

**CIE REVIEW OF THE ALASKA FISHERIES SCIENCE CENTER ECOSYSTEM STATUS REPORTS (ESRs) FOR THE EASTERN BERING SEA, ALEUTIAN ISLANDS AND GULF OF ALASKA
FEBRUARY 28, MARCH 1-2, 2023**

Terms of Reference (TORs):

- TOR 1 Obj. 1 Should the ESR continue to tailor efforts to inform the ABC and OFLs?
- TOR2 Obj. 1, 2.3 How can the ESRs better meet the needs of the contributing scientists and other knowledge holders?
- TOR3 Obj. 2.1 How can the way the ecosystem science is selected, incorporated, and synthesized in the ESRs be improved?
- TOR4 Obj. 2.2 How can the process of disseminating the information in the ESRs be improved?
- TOR5 Obj. 2.2 How can the ESRs maximize uptake into fisheries management decisions?
- TOR6 Obj. 2.3 What are the costs, benefits, and prioritization of new and/or additional ESR-related products?
- TOR 7 Obj. 2.3 Costs and benefits, priorities (summary conclusions) not included here

Full reports can be found at: (<https://www.st.nmfs.noaa.gov/science-quality-assurance/cie-peer-reviews/cie-review-2023>)

Table 1. Individual Recommendations from CIE Review of ESRs noting Term of Reference (1-7) and Reviewer (R1, R2, R3). The ESR team added the type of recommendation (Content, **Logistics**, **Process**), targets for implementation (target body, onramp, and document), and estimated capacity needed.

#	TOR #	Reviewer	Recommendation	Type: C, L, P	Target body	Target onramp (ECS)	Target document	Capacity needed
1	TOR1	R1	The ESR teams continue to provide this information [presentations and risk tables] to the Council yearly to keep them informed of major trends and new potential issues within the ecosystem	C	Council	TAC	ESR and ppts	current capacity
2	TOR3	R2	While maintaining consistency, it is also reasonable to highlight emerging important or new phenomena that may have a broad impact on the LMEs.	C	All	maxABC for now	ESR	current capacity in ESR team

Table of recommendations from CIE Review of ESRs 2023

#	TOR #	Reviewer	Rec	Type	Target body	Target onramp	Target document	Capacity needed
3	TOR3	R2	I recommend that the ESRs maintain consistency in the indicators and types of information included in ESRs while remaining open to new data and information contributions. This will facilitate the ESRs' role as an evolving ecosystem information space. Consistency in the ESRs is important not only for the reports themselves but also for the management considerations that rely on the information presented. Some indicators or data can be placed on a website as appendices. This will ensure that interested parties can always access the information they need.	C	Stakeholders	?	ESR	current capacity in ESR team
4	TOR4	R1	Recommended that the ESR teams explore tools and visualizations that could help inform the single-species assessment process, attend these meetings if possible, and work collaboratively with the single-species stock assessment staff.	C	Stock Assessment authors	maxABC	Risk Table	extra capacity to aid development
5	TOR4	R2	The review panel encourages adding diet or food-web analysis, which may be added as appendices if not immediately used for management purposes. Such information should facilitate multi-species modelling with different complexities over time.	C	AFSC	maxABC	Risk Tables and ESRs	current capacity or extra capacity to advance this
6	TOR4	R1	Recommended that the ESRs explore their online presence to better organize, develop new tools, and provide more focus for disseminating information.	C	All		ESR	support AKFIN or equivalent
7	TOR2	R3	Generate ecosystem information for strategic advice to the Council.	C	Council	TAC	ESR or new	need collaboration within NOAA or extra capacity to develop
8	TOR3	R1	Recommended that the ESR teams explore more quantified ecosystem models (including MICE) as a tool to provide a synthesis of information across trophic systems and physical hierarchies.	C	All	All	ESR	need collaboration within NOAA or extra capacity to develop

Table of recommendations from CIE Review of ESRs 2023

#	TOR #	Reviewer	Rec	Type	Target body	Target onramp	Target document	Capacity needed
9	TOR4	R3	Generate stand-alone infographics to visualize ESR results.	C	GPT, SSC, Council	maxABC for now	ESR	comms department
10	TOR1	R3	Create a synthesis of risk tables.	C	GPT, SSC, AFSC	maxABC	Risk Table	current capacity
11	TOR2	R3	Summarize implications of considering ecosystem elements in decision-making.	C	All (and S&T?)	ABC, TAC	New summary doc	can do rapid, qualitative summary; extra capacity for in-depth analyses
12	TOR5	R1	Expands its activities, as resources permit, to supporting the Council/SSC in the allocation of the OY among the groundfish stocks.	C	Council	TAC	ESR or new, ppt	extra capacity for more developed indicators and analyses to inform OY
13	TOR5	R1	That during the process of allocating the OY by groundfish stock, the ESR prepares a short report or presentation on relevant information, to aid the Council in decisions making by making ecosystem information readily available during that process.	C	Council	TAC	ESR or new	current presentations to Council; extra capacity for more developed indicators, analyses to inform OY
14	TOR5	R1	During the process of allocating the OY by groundfish stock, the ESR teams prepare a short report of presentation on relevant information, to aid the Council in decisions making by making ecosystem information readily available during that process (Interpreting OY as TAC or allocation note by ESR team)	C	Council	TAC	ESR and ppts	current (or small changes to) presentations to Council; extra capacity for more developed indicators, analyses to inform OY
15	TOR2	R3	Engage in tailored analyses for the Council.	C	Council	Council motions	new?	greater collab within AFSC; or extra capacity to do specific modeling & analyses
16	TOR3	R3	Classify individual contributions that are necessary from those that are complementary.	C	All	maxABC for now	ESR	current capacity

Table of recommendations from CIE Review of ESRs 2023

#	TOR #	Reviewer	Rec	Type	Target body	Target onramp	Target document	Capacity needed
17	TOR3	R3	A classification between contributions to the ESR by authors that are necessary to achieve the main goals (priority 1) from those that are complementary (priority 2) could allow alleviating the ESR editors' workload. Priority 1 contributions could originate from reliable sources that provide information with a quick turnover. According to the large expertise that NOAA AFSC researchers have in several key topics of the ESR, these contributions could originate primarily from NOAA AFSC researchers and close collaborators.	C	All	maxABC for now	ESR	
18	TOR1	R2	While I believe that the current goals of the ESRs to inform the development of ABC and OFL are appropriate, I recommend that they be broadened over time to include additional considerations of ecosystem modeling development, education, and outreach.	C	AFSC, stakeholders	maxABC	outreach ppts	we are at/overcapacity. either additional funds or increased collaborations within NOAA to support ESR team in these efforts;
19	TOR5	R3	Develop dynamic visualizations of the ESR results.	C	All		ESR	funding a person
20	TOR1	R3	Generate a trend analysis of risk table uptake.	C	GPT, SSC, AFSC	maxABC	Risk Table	current capacity (simplified version) extra capacity for more in depth
21	TOR2	R3	Inform and educate Council on EAFM and EBFM.	C	Council	TAC or Council motions	ESR, ppts	ongoing through our presentations; can add workshops, other products, travel...
22	TOR2	R3	Identify products in the ESR to update annually from those to update every 2-4 years.	C	All	maxABC for now	ESR	current capacity
23	TOR4	R3	Add Earth Observation products (satellite and models) into ESR.	C	GPT, SSC, Council	maxABC for now	ESR	extra capacity to develop
24	TOR4	R3	Add a second figure to the report cards with zoom in the last 5 year information.	C	GPT, SSC, Council		ESR Report Card	current capacity

Table of recommendations from CIE Review of ESRs 2023

#	TOR #	Reviewer	Rec	Type	Target body	Target onramp	Target document	Capacity needed
25	TOR6	R3	Integrate information from the EBFM toolbox in the ESR.	C				
26	TOR1	R3	Automate ESR authors contributions workflow	L	?	maxABC	ESR	contractor/ AKFIN/ coding support
27	TOR2	R1	The ERS teams explore the use of standardized templates that will aid in data gathering/compilation, as well as archiving.	L	AFSC (ESR leads)		ESR	contractor/ AKFIN
28	TOR2	R2	Automating the data and contributors' input is important and can be treated as a short-term priority, which may be done through a team effort across the three ESRs. This effort may require significant resources and time in the short term, but it can provide significant benefits in the long term by freeing up time for the ESR team to focus on other priorities and tasks, such as synthesis and analysis, collaborations with ESP and climate modelling teams and communications with NPFMC and SSC.	L	Contributors	?	All	contractor/ AKFIN/ coding support
29	TOR3	R3	Provide DOIs to ESR documents and data.	L	Contributors and stakeholders	?	ESR	funding needed if there is a cost to DOI (*not sure)
30	TOR2	R3	Create an online platform to give visibility to the ESR contributors.	L	Contributors and users	?	ESR	AKFIN doing this now within their current capacity
31	TOR4	R2	The Briefs, Report Cards, Noteworthy topics, and Risk Tables are informative and effective as outreach material. Further links to video talks or PPT slides to SSC and Council should facilitate better outreach opportunities for the public.	L	Stakeholders		ppts	potential for AKFIN website (ongoing)
32	TOR4	R3	Explore the pros and cons of bringing individual contributions to annex.	L	Contributors		ESR	
33	TOR2	R3	Award tokens of appreciation to all contributors, annually.	L	Contributors	?	ESR	cost of ESR tokens?

Table of recommendations from CIE Review of ESRs 2023

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34	TOR2	R1	The ESR teams explore ways to archive data and analysis generated during the process and serve as a repository for future investigations of both the contribution of scientists and other interested parties with proper acknowledgment.	L	Contributors	?	All	extra capacity / AKFIN/ coding support
35	TOR4	R2	Linking the figures and tables in the ESRs to a data hub or repository would greatly benefit the broader application of ESR and ecosystem-based model development. It would allow for easier access to the data and facilitate collaboration among different teams and enhance transparency and reproducibility.	L	Contributors and stakeholders			assuming agreement from contributors to host data (first step); funding AKFIN to develop this capability
36	TOR2	R3	Promote local community engagement through annual or bi-annual ESR events.	L	Stakeholders	All	All	organizing, travel, reimbursements
37	TOR7	R1	That the AFSC re-examines the organization of REEM to better structure it to fulfill its priorities, the priorities of the Council, and to facilitate the sharing of resources to accomplish goals.	L				current capacity
38	TOR1	R1	ESR team members be involved in the assessment process at key stages, potentially being members of the assessment team, to facilitate the uptake of contextual ecosystem information into stock assessments.	P	GPT, AFSC	maxABC	Risk Table	current capacity (risk table, post-PEEC discussion); extra capacity for analysis of ecosystem/stock relationships
39	TOR3	R3	Synthesize ESR involving a group of experts.	P	All	maxABC for now	ESR	current capacity with collaborators
40	TOR3	R3	Allocate necessary individual contributions for the ESR to easy to access experts (e.g. experts at NOAA AFSC).	P	AFSC	maxABC (for now)	ESR	
41	TOR6	R3	Inform stock assessment authors to calculate Maximum ABC.	P				current risk table; or extra capacity to research how to integrate eco information into stock assessment models

Table of recommendations from CIE Review of ESRs 2023

#	TOR #	Reviewer	Rec	Type	Target body	Target onramp	Target document	Capacity needed
42	TOR2	R1	Regular meetings, every three to four years, with invited (and reimbursed) traditional knowledge holders and scientists be explored.	P	Stakeholders	ABC, TAC	All	travel, reimbursement (attendees); maybe extra support for ESR team to organize
43	TOR3	R1	Recommended that an internal vetting process be explored to examine what each report's data needs are, and which of the submitted data/analysis would best fit into that year's report.	P	Contributors	maxABC for now	ESR	current capacity within AFSC
44	TOR6	R2	Extra staff support seems needed to broaden the goals and functions of ESRs. It would ensure the ESR team has the necessary resources to undertake these tasks effectively.	P				
45	TOR1	R1	Recommended that periodically, perhaps every three to four years, the ESR teams produce a list of advice given by stock, the risk scores associated, and if the ABC was reduced from the maxABC.	P	GPT, SSC, AFSC	maxABC	Risk Table	current capacity
46	TOR5	R1	Recommended that a standing sub-committee of the SSC be explored to help funnel ESR (and other) ecosystem products during fishery management decisions as well as provide some oversight of the ESR and ESP processes.	P	SSC	maxABC	ESR	
47	TOR5	R3	Create alliances with institutions outside the research context (e.g. art).	P			new?	funding a person