplined approach to avoid reacting to “noise” in the information; without this, the process will revert to the existing process whereby specifications are set or adjusted every year or two. It also would undermine the objective of a more stable and predictable assessment and management program.

At a minimum, there needs to be an annual examination of the performance of the fishery relative to the ACL(s), including the discard mortality associated with each stock. If an ACL is exceeded, associated accountability measures will be triggered, as specified in each FMP. Regardless of the number of years that specifications are set for, ACLs need to be established for each year in the time series (through the initial specification setting), and the performance of the fishery will need to be examined every year, relative to the ACL. This process is to ensure that ACLs are not exceeded, and to take appropriate measures to correct the overages and to prevent them from occurring again, but it does not examine whether the ACLs are still appropriate for the out years. This is a requirement of the MSA, and is not reflective of the new proposed process.

To address the issue of whether the ACLs as set for the out-years are still appropriate, the Councils have at least two alternatives. One approach is to set the multi-year specifications and to agree to leave them in place, without change, unless something unexpected and significant were to occur, and to not undertake any formal examination in the out-years. A second approach is, in years between operational assessments and the associated specification/adjustment process, to have the Council’s PDT and/or Technical Committee (TC) provide assessment data and information to the Council’s SSC (but note there would be no new assessment). Such information could include:

Recent survey indices, and recent landings and discard estimates; projections based on the last operational assessment; and resource status and/or fishery performance metrics. The PDT/TC (as supported by the NEFSC) would be responsible for obtaining these data, updating projections, and providing the relevant information to the Council's SSC. This could include a staff recommendation from the Council, or not. Based on the SSC's review of the out-year information, the SSC would recommend to the Council whether there should be a change to the out-year specifications, and what that change should be. If the SSC recommends, and the Council agrees, that a change should be made, a regulatory response would be required.

The regulatory response to the SSC's recommendation and Council's determination to make an out-year change could take at least two forms. In the first, the Council could recommend a new set of specifications that would be sent to NMFS for consideration, and proposed and final rules would be used to implement the changes, much the way the existing processes work. This would take 5-7 months to implement any change. Alternatively, it may be possible/advantageous to identify very specific criteria that the SSC and the Council would use to determine whether any adjustments are necessary, and to specify what the regulatory response to a triggering of the criteria would be. For example, the Council could pre-determine that, if Criterion X is exceeded by Amount Y, the ACL for the stock would be increased/decreased by Amount Z. The better defined the linkages (i.e., the less discretionary the decision), the faster the response could likely be. It is possible that, if the response is sufficiently non-discretionary, and the impacts of the change have been anticipated and analyzed in advance (see also the discussion under item e. below), the change could be made directly through a final rule.

Whichever out-year process is chosen (and a Council could choose to apply one process to some FMPs, and the other to other FMPs), to achieve stability in the fishery and the management process, it is recommended that any out-year changes should be made only in response to significant deviations from the established specifications; it would not be productive to require changes to the specifications in out-years if only small deviations have occurred. Further, any such changes should be triggered whether the stock condition is improving or worsening (i.e., whether the news is good or bad).

Another consideration of out-year adjustments is timing of the availability of the information needed, when the decision can be made as to whether a criterion is triggered, and whether an adjustment can be made part way through the fishing year. Because data on the performance of a fishery is typically not available until a few months after the fishing year ends, determinations on ACLs typically cannot be made until the next fishing year has begun. The same would be true for adjustment criteria that are based on fishery-dependent information. It would likely be necessary to wait to make any adjustment until the beginning of the following fishing year (e.g., if information from fishing year 2012, examined in fishing year 2013, indicated an adjustment to the specifications would be necessary, that adjustment would be made in fishing year 2014. Fishery-independent data, such as survey results, could potentially be obtained and examined prior to the start of, or very

early in a fishing year. In this case, it is possible that an out-year adjustment could be made in that same fishing year.

Summary/Recommendations: To be effective and consistent with the overall goals of the ACL Working Group recommendations, the out-year examination process needs to be simple, structured, have well-defined criteria, and strive for stability. Non-discretionary adjustments could likely be accomplished most quickly. Adjustments should be responsive to either improving or declining stock conditions. MSA emergency rules and interim rules should be avoided.

- e. Discuss ways to streamline and improve required analyses (e.g., NEPA, RIR) in multiple year specification packages; provide recommendations for NERO and Council consideration. - To facilitate the use of multi-year specifications, including out-year adjustments, by anticipating and satisfying analytical requirements at the beginning of the process.

It appears that it would be relatively easy to address analytical issues associated with multi-year specifications, including any necessary out-year adjustments. The key to making this work is to appropriately determine the range of possible outcomes that could reasonably be expected, including the out-year adjustments. For example, assume the preferred alternative for the ACLs for the fishery over a 3-year specification cycle is 10,000 mt in year 1; 12,000 mt in year 2; and 14,000 mt in year 3, and that there is an adjustment criterion that could change the ACLs by up to 2,000 mt, up or down. The analyses of the initial specification package would then include, at a minimum, the no action alternative, the preferred alternative, and alternatives that would include a year-2 ACL of between 10,000 and 14,000 mt (if an adjustment can be made in year 2), and a year-3 ACL of between 12,000 and 16,000 mt. So long as any adjustments stay within the range of those alternatives, the analyses under the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA section 7), the Regulatory Flexibility Act (RFA), E.O. 12866, and essential fish habitat (EFH) should be adequate to cover any out-year adjustment(s). This would make adjustments easier and faster.

Summary/Recommendations: In most circumstances, analytical requirements should not be an impediment to using multi-year specifications, or to making out-year adjustments. Planning for a reasonable range of anticipated outcomes will be necessary, but should make any out-year adjustments easier and quicker to do.

- f. Recommend consolidation of species/stocks into FMPs; discuss logical species/stocks groupings. - To determine whether combining stocks into fewer FMPs would make the assessment/specification process more efficient.

It is possible that some efficiencies in assessments and specification setting could be obtained from changing the way species are grouped into FMPs. Any such changes in stocks in the fisheries would need to be done through FMP amendments. However, it is not clear that any such changes would necessarily result in changes to how often the stocks would be assessed.

Several of the fisheries appear unique enough that they would likely not be easily combined with others. These are:

- Atlantic Salmon (no fishery),
- Tilefish,
- Surfclams/Ocean Quahogs,
- Sea Scallops,
- Deep-sea Red Crab, and
- Spiny Dogfish.

Other fisheries have at least some characteristics sufficiently in common that it might be possible to combine them into a single FMP. These are:

- Northeast Multispecies; Monkfish; Skates
- Atlantic Herring; Atlantic Mackerel, Squid, and Butterfish
- Summer Flounder, Scup, Black Sea Bass; Atlantic Bluefish

The first group of species (multispecies, monkfish, skates) are caught by many of the same fishermen, using similar gear (bottom trawls, gillnets, hook gear). The fisheries for multispecies and monkfish are already somewhat linked through days-at-sea provisions in both FMPs. One potential complication of this grouping is that the Monkfish FMP is a joint FMP, with the NEFMC the lead; the other FMPs are solely the responsibility of the NEFMC. Another consideration is the Limited Access Privilege (LAPP) referendum requirements for NEFMC-managed fisheries. If these FMPs were combined into one, it is unclear how the referendum requirements would apply. For example, to approve a monkfish IFQ program, would it require a referendum approval by everyone with a multispecies, skates, and/or monkfish permit? Or only those with monkfish permits?

The second potential grouping (Atlantic herring; Atlantic mackerel, squid, and butterfish) consists of species caught with much the same gear (trawls and/or purse seines), in large volumes (with the exception of butterfish in recent years), with relatively short life spans, and with similar roles in the ecosystem (e.g., as important prey species for other fish, marine mammals, and seabirds, as well as being predators themselves). Many of the industry participants in these fisheries are the same. A complication in this grouping, however, is that herring are currently managed by the NEFMC and the ASMFC; whereas mackerel, squid, and butterfish are managed by the MAFMC.

The third grouping (summer flounder, scup, black sea bass; Atlantic bluefish) contains fisheries with significant recreational components, as well as commercial components. The management processes for these two FMPs are already similar, and all of these species are managed by the MAFMC and the ASMFC.

Summary/Recommendations: Combining species/stocks into fewer FMPs is possible, and would be done through FMP amendments. However, there are potentially significant jurisdictional and

statutory (i.e., LAPP referendum) issues that would need to be addressed. This is likely not something that could be accomplished quickly or easily, and it is not clear that making such changes would result in meaningful improvements to stock assessment or management workloads or efficiencies.

Table 1. Summary of stock status in the Northeast Region

FMP	Species	Stock	Assessment Type	Project. Method	Overfishing?	Overfished?	Rebuild Date	Fishing Year
Northeast Multispecies	Cod	GB	VPA	AGEPRO	Yes	Yes	2026	1-May
	Cod	GOM	VPA	AGEPRO	Yes	No	2014	1-May
	Haddock	GB	VPA	AGEPRO	No	No	rebuilt	1-May
	Haddock	GOM	VPA	AGEPRO	No	No	rebuilt	1-May
	Yellowtail Flounder	GB	VPA	AGEPRO	Yes	Yes	2014	1-May
	Yellowtail Flounder	SNE/MA	VPA	AGEPRO	Yes	Yes	2014	1-May
	Yellowtail Flounder	CC/GOM	VPA	AGEPRO	Yes	Yes	2023	1-May
	American Plaice	GB/GOM	VPA	AGEPRO	No	No	2014	1-May
	Witch Flounder		VPA	AGEPRO	Yes	Yes	2017	1-May
	Winter Flounder	GB	VPA	AGEPRO	Yes	Yes	2017	1-May
	Winter Flounder	GOM	none	none	Unknown	Unknown	N/A	1-May
	Winter Flounder	SNE/MA	VPA	AGEPRO	Yes	Yes	2014	1-May
	Redfish		ASAP	AGEPRO	No	No	2051	1-May
	White Hake	GB/GOM	SCAA	AGEPRO	Yes	Yes	2014	1-May
	Pollock	GB/GOM	ASAP	AGEPRO	No	No	rebuilt	1-May
	Windowpane Flounder	GB/GOM	AIM	none	Yes	Yes	2017	1-May
	Windowpane Flounder	SNE/MA	AIM	none	Yes	No	2014	1-May
	Ocean Pout		Index	none	No	Yes	2014	1-May
	Atlantic Halibut		Repl. Yield	none	No	Yes	2055	1-May
	Atlantic Wolffish		SCALE	none	Unknown	Yes	N/A	1-May
Northeast Multispecies (small mesh)	Silver Hake	North	Survey Index	none	No	No	N/A	1-May
	Silver Hake	South	Survey Index	none	No	No	N/A	1-May
	Red Hake	North	Survey Index	none	Unknown	No	N/A	1-May
	Red Hake	South	Survey Index	none	Undefined	No	N/A	1-May
	Offshore Hake		Survey Index	none	Undefined	No	N/A	1-May

FMP	Species	Stock	Assessment Type	Project. Method	Overfishing?	Overfished?	Rebuild Date	Fishing Year
NEFMC (potential)	Cusk		SCALE	none	Unknown	Unknown	Not defined	N/A
Northeast Skate Complex	Little Skate		Survey Index	none	No	No	rebuilt	1-May
	Winter Skate		Survey Index	none	No	No	rebuilt	1-May
	Barndoor Skate		Survey Index	none	No	No	N/A	1-May
	Thorny Skate		Survey Index	none	No	Yes	Not defined	1-May
	Clearnose Skate		Survey Index	none	No	No	rebuilt	1-May
	Rosette Skate		Survey Index	none	No	No	N/A	1-May
	Smooth Skate		Survey Index	none	No	No	N/A	1-May
Atlantic Herring	Atlantic Herring		ASAP	AGEPRO	No	No	N/A	1-Jan
Deep-Sea Red Crab	Deep-Sea Red Crab		Survey	none	Unknown	Unknown	N/A	1-Jan
Atlantic Sea Scallop	Atlantic Sea Scallop		CASA	SAMS	No	No	rebuilt	1-Mar
Monkfish	Monkfish	North	SCALE	none	No	No	rebuilt	1-May
	Monkfish	South	SCALE	none	No	No	rebuilt	1-May
Spiny Dogfish	Spiny Dogfish		Catch at Length	length-based	No	No	rebuilt	1-May
Summer flounder, scup and black sea bass	Summer Flounder		ASAP	AGEPRO	No	No	N/A	1-Jan
	Scup		ASAP	AGEPRO	No	No	rebuilt	1-Jan
	Black Sea Bass		SCALE	none	Yes	No	rebuilt	1-Jan
Squid, Mackerel, Butterfish	Atlantic Mackerel		ASAP	AGEPRO	Unknown	Unknown	N/A	1-Jan
	<i>Loligo</i> Squid		Survey Index	N/A	No	No	N/A	1-Jan
	<i>Illlex</i> Squid		Survey Index	N/A	No	Unknown	N/A	1-Jan
	Atlantic Butterfish		KLAMZ	KLAMZ	No	Yes	Not defined	1-Jan

FMP	Species	Stock	Assessment Type	Project. Method	Overfishing?	Overfished?	Rebuild Date	Fishing Year
Atlantic surfclam and ocean quahog	Atlantic surfclam		KLAMZ	KLAMZ	No	No	rebuilt	1-Jan ??
	Ocean Quahog		KLAMZ/VP A	KLAMZ	No	No	rebuilt	1-Jan ??
Bluefish	Bluefish		ASAP	AGEPRO	No	No	rebuilt	1-Jan
Tilefish	Golden Tilefish		ASPIC	ASPIC	No	No	N/A	1-Nov
American Lobster	American Lobster	GB	CKWM	N/A	No	No	N/A	1-Jan ??
	American Lobster	GOM	CKWM	N/A	No	No	N/A	1-Jan ??
	American Lobster	SNE	CKWM	N/A	No	Yes	Not defined	1-Jan ??
Northern Shrimp	Northern Shrimp		CSA/ASPIC	N/A	No	No	N/A	1-Dec
Striped Bass	Striped Bass		SCA/MARK	N/A	No	No	rebuilt	1-Jan
NEFMC (potential)	Atlantic Hagfish		none	none	N/A	N/A	N/A	N/A
Atlantic Salmon	Atlantic Salmon		Run reconstruction	none	N/A	N/A	N/A	N/A
American Eel	American Eel		none	none	N/A	N/A	N/A	N/A
Atlantic Sturgeon	Atlantic Sturgeon		none	none	N/A	N/A	N/A	N/A
ASMFC	Shortnose Sturgeon		none	none	N/A	N/A	N/A	N/A
Shad and River Herring	River Herring		none	none	N/A	N/A	N/A	N/A
	American Shad		none	none	N/A	N/A	N/A	N/A

Table 2. Summary of key biological and fishery determinants of assessment frequency

--additional detail to be provided											
Species Common Name	Ages Required ?	Rebuild Program ?	Max Age (yr)	M (yr ⁻¹)	Approx Age at Maturity (yr)	Ave Age in Catch (yr)	Mean Generation Time (yr)	Recruitment Variability (H,M,L,U)	F/Fmsy	B/Bmsy	Potential Freq (yr)
Atlantic Cod GB	Yes			0.2							3
Atlantic Cod GM	Yes			0.2							3
Haddock - GB	Yes			0.2							3
Haddock - GOM	Yes			0.2							3
Yellowtail Flounder - GB	Yes			0.2							3
Yellowtail Flounder - SNE/MA	Yes			0.2							3
Yellowtail Flounder - CC	Yes			0.2							3
American Plaice	Yes			0.2							3
Witch Flounder	Yes			0.2							3
Winter Flounder - GB	Yes			0.2							3
Winter Flounder - GM	Yes			0.2							3
Winter Flounder - SNE MA	Yes			0.2							3
Acadian Redfish	Yes		50	.1??							6
White Hake	Yes			0.2							3
Pollock	Yes			0.2							3
Windowpane - N	No			NA							2
Windowpane - S	No			NA							2
Ocean Pout	No			NA							2
Atlantic Halibut	No			0.06							6
Atlantic Wolffish	No			.2??							6
Silverhake - N	Yes										2
Silverhake - S	Yes										2
Red Hake - N	No										2
Red Hake - S	No										2
Offshore Hake	No										2
Cusk	No										9
Skates--Little	No			NA							2
Skates--Winter	No			NA							2
Skates--Barndoor	No			NA							2
Skates--Thorny	No			NA							2
Skates--Clearnose	No			NA							2
Skates--Rosette	No			NA							2
Skates--Smooth	No			NA							2
Atlantic Herring	Yes										3
Deep Sea Red Crab	No										5
Sea Scallops	Yes			0.1							3
Goosefish - N	Yes										3
Goosefish - S	Yes										3
Spiny Dogfish	No		40								2
Summer Flounder	Yes										3
Scup	Yes										3
Black Sea Bass	Yes										3
Atlantic Mackerel	Yes										3
Longfin Squid	No			>1							5
Northern Shortfin Squid	No			>1							5
Butterfish	Yes			0.8							2
Atlantic Surfclam	Yes			.15??							3
Ocean Quahog	Yes			.02??							3
Bluefish	Yes			0.2							2
Tilefish	No			NA							4
American Lobster	No			0.15							5
Northern Shrimp	No			0.15							1
Striped Bass	No			0.15							3
Atlantic Hagfish	No			.8??							9
Atlantic Salmon	Yes			0.15							9
American Eel	No										9
Atlantic Sturgeon	No										9
Shortnose Sturgeon	No										9
River Herring	No										9
American Shad	No										9

i.

Table 3. Estimated staff time necessary for stock assessments. Annual person months are total person months/assessment frequency.								
					Per Assessment Workload			Annualized workload
Counter	Orig index	Species Common Name	Potential frequency (yr)	Last assessment	Direct Person Months	Indirect Person Months	Total Person Months	Annualized person months =(total PM/freq)
1	27	Northern Shrimp	1	2011	4	2	6	6.0
2	17	Bluefish	2	2010	6	1	7	3.5
3	18	Butterfish	2	2009	6	3	9	4.5
4	28	Ocean Pout	2	2008	3	1	4	2.0
5	30	Offshore Hake	2	2010	2	1	3	1.5
6	32	Red Hake - N	2	2010	4	1	5	2.5
7	33	Red Hake - S	2	2010	4	1	5	2.5
8	38	Silverhake - N	2	2010	4	1	5	2.5
9	39	Silverhake - S	2	2010	4	1	5	2.5
10	40	Skates--Winter	2	2011	2	1	3	1.5
11	41	Skates--Little	2	2011	2	1	3	1.5
12	42	Skates--Barndoor	2	2011	2	1	3	1.5
13	43	Skates--Thorny	2	2011	2	1	3	1.5
14	44	Skates--Clearnose	2	2011	2	1	3	1.5
15	45	Skates--Rosette	2	2011	2	1	3	1.5
16	46	Skates--Smooth	2	2011	2	1	3	1.5
17	47	Spiny Dogfish	2	2010	4	2	6	3.0
18	52	Windowpane - N	2	2008	3	1	4	2.0
19	53	Windowpane - S	2	2008	3	1	4	2.0
20	4	American Plaice	3	2008	12	4	16	5.3
21	6	Atlantic Cod GB	3	2008	24	8	32	10.7
22	7	Atlantic Cod GM	3	2008	24	8	32	10.7
23	10	Atlantic Herring	3	2009	36	12	48	16.0
24	11	Atlantic Mackerel	3	2010	36	12	48	16.0
25	16	Black Sea Bass	3	2010	12	3	15	5.0
26	21	Goosefish - N	3	2010	12	12	24	8.0
27	22	Goosefish - S	3	2010	12	12	24	8.0
28	23	Haddock - GB	3	2008	24	8	32	10.7
29	24	Haddock - GOM	3	2008	24	8	32	10.7
30	29	Ocean Quahog	3	2009	12	12	24	8.0
31	31	Pollock	3	2010	24	8	32	10.7
32	35	Scup	3	2008	12	4	16	5.3
33	36	Sea Scallops	3	2010	24	12	36	12.0
34	48	Striped Bass	3	2008	6	2	8	2.7
35	49	Summer Flounder	3	2010	12	4	16	5.3
36	51	White Hake	3	2008	24		24	8.0
37	54	Winter Flounder - GB	3	2011	12	4	16	5.3
38	55	Winter Flounder - GM	3	2011	12	4	16	5.3
39	56	Winter Flounder - SNE MA	3	2011	12	4	16	5.3
40	57	Witch Flounder	3	2008	24	8	32	10.7
41	58	Yellowtail Flounder - CC	3	2008	12	4	16	5.3
42	59	Yellowtail Flounder - GB	3	2010	12	8	20	6.7
43	60	Yellowtail Flounder - SNE/M	3	2010	12	4	16	5.3
44	14	Atlantic Surfclam	3	2009	12	12	24	8.0
45	50	Tilefish	4	2009	6	2	8	2.0
46	20	Deep Sea Red Crab	5	2008	12	4	16	3.2
47	25	Longfin Squid	5	2010	12	8	20	4.0
48	26	Northern Shortfin Squid	5	2005	12	8	20	4.0
49	1	Acadian Redfish	6	2008	24	8	32	5.3
50	9	Atlantic Halibut	6	2008	3	1	4	0.7
51	15	Atlantic Wolffish	6	2008	6	3	9	1.5
52	2	American Eel	9	xx	4	0	4	0.4
53	3	American Lobster	5	2008	24	8	32	6.4
54	5	American Shad	9	xx	4	0	4	0.4
55	8	Atlantic Hagfish	9	2003	4	1	5	0.6
56	12	Atlantic Salmon	9	2011	12	0	12	1.3
57	13	Atlantic Sturgeon	9	xx	12	4	16	1.8
58	19	Cusk	9	2010	6	2	8	0.9
59	34	River Herring	9	xx	12	4	16	1.8
60	37	Shortnose Sturgeon	9	xx	12	2	14	1.6
		person months			664	255	919	285.9
		person years			55.3	21.3	76.6	23.8

ii.

Table 4. Example application of assessment frequency and work load factors for an example assessment schedule.

			Example Assessment Schedule								
Assessment Frequency (yr)	Species Common Name	Last assess ment	2012	2013	2014	2015	2016	2017	2018	Total Events	
1	Northern Shrimp	2011	1	1	1	1	1	1	1	7	
2	Bluefish	2010	1		1		1		1	4	
2	Butterfish	2009	1		1		1		1	4	
2	Ocean Pout	2008		1		1		1		3	
2	Offshore Hake	2010		1		1		1		3	
2	Red Hake - N	2010		1		1		1		3	
2	Red Hake - S	2010		1		1		1		3	
2	Silverhake - N	2010		1		1		1		3	
2	Silverhake - S	2010		1		1		1		3	
2	Skates--Winter	2011	1		1		1		1	4	
2	Skates--Little	2011	1		1		1		1	4	
2	Skates--Bamdoor	2011	1		1		1		1	4	
2	Skates--Thorny	2011	1		1		1		1	4	
2	Skates--Clearnose	2011	1		1		1		1	4	
2	Skates--Rosette	2011	1		1		1		1	4	
2	Skates--Smooth	2011	1		1		1		1	4	
2	Spiny Dogfish	2010	1		1		1		1	4	
2	Windowpane - N	2008		1		1		1		3	
2	Windowpane - S	2008		1		1		1		3	
3	American Plaice	2008	1			1			1	3	
3	Atlantic Cod GB	2008	1			1			1	3	
3	Atlantic Cod GM	2008			1			1		2	
3	Atlantic Herring	2009	1			1			1	3	
3	Atlantic Mackerel	2010		1			1			2	
3	Black Sea Bass	2010			1			1		2	
3	Goosefish - N	2010		1						1	
3	Goosefish - S	2010		1						1	
3	Haddock - GB	2008	1			1				2	
3	Haddock - GOM	2008	1			1				2	
3	Ocean Quahog	2009	1			1			1	3	
3	Pollock	2010		1			1			2	
3	Scup	2008	1			1			1	3	
3	Sea Scallops	2010		1			1			2	
3	Striped Bass	2008	1			1			1	3	
3	Summer Flounder	2010	1			1			1	3	
3	White Hake	2008		1			1			2	
3	Winter Flounder - GB	2011			1					1	
3	Winter Flounder - GM	2011			1					1	
3	Winter Flounder - SNE MA	2011			1					1	
3	Witch Flounder	2008		1						1	
3	Yellowtail Flounder - CC	2008		1			1			2	
3	Yellowtail Flounder - GB	2010	1	1	1	1	1	1	1	7	
3	Yellowtail Flounder - SNE/MA	2010		1			1			2	
3	Atlantic Surfclam	2009	1			1			1	3	
4	Tilefish	2009		1				1		2	
5	Deep Sea Red Crab	2008			1					1	
5	Longfin Squid	2010				1				1	
5	Northern Shortfin Squid	2005				1				1	
6	Acadian Redfish	2008		1						1	
6	Atlantic Halibut	2008						1		1	
6	Atlantic Wolffish	2008			1					1	
9	American Eel	xx								0	
5	American Lobster	2008								0	
9	American Shad	xx								0	
9	Atlantic Hagfish	2003								0	
9	Atlantic Salmon	2011								0	
9	Atlantic Sturgeon	xx								0	
9	Cusk	2010	1							1	
9	River Herring	xx								0	
9	Shortnose Sturgeon	xx								0	
	Number of assessments		23	21	19	22	18	14	20		
	Estimated Annual Workload (pers mon)		325	353	189	349	241	120	253		
	Estimated Annual Workload (pers yrs)		27.1	29.4	15.8	29.1	20.1	10.0	21.1		

Table 5. Specification duration authority (assumes approval of Mid-Atlantic Omnibus).

Stock	Council	Specification Authority
Atlantic salmon	NEFMC	No specifications
Atlantic herring	NEFMC	Up to 3 years
Monkfish	NEFMC/MAFMC	Up to 3 years
NE multispecies	NEFMC	Biennial adjustments
Small-mesh groundfish	NEFMC	Expected to be 3-yr adjustment cycle
Atlantic sea scallop	NEFMC	Biennial review, DAS allocations for 2 years
Deep-sea red crab	NEFMC	Up to 3 years
Skates	NEFMC	Biennial, with PDT review, baseline reviews
Summer flounder	MAFMC	Up to 3 years
Scup	MAFMC	Up to 3 years
Black seabass	MAFMC	Up to 3 years
<i>Loligo</i> squid	MAFMC	Up to 3 years, annual review
<i>Illex</i> squid	MAFMC	Up to 3 years, annual review
Atlantic mackerel	MAFMC	Up to 3 years, annual review
Butterfish	MAFMC	Up to 3 years, annual review
Atlantic bluefish	MAFMC	Up to 3 years proposed in Omnibus Amendment
Surf clams/ocean quahogs	MAFMC	Up to 3 years, annual review
Spiny dogfish	MAFMC/NEFMC	Up to 5 years
Golden tilefish	MAFMC	Following new stock assessment or establishment of RSA

Table 6. Current Fishing Years

Stock	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Atlantic salmon																								
Atlantic herring																								
Monkfish																								
NE Multispecies																								
Small-mesh groundfish																								
Atlantic Sea Scallops																								
Deep-sea red crab																								
Skates																								
Summer flounder																								
Scup																								
Black seabass																								
<i>Loligo</i> squid																								
<i>Illex</i> squid																								
Atlantic mackerel																								
Butterfish																								
Atlantic bluefish																								
Surfclams/ocean quahogs																								
Spiny dogfish																								

Table 7. Frameworkable provisions for fishing year and specification/adjustment process.

Fishery	50 CFR Framework Regs	Fishing Year Frameworkable?	Specifications Process Frameworkable?
Mackerel, squid, butterfish	§ 648.24	Maybe (not explicit)	Yes
Atlantic salmon	§ 648.41	NA	NA
Atlantic sea scallops	§ 648.55	Maybe	Maybe
Surfclams, ocean quahogs	§ 648.77	No	No
NE multispecies	§ 648. 90	Maybe	Yes
Monkfish	§ 648.96	Maybe	Maybe
Summer flounder	§ 648.108	Maybe	Yes
Scup	§ 648.127	Maybe	Yes
Black sea bass	§ 648.147	Maybe	Yes
Atlantic bluefish	§ 648.165	Maybe	Maybe
Atlantic herring	§ 648.206	Maybe	Maybe
Spiny dogfish	§ 648.237	Maybe	Maybe
Deepsea red crab	§ 648.261	Maybe	Maybe
Tilefish	§ 648.294	No	Yes
Skates	§ 648.321	No	No

Table 8. Regulations for procedures and frequency of specifications/adjustments.

Fishery	50 CFR Regs for Specification and Adjustment Procedures	50 CFR Regs for Specification and Adjustment Frequency
Mackerel, squid, butterfish	§ 648.21	§ 648.21
Atlantic salmon	NA	NA
Atlantic sea scallops	§ 648.55	§ 648.55
Surfclams, ocean quahogs	§ 648.71	§ 648.71
NE multispecies	§ 648.90	§ 648.90
Monkfish	§ 648.96	§ 648.96
Summer flounder	§ 648.100	§ 648.100
Scup	§ 648.120	§ 648.120
Black sea bass	§ 648.140	§ 648.140
Atlantic bluefish	§ 648.160	§ 648.160
Atlantic herring	§ 648.200	§ 648.200
Spiny dogfish	§ 648.230	§ 648.230
Deepsea red crab	§ 648.260	§ 648.260
Tilefish	§ 648.290	§ 648.290
Skates	§ 648.320	§ 648.320

Table 9. Current status of specification/adjustment schedules for Northeast Fisheries.

FMP	2011	2012	2013	2014	2015
Atlantic Bluefish	1 yr; specs; set for 1-3 yr; specs (2012-?)	Undetermined	Undetermined	Undetermined	Undetermined
Mackerel, Squid, Butterfish	1 yr; specs; set for 1-3 yr; specs (2012-?)	Undetermined	Undetermined	Undetermined	Undetermined
Summer Flounder, Scup, Black Sea Bass	1 yr; specs; set for 1-3 yr; specs (2012-?)	Undetermined	Undetermined	Undetermined	Undetermined
Tilefish	Roll over	Following new assessment or RSA	Following new assessment or RSA	Following new assessment or RSA	Following new assessment or RSA
Spiny Dogfish	1 yr; specs; set for 1-5 yr; specs (2012-?)	Undetermined	Undetermined	Undetermined	Undetermined
Surfclams, Ocean Quahogs	3 yr; specs	3 yrs; specs	3 yrs; specs; need to be set for 1-3 yr; specs	Undetermined	Undetermined
Atlantic Salmon	NA	NA	NA	NA	NA
Monkfish	3 yr; Amend. 5	3 yr; Amend. 5	3 yr; Amend. 5; need to be set for 3 yr (2014-2016); FW or Amend.	Set through FW or Amend.	Set through FW or Amend.
Deep-sea Red Crab	3 yr; Amend. 3	3 yr; Amend. 3	3 yr; Amend. 3; need to be set for 1-3 yr (2014-2016); FW or Amend.	Set through FW or Amend.	Set through FW or Amend.
Skates	2 yr; Amend. 3	2 yr; Amend. 3; set for 2 yr (2013-2014); FW or Amend.	Set through FW or Amend.	Need to be set for 2 yr (2015-2016); FW or Amend.	Set through FW or Amend.
Atlantic Herring	3 yr; Amend. 4	3 yr; Amend. 4	3 yr; Amend. 4; need to be set for 1-3 yr (2014-?); FW or Amend.	Undetermined	Undetermined

FMP	2011	2012	2013	2014	2015
NE Multispecies (U.S./Canada stocks currently assessed and adjusted annually)	2 yr; FW 44; set for 2 yr (2012-2013, default 2014); FW 45	2 yr; FW 45	2 yr; FW 45; set for 2 yr (2014-2015, w default 2016?); FW or Amend.	Default specs in place under FW 45; new specs in place under FW or Amend.	2 yr; FW or Amend.
Small-mesh Groundfish	set for 3 yr (2012-2014); Amend. 19	3 yr; Amend. 19	3 yr; Amend. 19	set for 3 yr (2015-2017); FW or Amend.	3 yr; FW or Amend.
Sea Scallops	2 yr (2011-2012, w 2013 default); FW 22	2 yr, (w. 2013 default); FW 22; set for 2 yr (2013-2014, w 2015 default ?)	Default 2013 specs in place under FW 22; new specs under FW or Amend.	2 yr, (w. 2015 default?); FW or Amend.; set for 2 yr (2015-2016, w 2017 default ?); FW or Amend.	Default 2015 specs in place?; new specs under FW or Amend.

Table 10. Example of specification/adjustment schedules for Northeast Fisheries, if multiyear specifications/adjustments are used in all fisheries, and assuming the frequency of assessments in Table 5. Numbers in parentheses after each FMP are the number of stocks for which specifications would be set. The notation “set” means the year in which the Council must develop the specifications for the next fishing year(s) (e.g., the MAFMC would “set” summer flounder specs in 2012 for the fishing year(s) starting 2013). Numbers in parentheses next to “Set” are the numbers of years that the specifications are to be set for. The results of the operational assessment for each stock would need to be available at least 1-2 months prior to the Council taking action, to allow for recommendations from the technical committees and SSCs to be developed. Assumes that new process starts with next specification/adjustment cycle in or after 2013 (the Council development of specs in 2013 for FY(s) 2014 and beyond).

FMP	2011	2012	2013	2014	2015	2016	2017	2018	2019
Atlantic Bluefish (1)	X Set 1 (2012)	X Set 1 (2013)	Set 3 (2014- 2016)	X	X	Set 3 (2017- 2019)	X	X	Set 3 (2020- 2022)
Mackerel, Squid, Butterfish (4)	X Set 1 (2012)	X Set 1 (2013)	Set 3 (2014- 2016)	X	X	Set 3 (2017- 2019)	X	X	Set 3 (2020- 2022)
Summer Flounder, Scup, Black Sea Bass (3)	X Set 1 (2012)	X Set 1 (2013)	Set 3 (2014- 2016)	X	X	Set 3 (2017- 2019)	X	X	Set 3 (2020- 2022)
Tilefish (1)	X	X	X Set 5 (2014- 2018)	X	X	X	X	Set 5 (2019- 2023)	X
Spiny Dogfish (1)	X Set 1 (2012)	X Set 1 (2013)	Set 5 (2014- 2018)	X	X	X	X	Set 5 (2019- 2023)	X
Surfclams, Ocean Quahogs (2)	X	X	X Set 7 (2014- 2020)	X	X	X	X	X	X
Atlantic Salmon	NA	NA	NA	NA	NA	NA	NA	NA	NA
Monkfish (2)	X	X	X Set 4 (2014- 2017)	X	X	X	X Set 4 (2018- 2021)	X	X

FMP	2011	2012	2013	2014	2015	2016	2017	2018	2019
Deep-sea Red Crab (1)	X	X	X Set 5 (2014- 2018)	X	X	X	X	X Set 5 (2019- 2023)	X
Skates (7)	X	X Set 2 (2013- 2014)	X	X Set 3 (2015- 2017)	X	X	X Set 3 (2018- 2020)	X	X
Atlantic Herring (1)	X	X	X Set 3 (2014- 2016)	X	X	X Set 3 (2017- 2019)	X	X	X Set 3 (2020- 2022)
Major Groundfish ¹ (13)	X Set 2 (2012- 2013)	X	X Set 3 (2014- 2016)	X	X	X Set 3 (2017- 2019)	X	X	X Set 3 (2020- 2022)
U.S./Canada Groundfish ² (3)	X Set 1 (2012)	X Set 1 (2013)	X Set 2 (2014- 2015)	X	X Set 2 (2016- 2017)	X	X Set 2 (2018- 2019)	X	X Set 2 (2020- 2021))
Other Groundfish ³ (6)	X Set 2 (2012- 2013)	X	X Set 5 (2014- 2018)	X	X	X	X	X Set 5 (2019- 2023)	X
Atlantic Halibut (1)	X Set 2 (2012- 2013)	X	X Set 7 (2014- 2020)	X	X	X	X	X	X Set 7 (2021- 2027)
Small-mesh Groundfish (5)	X Set 3 (2012- 2014)	X	X	X Set 5 (2015- 2019)	X	X	X	X	X Set 5 (2020- 2024)
Sea Scallops (1)	X	X Set 2 (2013-	X	X Set 3 (2015-	X	X	X Set 3 (2019-	X	X

FMP	2011	2012	2013	2014	2015	2016	2017	2018	2019
		2014)		2017)			2021)		
No. of Stocks Set	37	20	39	13	3	22	13	9	31

X = Specifications already established or under development

X = Specifications would be in place

¹ For purposes of this strawman, “major groundfish” are GB cod, GOM cod, GB haddock, GOM haddock, pollock, white hake, CC/GOM yellowtail flounder, GB yellowtail flounder, SNE/MA yellowtail flounder, American plaice, GB winter flounder, GOM winter flounder, SNE/MA winter flounder, witch flounder.

² For purposes of this strawman, “U.S./Canada groundfish” are Eastern GB cod, Eastern GB haddock, GB yellowtail flounder. There are discussions of changing this to a 2-year assessment/adjustment cycle.

³ For purposes of this strawman, “other groundfish” are Acadian redfish, northern windowpane flounder, southern windowpane flounder, wolfish, ocean pout, cusk.

Table 11. Example of proposed process for assessments/specifications versus status quo process. Summer flounder is used as the example.

	Status Quo Assessment Processes		Proposed Framework for NE Assessments		
	SAW/SARC track	annual stock assessment update track	Operational Assessment Year	No Operational Assessment Conducted (interim years)	Research Track to Operational Assessment (new baseline available)
Periodicity	dependent on NRCC agreed schedule (2-5 yrs).	annual	every 2-5 years (T.B.D.)	Intervening years between 2-5 year operational schedule	Dependent on 1) need of research track development, 2) completion of accepted baseline model
Action(s) by group					
Prior year	SDWG: TORs for SAW developed and finalized				Prior year (or years); Development of new baseline model, methods, etc.; TORs for SAW developed
Jan					
Feb	SDWG: data and model meetings, NEFSC: Data collection and analyses		NRCC schedules Operational Assessment cycle (Oct. prior year), adopts TORs; Assessment Oversight Panel to review Operational Assessment Plan developed by lead stock assessment scientist; assessment plan, including interim approach, approved for use <u>or</u> assessment deferred to research track and interim approach implemented		SDWG: data and model meetings, NEFSC: Data collection and analyses
March	SDWG: Finalization of data and model meetings, NEFSC: Data collection and analyses				SDWG: Finalization of data and model meetings, NEFSC: Data collection and analyses
April	SDWG: data and model meetings, NEFSC: Final model runs, report work	NEFSC/SDWG: Data assembly (Survey and Age data); stock assessment update analyses	NEFSC lead scientist consult with PDT/TC/SSC (integrated peer review); develop, prepare, and finalize operational assessment using current baseline model <u>or</u> interim approach finalized	PDT/TC data collection and assembly (with support by NEFSC, as needed)	SDWG: data and model meetings, NEFSC: Final model runs, report work
May					
June	SARC meeting; Peer review report and recommendation finalization; NEFSC summary report; information conveyed to MAFMC staff	NEFSC/SDWG: Stock assessment update review mtg.	Integrated peer review, initiation of research track decision point –Research Track started, as needed; NEFSC reports made final; PDT/TC provides operational information to SSC <u>or</u> interim approach forwarded for management use	PDT/TC update interim year operational assessment-related performance metrics; provide information to SSC	SARC (or SARC-type) meeting; Peer review report and recommendation finalization; NEFSC summary report; information conveyed to MAFMC staff
July	Peer review report and recommendation finalization; NEFSC summary report; information conveyed to MAFMC staff; SSC/MC: Meetings (pre-decisional, ABC, and TAC/TAL recommendation)	SSC/MC: Meetings (pre-decisional, ABC, and TAC/TAL recommendation)	SSC/MC: Meetings (pre-decisional, ABC, and TAC/TAL recommendation)	SSC/MC: Meetings (pre-decisional, ABC, and TAC/TAL recommendation)	Peer review report and recommendation finalization; NEFSC summary report; NEW operational model FINAL using prior year or outdated data
Aug	MAFMC: Meeting; receives and reviews SSC ABC and MC TAC/TAL recommendations; action on specifications	MAFMC: Meeting; receives and reviews SSC ABC and MC TAC/TAL recommendations; action on specifications	MAFMC: Meeting; receives and reviews SSC ABC and MC TAC/TAL recommendations; action on specifications	MAFMC: Meeting; receives and reviews SSC ABC and MC TAC/TAL recommendations; action on specifications	Process continues as outlined in either the operational year or interim year descriptions
Sept	MAFMC: Submits EA/RIR/IRFA, specs Recommendation to NMFS	MAFMC: Submits EA/RIR/IRFA, specs Recommendation to NMFS	MAFMC: Submits EA/RIR/IRFA, specs Recommendation to NMFS	MAFMC: Submits EA/RIR/IRFA, specs Recommendation to NMFS	
Oct	NMFS: Proposed Rule on specifications	NMFS: Proposed Rule on specifications	NMFS: Proposed Rule on specifications	NMFS: Proposed Rule on specifications	
Nov	NMFS: Public comment; development of final specifications rule	NMFS: Public comment; development of final specifications rule	NMFS: Public comment; development of final specifications rule	NMFS: Public comment; development of final specifications rule	
Dec	NMFS: Final Rule; Specifications	NMFS: Final Rule; Specifications	NMFS: Final Rule; Specifications; restart track with next year's Assessment Oversight Panel	NMFS: Final Rule; Specifications	

(Prepared by Jessica Coakley and Michael Ruccio)

Appendix Figure 1. Draft Template

Assessment of Stock XXXXX

NEFSC Author

Date

I. Executive Summary

A. Summary of Assessment Changes

1. Changes in input data
2. Changes in assessment methodology

B. Summary of Results

	Last year		This year	
Quantity/Status	2010	2011	2011	2012
Fishing Mortality				
Stock Size				
Fishing Mortality Threshold				
Stock Size Threshold				
Is the stock overfished or being subjected to overfishing?				

State the current stock status based on the previous peer reviewed assessment (i.e., is the stock in a rebuilding program, is it overfished, overfishing?)

II. Introduction

III. Fishery/Catch Statistics

IV. Data

- A. Fishery Catch Statistics
- B. Survey Data
- C. Other Data

V. Analytic Approach

VI. Overfishing Definition and Biological Reference Points

- A. State the current official overfishing definition (for overfished and overfishing).
- B. State the current BRPs (F_{MSY} , B_{MSY} , MSY , or their proxies)
- C. Give the updated estimates of the BRPs (F_{MSY} , B_{MSY} , MSY , or their proxies)

VII. Results

- A. Provide estimates of B , SSB , F , recruitment, and catch (landings, discards) for the entire time series.

- B. Make a stock status determination based on the latest results.
- C. OFL recommendations (if possible, provide the pdf of OFL)

VIII. Discussion

- A. Ecosystem considerations
- B. Analytic issues and key sources of uncertainty in the assessment
- C. Research priorities and data gaps

IX. Literature Cited

Key Stocks and Alternative Assessment Scheduling

March 2018

This information was initially presented to the SSC in October 2017.

This version includes additional information on the landings and ACLs for SAFMC managed stocks (Tables 4-7), in support of recommended key stocks.

Approach Summary

- Identify 12-15 key stocks, defined as those that drive the management program.
 - The focus should be on stocks with the leverage to influence decisions on when or how to fish, such as Red Snapper, Black Sea Bass, Vermilion Snapper, and Cobia.
 - Consult with SEFSC, the SSC, and APs to develop the key stocks list.
 - Consider existing Council priorities, currently assessed stocks, and the NMFS prioritization tool (results of these shown in tables 1-3)
- Develop a regular long-term assessment schedule for the key stocks.
 - For example, if 12 stocks assessed by the Beaufort/SEFSC team are identified as key stocks requiring regular, timely updates, 3 could be assessed per year while leaving at least one of the 4 SAFMC planning slots available for benchmarks and other assessment needs.
- Develop preliminary (interim) analyses addressing data indicators or “rumble strips” for each of these stocks to use in evaluating stock and fishery performance through annual or bi-annual fishery report cards.
 - The indicators would be built around metrics that are available on a timely basis, to facilitate their use in guiding management actions.
 - These analyses would consist of updated projection analyses that were used for establishing ABC's. The most recent data on landings, discards, FI indices, and age composition could be included in the analysis. Parameters to be estimated would include F's and recruitment, depending on data types updated. All other aspects would remain fixed based on last stock assessment.
 - ABC's could be updated from these interim analyses.
 - Provide a fishery report card for each key stock during years when the stock is not assessed. This may start as biannual information, with a goal of annual information in the future.

Current Status

- SEFSC draft of possible changes in the SEDAR process, incorporating the key stocks and interim analysis concepts, will be reviewed by the SEDAR Steering Committee in May 2018. Further review by all cooperators will follow, if the approach is supported by the Steering Committee.
- SAFMC supports the key stocks approach as described previously. The next step is to identify the key stocks and develop a way to integrate with existing assessment schedules.

Potential Benefits

- More timely information on the stocks that drive fishery trends
- Opportunity to set aside some resources for long term priorities
- Improved and more efficient assessment planning
- Improved and more efficient planning for data and life history (ageing) demands
- Improved ability to manage assessment resources and balance workloads
- Improved planning for council management action timing

Table 1. Assessed Stocks.

Stock	Age in 2017	Status ¹	Terminal Data Year ³	Next Assessment	
				Terminal Yr	Completed
Gray Triggerfish	NA	4	NA		2021
Greater Amberjack	11	3	2006	2016	2018
Black Grouper	9	3	2008		
Spiny Lobster	8	3	2009		
Yellowtail Snapper	7	3	2010	TBD	2020
Wreckfish ²	7	3	2010		
Vermilion Snapper	6	3	2011	2016	2018
Red Porgy	6	1	2011	2017	2019
Spanish Mackerel	6	3	2011		2020
Cobia	6	3	2011	2017	2019
Mutton Snapper	6	3	2011		2021
Black Sea Bass	5	3	2012		2021
King Mackerel	5	3	2012	2017	2019
Snowy Grouper	5	1	2012	2017	2019
Gag	5	3	2012		2020
Hogfish (East FL)	5	1	2012		
Hogfish (NC-GA)	NA	4	2012		
Red Snapper	3	1	2014		2020
golden Tilefish	3	3	2014	2017	2019
Goliath Grouper	NA	4	2014		
Red Grouper	2	1	2015		2021
Blueline Tilefish	2	2	2015		

¹. Status according to the prior assessment: 1 = overfished or in rebuilding, 2 = overfishing, 3 = neither overfished nor overfishing, 4 = assessments attempted but rejected by peer review.

². Wreckfish was assessed by an outside contractor funded by fishery participants. It was reviewed by the SSC, per Council policies developed to accommodate assessments provided outside the SEDAR process.

³. Reported for the current assessment – not ones indicated in the “next assessment” columns.

Table 2. Results of the NMFS Prioritization Tool.

RANK	STOCK
UNASSESSED STOCKS	
4	White Grunt
5	Lane Snapper
6	Gray Triggerfish*
8	Scamp
9	Dolphin
11	Almaco Jack
13	Knobbed Porgy
14	GA-NC Hogfish*
15	Speckled Hind
16	Goliath Grouper*
18	Silk Snapper
19	Red Hind
21	Warsaw Grouper
ASSESSED STOCKS	
1	Red Snapper
2	FLK/EFL Hogfish
3	Red Porgy
7	Snowy Grouper
10	Red Grouper
12	Blueline Tilefish
17	King Mackerel
20	Spanish Mackerel
22	Black Sea Bass
23	Gag
24	Cobia
25	Tilefish
26	Vermilion Snapper
27	Greater Amberjack
28	Black Grouper
29	Mutton Snapper
30	Yellowtail Snapper
31	Wreckfish

Table 3. SAFMC assessment and data collection priority stocks by category, and recommended key stocks

BOLD: Recommended key stocks, based on those assessed by SEFSC.

Asterisk: Stock assessed by FL FWCC

Category	Primary	Secondary	Special
Stocks	Vermilion Snapper Snowy Grouper golden Tilefish Red Grouper Black Grouper* Scamp Black Sea Bass Gag Grouper Greater Amberjack White Grunt Yellowtail Snapper* Gray Triggerfish Mutton Snapper* Red Porgy Dolphin King Mackerel Spanish Mackerel Blueline Tilefish	Tomtate Knobbed Porgy Bar Jack Almaco Jack Lane Snapper Banded Rudderfish Rock Hind Red Hind Wahoo Penaeid Shrimp	Warsaw grouper speckled hind Goliath grouper* Nassau grouper Red Snapper Wreckfish Spiny Lobster* Golden Crab
Assessment Goal	Age based	Survey methods or production models	Varies due to unique management circumstances

Key Stock Considerations

- SAFMC priorities (importance to fishery and management program)
- NMFS assessment prioritization tool results (variety of metrics)
- ACL or Landings (potential to impact management and fishing activities)
- Previously assessed (past priority stock)

Table 4. Snapper Grouper FMP stocks, 2016 ACL, and assessment status. Note that OY is presented for stocks under rebuilding plans to prevent downplaying their importance in the fishery with reduced rebuilding catch limits.

ASSESS	STOCK	ACL (or OY)
Complete	Yellowtail Snapper	3,037,500
Complete	Greater Amberjack	1,937,225
Complete	Black Sea Bass	1,756,452
Complete	Vermilion Snapper	1,681,480
Complete	Red Grouper (OY)	1,095,000
Complete	Mutton Snapper	926,600
Complete	Red Porgy (OY)	810,000
Complete	Gag Grouper	610,233
Complete	golden Tilefish	560,490
Complete	Wreckfish	423,700
Complete	Snowy Grouper (OY)	407,300
Complete	Red Snapper (OY)	398,000
Complete	Hogfish (EFL)(OY)	265,000
Complete	Black Grouper	262,594
Complete	Blueline Tilefish	174,798
Complete	Hogfish (GA-NC)	33,930
Complete	Goliath Grouper	0
Attempted	Gray Triggerfish	716,999
Planned	White Grunt	643,889
Planned	Scamp	335,744
Considered	Gray Snapper	1,247,132
	Atlantic Spadefish	812,478
	Almaco Jack	302,517
	Bar Jack	62,249
Considered	Speckled Hind	0
Considered	Warsaw Grouper	0
NA-Complex	grunts (4- White)	192,136
NA-Complex	snappers (3-Gray)	266,751
NA-Complex	jacks (4 - Almaco)	154,704
NA-Complex	deepwater (6)	169,896
NA-Complex	porgy (5)	143,262
NA-Complex	shallow groupers (6)	104,190
TOTAL		19,532,249
	assessed	14,380,302
	% assessed SG	74
	Plan to assess	1,696,632
	% assessed in future	82

Table 5. Coastal Migratory Pelagic FMP stocks, 2016 ACL, and assessment status.

ASSESSMENT	STOCK	ACL
Complete	Spanish Mackerel	6,057,000
Complete	King Mackerel	10,460,000
Complete	Cobia	670,000
Total		17,187,000
	assessed	17,187,000
	% assessed	100

Table 6. Dolphin Wahoo FMP stocks, 2016 ACL, and assessment status.

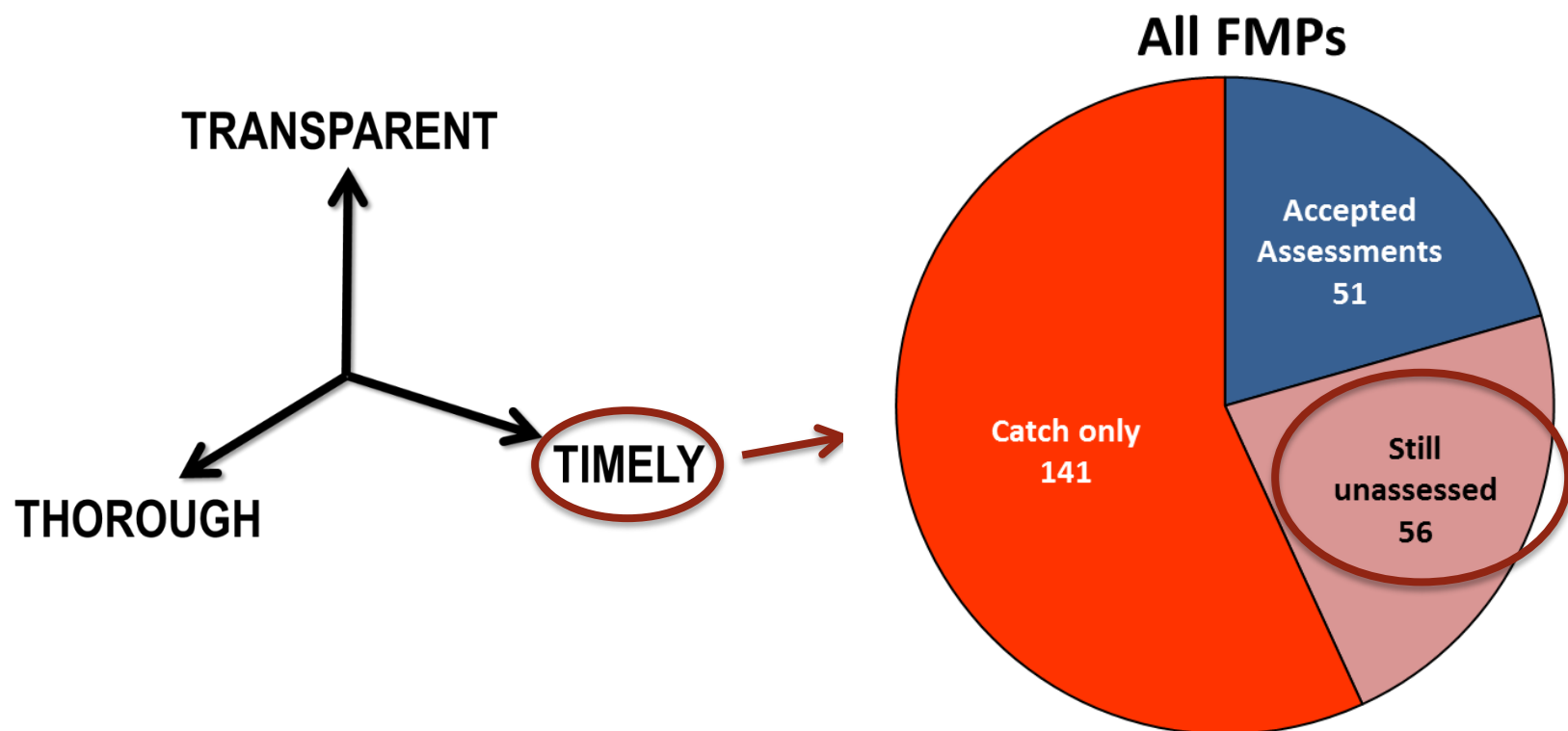
ASSESSMENT	STOCK	ACL
Considered	Dolphin	15,344,846
None planned	Wahoo	1,794,960
Total		17,139,806
	assessed	0
	% assessed	0

Table 7. Other SAFMC FMP stocks, 2016 ACL, and assessment status.

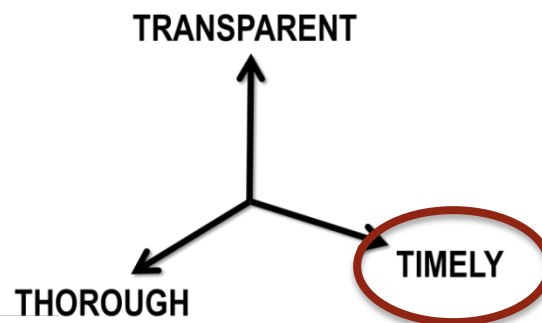
ASSESSMENT	STOCK	FMP	ACL
Completed	Spiny Lobster	Spiny Lobster	7,320,000
None planned	Golden Crab	Golden Crab	2,000,000
None planned	White Shrimp	Shrimp	14,500,000
None planned	Brown Shrimp	Shrimp	9,200,000
None planned	Pink Shrimp	Shrimp	1,800,000
None planned	Rock Shrimp	Shrimp	6,829,449

The problem: Balancing the three T's

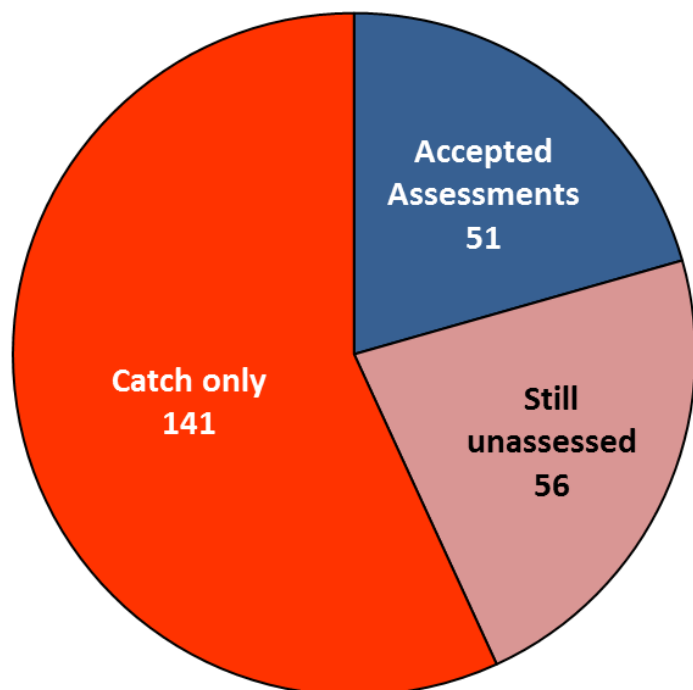
Existing combination of benchmark, standard and update assessments is very transparent, reasonably thorough, but too slow for the demand



Balancing the three T's



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

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

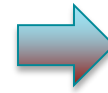
Intended to complete a thorough evaluation that accommodates the input of stakeholders and reviewers while under strict deadlines for providing management advice

Standard

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

Update

Deviates as little as possible from previous benchmark



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



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



Proposed

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.

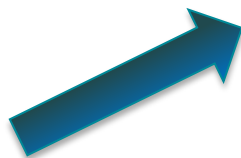
Standard

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



Update

Deviates as little as possible from previous benchmark



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)

SEDAR stock assessment categories: SEFSC Proposal

April 2016

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:

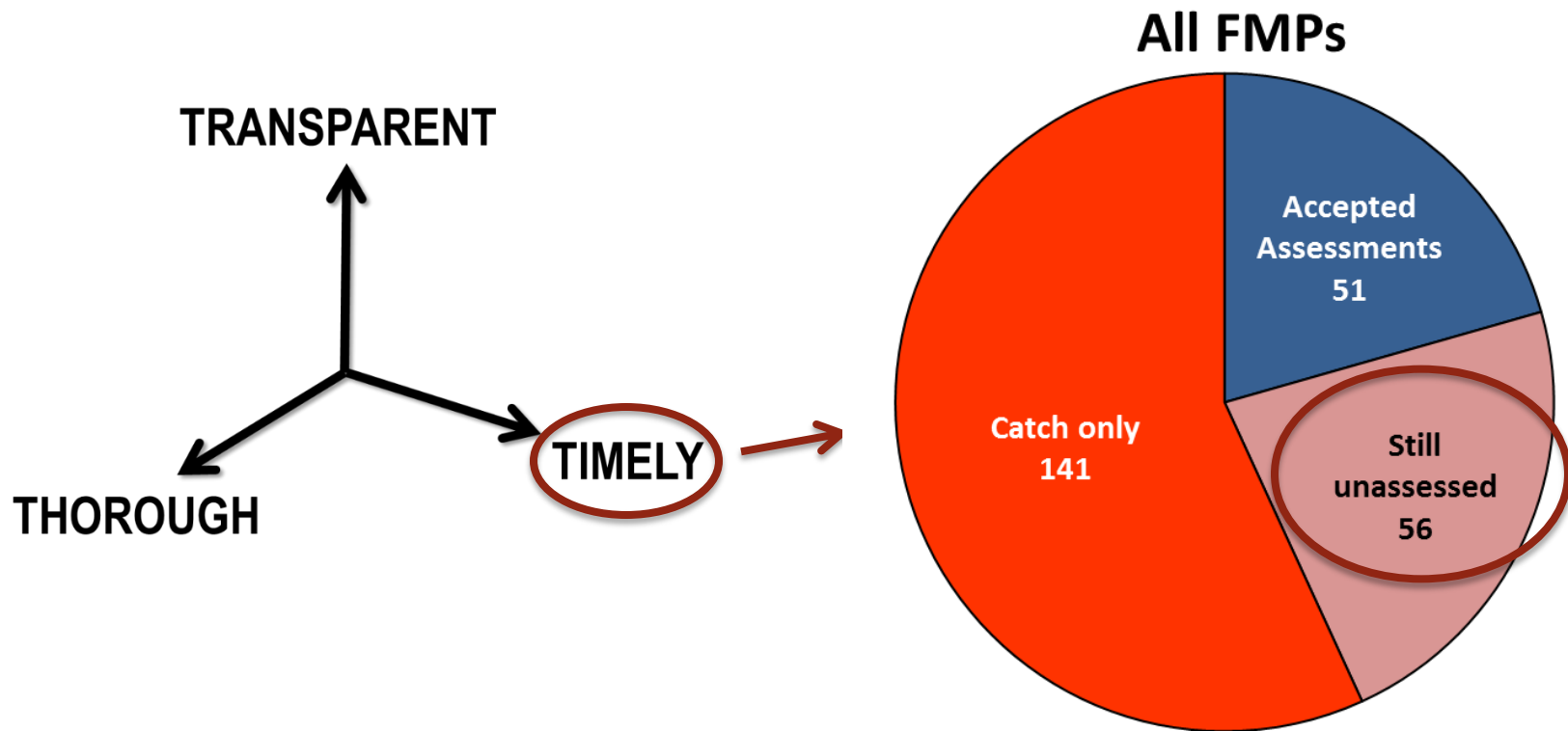
Transitioning from
Benchmarks/Updates
to
Research/Operational



NOAA FISHERIES

The problem: Balancing the three T's

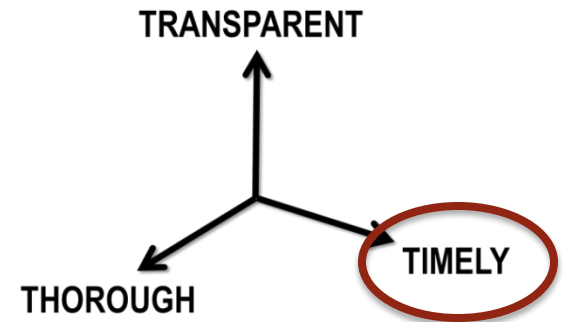
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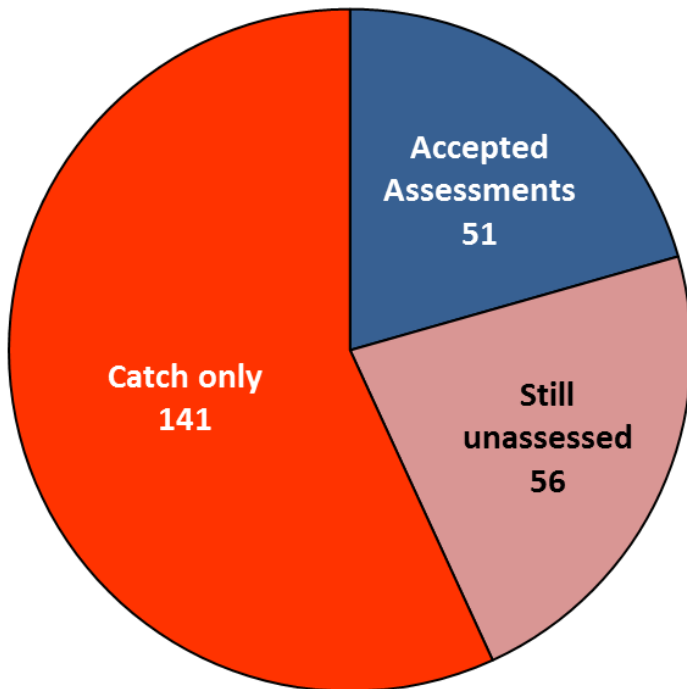
**Data from Gulf of Mexico and South Atlantic, last updated 2015*

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*

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Update

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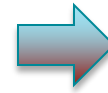
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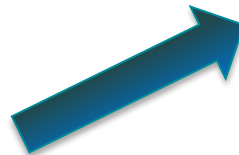
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- Standardized, pre-approved approaches will be used such that
 - Implementation errors will be reduced and throughput increased (analysts can focus on updating inputs, implementing only minor changes, and model diagnostics)
 - Assessments will be 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
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				

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 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					

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 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 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.



UNITED STATES DEPARTMENT OF COMMERCE
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August 15, 2017

MEMORANDUM TO: Gregg Waugh
Executive Director, South Atlantic Fishery Management Council

FROM: Bonnie J. Ponwith, Ph.D. *Theo R. Brainerd*
Science Director

SUBJECT: Research Track Information for SSC Review

The following summary serves as a general outline for how the SEFSC envisions the Research Track proceeding. We fully expect the details of this plan will need further refinement, which is best handled with input from the SAFMC and SSC.

Summary description of proposed research/operational track

Intersessional workshops

Stock ID workshops as currently practiced (could be multiple species, scheduled in anticipation of potential future research tracks)

SEDAR Methods workshops as currently practiced (focuses on addressing specific issues, standardizing and streamlining the assessment process)

Research track assessments

1. Data Stage: (5 months) similar to DW phase, with a data report deliverable similar to the current process. Primary change is a shift in focus from completing an assessment input dataset with the most up-to-date information to identifying and evaluating data issues and developing a preliminary data set (which may be incomplete in some aspects)

2. Assessment Stage: (variable duration, depending on progress, but less than 10 months) similar to the existing benchmark assessment phase, but without a firm deadline at the outset, and removing the expectation to provide management advice in the assessment report.

3. Peer Review Stage: (2 months) Similar to existing peer-review process and review

workshop, but scheduled during the assessment stage only after analysts determine that sufficient progress has been made to ensure a reviewable product (and a minimum of 3-4 months in advance to accommodate CIE constraints). SEDAR role concludes upon report dissemination (same as with current process).

5. Post SEDAR: (variable, depending on scope of recommendations) 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

Operational assessments

Operational assessments (3 months), scheduled according to need, prepared with most recent data similar to existing update process. Cooperators approve TORs that define the nature of the operational assessment and the role of their technical reviewers.

In cases where there is pressure to conduct an operational assessment immediately after the research track, the anticipated time from beginning of research track to end of operational would be 16-21 months. Otherwise it would be beneficial to schedule operational assessments at regular intervals as done in several other regions.

cc:

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