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Illex Research Track Process Assessment (RTA)

Evaluation

Prepared by
Consensus Building Institute

For the
Mid-Atlantic Fishery Management Council (MAFMC or "Council")

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I. Background

An initial kickoff meeting for the Research Track Assessment (RTA) for *Illex illecebrosus* (Northern shortfin squid, hereafter *Illex*) was held in January 2021. In March 2021, the RTA commenced. The Working Group (WG) was an interdisciplinary group assembled by the National Marine Fisheries Service's Northeast Fisheries Science Center (NEFSC), and which met frequently into 2022 to discuss data, concepts, modeling results, and research recommendations for the *Illex* stock assessment. Meetings were virtual due to COVID.

The general goals of the RTA process were to generate new research products that could either be used in the *Illex* stock assessment or to inform the assessment and to prepare a stock assessment report for external peer review. While the WG produced models and findings, the process did not unfold as expected because of challenges including:

- non-federal WG members' access to federal data;
- the complexity of assessing the species in question and long-standing disagreement about which models and tools are appropriate and what data and how much is available or necessary;
- disagreement about the assessment WG process and the roles of participants;
- interpersonal obstacles and group dynamics; and
- task performance issues.

These challenges hindered both research progress and consensus building.

The Mid-Atlantic Fishery Management Council (MAFMC), in consultation with the NEFSC, initially contracted with the Consensus Building Institute (CBI) to facilitate the WG because of some of the challenges that became apparent during the RTA. The contract was extended to undertake an evaluation of the *Illex* RTA, to ascertain the nature of the challenges faced by the *Illex* RTA WG, and to provide recommendations to improve future working groups.

Please note the following caveats to this evaluation:

- CBI facilitated the group, so CBI brings its experience and observations, but also potentially its own biases, into the evaluation.
- CBI was not tasked to evaluate management or personnel, although these factors affected the operation of the WG in conducting the RTA.
- This evaluation is not intended to evaluate the full administrative record nor be an exhaustive accounting of all elements, emails, memos, and documents that the process generated. The evaluation process is described below.
- These recommendations were based solely on the assessment of the RTA for *Illex*, not any other RTAs. Therefore, it is unknown whether these recommendations would apply to RTAs overall.

All errors and omissions are the sole responsibility of CBI. When this evaluation uses "we" is it intended to reference the CBI evaluators, the two authors of this evaluation.

II. Evaluation Process

CBI conducted sixteen, one-hour-long virtual interviews with stakeholders in April 2022. Interviewees were primarily WG members, but also included stock assessment process personnel and industry representatives who had attended and participated in WG meetings.

Interviewees were told that their statements would remain anonymous and that they should speak freely. Interviews were conducted by two CBI staff facilitators; one who had been brought onto the WG to facilitate meetings in the Fall of 2021, and the other who possessed no prior firsthand knowledge of the process or people involved to provide for a fresh and outside perspective on the findings. See Appendix A for interview questions. Our findings are primarily based on the interviews, but also consider our observations as a facilitator of the RTA Work Group.

III. Findings

Accomplishments

Strides were made around aging and sequence of cohorts and understanding species growth. Two methods for assessing the stock were advanced, including initial testing of a generalized depletion model that considered ingress and egress. An alternative CPUE model with economic factors was completed. Exploratory work around the species and oceanographic and environmental factors was advanced and holds promise for future research. More research does remain to be done in these areas. The Work Group chair, working under difficult circumstances, was able to bring the group to consensus on several issues. Overall, however, interviewees suggested that there were not as many successes in terms of research gains as would have been expected, considering the scope and purpose of the RTA process.

Challenges

CBI understands that *Illex* is a difficult species to assess, due to its ephemeral presence on and off the shelf, its short and complex life-history, and because most assessment models have been built for finfish. It also appears that over the years, *Illex* has not drawn more resources or attention when compared to traditionally high-value species like scallops or depleted stocks like some groundfish. *In the best of circumstances, this stock assessment was going to be highly challenging.*

Access to Data

Several WG members who were not employed with the NEFSC faced obstacles in accessing federal data sets because they needed to wait on security clearances to meet federal data release requirements to the "public." The process of obtaining that clearance felt obscure and was time-consuming. The barrier to data access slowed down the process by hindering the ability of these scientists to do their work. Further, access to specific sets of data were granted, rather than generally relevant data sources, so the process had to be frustratingly initiated multiple times.

The difficulties in gaining security clearance and accessing data not only prevented WG members from conducting research in a timely manner, but also reduced trust in the group.

Unequal data access among WG members contributed to a perceived dynamic that certain scientists were holding onto key data to prevent other scientists from being able to contribute to advancing research.

Terms of Reference (ToRs)

The development of ToRs is a NRCC iterative process. To begin the RTA, key staff from the NEFSC drafted Terms of Reference (ToRs). The ToRs were then reviewed and approved by the NRCC as well as MAFMC (staff and SSC members) in September 2020. After the ToRs were finalized, some members of the public contended that there should have been an additional ToR for ecosystem considerations. However, because the ToRs had already been "finalized," it proved quite challenging to add a new ToR later in the process.

The history of the ToRs remains contested. We won't try to capture the full history here. We, the CBI evaluators, do note the following as requested by commenters of an earlier draft of this evaluation. Industry raised two ToR concerns in an email to the CBI facilitator 4 March 2022 that had been previously raised in 2020: 1) "A refusal to pursue an explicit Ecosystem-based Term of Reference (TOR), for a stock whose distribution and productivity are thought to be primarily environmentally driven;" 2) "TOR's were edited and debated in a manner such that the final results were created more out of frustration than through an open and deliberative process; this concerns us specifically because the pursuit of data needs activities discussed in TOR 6 will require a strong and healthy industry/science collaboration." The Population Dynamics Branch submitted a memo to the MAFMC *Illex* WG Members and MAFMC Mackerel Squid Butterfish Advisory Panel Members on October 8, 2020, explaining the ToR process and addressing these concerns as the NEFSC saw it. "As one specific example, the terms of reference did not explicitly list availability as a variable to be considered. However, we expect the *Illex* Research Track Working Group to consider availability and environmental influences on availability as part of the evaluation of abundance and biomass indices in TOR#2 and as part of the consideration of environmental factors for possible integration into the eventual assessment model in ToR#4."

In short, the difficulty in adding that additional ToR frustrated members of the public, primarily industry representatives, who felt that ecosystem considerations were essential and deserved an explicit ToR. The long and somewhat adversarial process regarding this ToR issue contributed to the sense of antipathy with the process and lack of transparency.

Delays

There were many delays throughout the process, which meant that the primary generalized depletion model (GDM) was not run until quite late, and therefore the RTA did not provide much 'breathing room' before review or before managers needed upcoming quota advice. Delays were due to lack of data access, the barrier for one WG affiliate to enter the U.S. due to COVID restrictions (causing the assessment lead to have to conduct portions of this person's work as well as their own stock assessment work), performance issues on specific tasks, debate around the applicability of the Falkland's fishery and lack of effective, constructive collaboration between WG members throughout the process. It should be noted that the WG had to work under

the difficult and unusual conditions of COVID, the stresses the pandemic put on people's personal and professional lives, and distance engagement, all particularly challenging for a contentious fishery. However, a commenter noted that other RTAs were able to proceed remotely with less difficulty.

Workplans, Milestones, and Clear Agendas

Some interviewees expressed frustration that there was not a clear work plan, even in later stages of the process, that there were not milestones set and accountability if/when they were missed, and that agendas lacked clear, specific, timed topics and objectives. Others recalled that work plans, milestones, and agendas were clear at the outset, but became diluted as some working group members vied for oversight and management, creating an atmosphere of "too many cooks in the kitchen." Some interviewees reflected delays in getting work of various kinds done and the challenges of operating remotely via webinars. At least as some remembered it, the process seemed amorphous, with limited expectations setting at the outset or later around how the group would be moving from beginning to end.

Composition of the Working Group (WG) and Group Dynamics

The WG composition contributed to significant challenges, in that some WG members had long and conflicted histories of working with one another in the past. The members of the group were assigned with full knowledge of these difficult past working relationships. The WG Chair and lead scientist were regularly challenged by other members of the WG and by members of the public. This contributed to a tense environment that discouraged participation by some. As a result of sub-optimal group dynamics, a few WG members tended to dominate the discussion, as well as the discord. This resulted in several WG members remaining largely quiet, passive participants throughout the process, which meant that the WG did not reap the full benefit of the multidisciplinary team that was the WG membership.

Some noted that the interest of some individuals in pursuing publishing as an outcome as well as development of technology not directly relevant to the ToRs seemed to potentially take away from the primary focus of the WG. Some stated that some members of the WG repeated and second-guessed other's work with the intended goal of reaching a higher quota for the fishery. Some interviewees noted that they did not believe all members stated facts clearly, accurately, or consistently.

The WG had numerous skilled and able members. However, it was missing certain kinds of expertise shared among multiple members including additional species expertise and more modeling expertise when compared to other WGs. This posed several challenges. Only a smaller subset of the WG could engage deeply in model development and evaluation due to the complexities of stock assessment modeling, especially methods considered in this WG. Because there was only one lead scientist with substantial *Illex* experience, the scientist was often placed in the crosshairs of debate about the features and nature of the species. This in turn led to contentious discussions, lack of trust, and the inability of the group to have expertise be derived from at least a few, rather than one, person.

Difficulty in Collaborating

Due to the challenges above, the group struggled in full WG meetings to accomplish tasks. In turn, individual members formed smaller cohorts to get the work done – this included the oceanographic work, the aging and sampling of *Illex*, the standardization of the CPUE model with economic factors, and the development and advancement of the models and tools under consideration. While these smaller groups were successful in advancing their work, and some of this smaller group work was likely necessary, the "stove piped" approach inhibited fuller collaboration, inhibited more WG members from contributing more meaningfully, and likely led to missed opportunities to collectively advance a better understanding of this complex species. Furthermore, some noted that participant offers to collaborate on some of the smaller working group topics were not always acknowledged or accommodated.

Industry Involvement

Industry interviewees noted that collaborative involvement in previous stock assessments was more productive and lacked the contention of the *Illex* RTA. Perhaps the combination of lack of clear procedures governing public participation in the WG, and an unusually high degree of interest on the part of the industry to be involved in the RTA led to excessive contention and difficulty. Public comment rules and expectations were not clearly established; at times, the industry felt shut out or not listened to; and at times, members of the WG felt that the industry exchange was hostile, interrogating, and did not advance the science, but rather sought to protect or advance economic interests.

IV. Recommendations

Group Composition and Management Clarity

The composition of the Working Group is one of the most important factors controlling whether the WG can produce a successful stock assessment product that it accepted by the assessment review panel.

Leadership should more carefully consider the combination of personalities, interests, and skill sets of members when evaluating applicants for positions on the WG. Leadership should make the hard decisions early about who is on a work group and who is not. Leadership should pay close attention not only to individual skill sets, but also to how the WG as a whole entity is likely to function in a group process. Members must possess the requisite technical and process skills to be able to contribute successfully to the RTA, which demands an ability to be collaborative, interdisciplinary, and to work in larger groups with industry engagement.

Where possible, there should be more than one species expert in the WG, to increase the spirit of collaboration and sources of knowledge. For the same reason, there should either be more modelers in the WG than was the case with this RTA, or meaningful pre-WG training, for all WG members to better understand the relevant statistical approaches. There should be enough diversity of skill set so that no one individual is holding too much of the responsibility to

perform work on their own (which was the case with this RTA). Without these pertinent skill sets on the WG, an RTA seems unlikely to be successful, regardless of how much generalized scientific knowledge or collaboration exists on the team.

Terms of Reference Development

There should be an opportunity for WG members and the public to comment on and influence ToRs at the earliest stage of the RTA. CBI evaluators recognize and commend that the NEFSC has developed generic ToRs in part to avoid past problems and a Work Group can now petition the NRCC for a change in the ToRs. We, the CBI evaluators, do suggest the RTA include additional ToR development steps. This could be achieved through a multi-stakeholder workshop prior to launching an RTA, where experts and industry are invited to discuss the stock, assessment challenges and opportunities, and either develop or respond to a draft set of ToRs. The NEFSC may then refine and hone the ToRs. After approval, the species-specific ToRs, built from the generic ones, could be posted for a public comment period of two weeks before being finalized and re-approved by the NRCC for use in the RTA. The TORs are or could be reviewed by the species' Advisory Panel prior to moving ahead with both management track and research track assessments, to reduce the potential for conflict and misunderstanding with the industry going forward

Streamline Data Clearance and Access

After applicants have been selected for WG, all prospective WG members should be placed through a streamlined clearance process to enable all members to access all potentially relevant data during the RTA. This clearance process should take place before the first meeting of the WG. We, the CBI evaluators, recognize the importance of protecting confidential data as required by law and to the protection of individual businesses and boats. At the same time, without access to relevant fisheries' independent and dependent data, a WG cannot successfully accomplish its tasks.

All WG members should have equal access to data throughout the RTA. Ideally, any data that are not accessible directly by all WG members should not be considered or used in the stock assessment. This would enable efficiency, collaboration, and optimal advancement of research. It is important for maintaining transparency and an equal opportunity to participate in the research process for all WG members.

However, we as the CBI evaluators recognize that there are on-going legal hurdles to making data more accessible to non-federal WG members. Preferably once the RTA has commenced, if it is discovered that additional data that was not previously cleared for access is necessary for the RTA, WG members with access should wait to commence work until that additional clearance is granted, find ways to track the work so others can follow it once their access is available, or find ways to work that instills credibility and trust with others without current access to data. For instance, depending on the specificity of data needed, a WG may be able to use NEFSC staff as proxies to undertake some work in a trusted fashion considering these constraints. Because this waiting for access was a major cause for delay during the *Illex* working group process, perhaps

proceeding with data treated for confidentiality for preliminary analysis can keep the process moving while waiting for universal clearance for the more detailed data sets.

This evaluation team is neither expert nor experienced in how government institutions handle data for individual staff's publication and professional advancement needs. However, in addition, the NEFSC should put in place and/or clarify and/or communicate and/or enforce internal protocols that make clear that NEFSC data, however developed, does not belong to any one individual or group of researchers.

Planning, Process, and Communication around Norms and Group Procedures

A clear timeline with milestones along the way should be presented at an initial WG meeting by the WG Chairperson. The timeline will need to be reevaluated over the course of the RTA. However, beginning with the intended goals and sequencing of milestones is crucial for WG members to know what is expected of them, so they can perform to the best of their abilities. While the ToR is the core guiding document of any WG, the ToRs alone are not a process map. The NEFSC should develop means and tools to help Chairs and WG members map those ToRs onto process plans and meeting agendas.

If original research is an objective of the RTA, the timeline must consider the requisite time required to accomplish those elements of the work. Because original research can be unpredictable, care should be taken in tying original research to RTAs. In other words, the RTA operational period should consider the length of time required to complete the planned research products. We do note that the *Illex* WG process was unique in that the pandemic created unavoidable time delays in producing the WG research products.

Meeting agendas should be distributed prior to each meeting, and meeting summaries, as mostly occurred with this WG, should be distributed after each meeting in addition to adding to shared files. This is important for WG members who must miss meetings and for concretizing into institutional memory what took place during the previous WG meetings.

Communication norms should be presented to the WG at the outset of the process and enforced. It should be made clear that personal attacks, and disrespectful language and tone will not be tolerated in the WG. This can be achieved by naming undesirable behavior, ending meetings early, and speaking with individuals between meetings. There should be a commitment to shared education and a prioritization of hearing from a diversity of viewpoints. Leadership should support the WG in achieving these norms, including stepping in to adjust course as needed. The first Working Group meeting should involve the Division Chief or other leadership to clearly lay out expectations for all, in both substance and process.

Roles should be clarified early on, so that all WG members are clear on who is the primary decision maker, as well as on how to best deliver input in the process. The roles of both the Chairperson as well as the Assessment Lead must be made clear to WG members from the start. Clarity around roles will enable further collaboration, knowledge sharing, and flexible thinking. How decisions are made in WG's and what happens if agreement is not reached need to be described in more detail in writing and shared with WG members. This should include clarity

around the role played by the WG Chair if there is an impasse (the decider, broker, elevate to leadership, other?), how disagreement should be communicated to other bodies, and what is the obligation of NEFSC staff to reflect the will of the group even if they are uncomfortable with the results in sharing out results.

Work Group Leadership

The WG chair has a difficult and sometimes thankless job of organizing agendas, running meetings, managing group dynamics, project managing to ensure progress is made, undertaking some of the technical work, and helping draft and oversee various reports and final products. The *Illex* Chair was able to help the group reach conclusion through assuming many of these roles as well as drafting the majority of the final report and deserves credit for doing so under difficult circumstances.

We, the CBI evaluators, encourage the NEFSC to think about ways to ensure the Chair can be successful on behalf of the group and have they support they need to be successful. Research Track Assessment workings groups require strong technical, project management, and facilitation skills. NEFSC could include providing additional training for NEFSC staff, developing a particular facilitation skill set within NEFSC staff, or from time to time, if needed, as was done for this effort, bringing in an outside facilitator. It should be noted that we indeed found stock assessment to be a complicated endeavor, so some reasonable measure of stock assessment, fisheries, and modeling is necessary for anyone playing the facilitative role to be effective. We would encourage NEFSC to build internal facilitative capacity first and foremost.

Rules for Industry (or others) Participation

Industry is an essential stakeholder in stock assessments. Not only do they engage with the ocean and the species day-to-day and year-to-year, not only are they potentially directly affected by conclusions drawn from assessments, but industry also collects, reports, and holds enormous amounts of data and information. As an example, industry had provided individual length and size data for many years to the stock assessor and began to provide this information electronically directly into the Science Center recently.

Because RTAs lead ultimately to management decisions through the Management Track Assessments that update RTAs, industry is economically exposed to the implications of the RTA. Therefore, the RTA must balance industry and perhaps other stakeholder involvement with rigorous, independent science. We, the CBI evaluators, suggest that industry should have a meaningful role in helping shape ToRs, providing, and analyzing data, and questioning and debating models, choices, and conclusions. At the same time, if industry wishes to be part of the process, it also bears certain responsibilities: industry representatives should respect the scientific process and the technical skillsets needed to advance assessment and follow the same ground rules as the WG members of listening, engaging in respectful dialogue, and avoiding personal attacks.

Separate Research Track Assessments (RTAs) and Management Track Assessments (MTAs) Sufficiently

For the RTA to achieve its intended goal, there should be sufficient time for brainstorming, experimentation, making mistakes, and returning to the drawing board. Science rarely takes a straight and linear path. Performing under unrealistic time pressure without sufficient resources or data reduces the ability to think creatively and flexibly. Thus, we, the CBI evaluators, encourage the NEFSC to think about further ways to separate out and sequence MTAs from RTAs. Whether that is achieved by deciding that RTA findings cannot be used until the following year, or that the management track and considerations must be separated by at least six months, or by some other means, we do not know, but we encourage the NEFSC and management partners to explore this further.

Recommendations in Summary

To conclude and summarize our key recommendations, please note the below:

1. NEFSC leadership should carefully consider the combination of personalities, interests, and skill sets of members when evaluating applicants for positions on the WG.
2. Where possible, there should be more than one species expert in the WG to increase the spirit of collaboration and sources of knowledge.
3. There should be sufficient modelers on Work Groups to set up, run, debate, and evaluate models given models' inherent complexity.
4. There should be an opportunity for WG members and the public to comment on and influence ToRs at the earliest stage of the RTA.
5. WG members should be put through a streamlined clearance process to enable all members to access all relevant data during the RTA.
6. All WG members should have equal access to data throughout the RTA, whenever possible.
7. NEFSC should put in place or clarify and enforce internal protocols that make clear that NEFSC data, however developed, does not belong to any one individual or group of researchers.

8. A clear timeline with milestones along the way should be presented at any initial WG meeting and be kept up to date and revised as needed for a clear roadmap for the work's beginning, middle, and end.
9. If original research is an objective of the RTA, the timeline must consider the requisite time required to accomplish those elements of that work.
10. Communication norms should be presented to the WG at the outset of the process, supported by leadership, and enforced.
11. Roles should be clarified early on, so that all WG members are clear on who is the primary decision maker, as well as on how to best deliver input in the process.
12. The NEFSC should help ensure that the Chair can be successful on behalf of the group by providing the resources, support, and training needed for success.
13. NEFSC should ensure that the industry has a meaningful role in helping shape ToRs, providing, and analyzing data, and questioning and debating models, choices, and conclusions. At the same time, NEFSC should make clear that the industry also has responsibilities for supporting the scientific and group process in a constructive manner.
14. The NEFSC should think about further ways to separate out and sequence MTAs from RTAs.

Appendix A: Evaluation Interview Questions

1. In what ways has the *Illex* research track assessment advanced our understanding of the species and its abundance and distribution?
2. Please name the three to four biggest challenges or obstacles that the WG faced in completing its tasks?
3. Please comment on the process for developing the Terms of Reference (ToRs)? What did you like about that process? What would you have done differently?
4. Regarding the ToRs, in retrospect, knowing now what you did not know then, what would you adjust or change to those ToRs?
5. How did the process of this research track assessment different from previous stock assessments you have worked on, if any? What worked better? What worked less well?
6. The Research Track is intended to bring in additional and more interdisciplinary expertise into stock assessments:
    a. For *Illex*, what value did this more diverse WG provide?
    b. For *Illex*, what challenges did this more diverse WG create?
7. The research track process is intended to provide some "breathing room" between standard stock assessment and management to explore new methods, approaches, and tools. In your view for this *Illex* assessment, did the process provide that? If not, why not?
8. The research track is intended to provide more transparency and openness into the art and science of stock assessment. In your view for this *Illex* assessment, did the process provide that? If not, why not?
9. MAFMC and the NEFSC sought to support the process, including, for example, answering questions, seeking to address data releases, and bringing in a facilitator. What else could have they done to better support the process and its participants?
10. Please name the two to three changes (or more) that you would recommend making to similar processes in the future to make them more effective. First, define "effective" then describe those recommended changes.
11. How well were the WG's recommendations communicated to and explained to forums such as the Peer Review and AOP?
12. Anything else we didn't talk about that you want to add?

Appendix B: Interviewees

1. Anna Mercer, NOAA Federal
2. Brooke Lowman, Virginia Marine Resources Commission
3. Carly Bari, GARFO
4. Jason T Didden, MAFMC
5. John Manderson, Consultant, Open Ocean Research
6. Lisa Hendrickson, NOAA Federal
7. Mark Terceiro, NOAA Federal
8. Michele Traver, NOAA Federal
9. Paul Rago, Chairman, MAFMC Scientific and Statistical Committee
10. Rob Vincent MIT Sea Grant
11. Sarah Salois, Postdoctoral Fellow NOAA NEFSC (CINAR Affiliate)
12. Russell Brown, NOAA Federal
13. Katie Almeida, The Town Dock
14. Meghan, Lapp, Sea Freeze, LTD and Seafreeze Shoreside
15. Jeff Kaelin, Lund's Fisheries
16. Greg DiDomenico, Lund's Fisheries