

Draft SSC Report October 2018



**C5 Bering Sea FEP
C6 BSAI Halibut ABM
B1 SSPT Nominations
B1 SSC Subcommittee on AFSC Surveys**

BERING SEA ECOSYSTEM



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October 2018**

C5 Bering Sea Fishery Ecosystem Plan

walrus humans

Coast Guard Cutter Healy

crab boat

murre

NOAA R/V Oscar Dyson fish assessment

ice algae

copepod

phytoplankton

micro-zooplankton

zooplankton

capelin

fur seals

cod

ichthyoplankton

phytoplankton

pollock

murre

bivalves

flounder

snow crabs

arrowtooth flounder

snow crabs

bivalves

gastropods

Overview of the BS FEP

- The FEP intends to formalize the Council's ecosystem approach to fisheries management, as well as to function as a living, strategic document that can provide measurable improvements to fishery management in the Bering Sea by building upon current Council processes and partnerships.
- The Core FEP (Section 3) details goals and specific objectives for the Council's management of the Bering Sea and provides a framework for the initiation and execution of specific Action Modules. Public involvement, particularly the use of traditional and local knowledge, is forefront in the goals and objectives of the FEP, and also in the Action Modules themselves, with a requirement for a public involvement plan. Five initial Action Modules are presented, and draft working plans for their continued development are included in an appendix.

First, the kudos...

- **The SSC strongly reiterates its support for development of the Bering Sea FEP.** The SSC appreciates the great deal of thought and effort by the FEP team, as well as public contributions to the effort.
- The SSC commends the team for attempting to move beyond a relatively static, reference document to a document that provides functionality that acknowledges that EBFM is an ongoing process.
- The document does an excellent job of advancing consideration of local knowledge (LK) and traditional knowledge (TK) in the Council process, not only by including it formally as an action module, but also by reiterating throughout the document how important the inclusion of these forms of knowledge are to the continued implementation of EBFM in the Bering Sea ecosystem.

However, SSC has concerns...

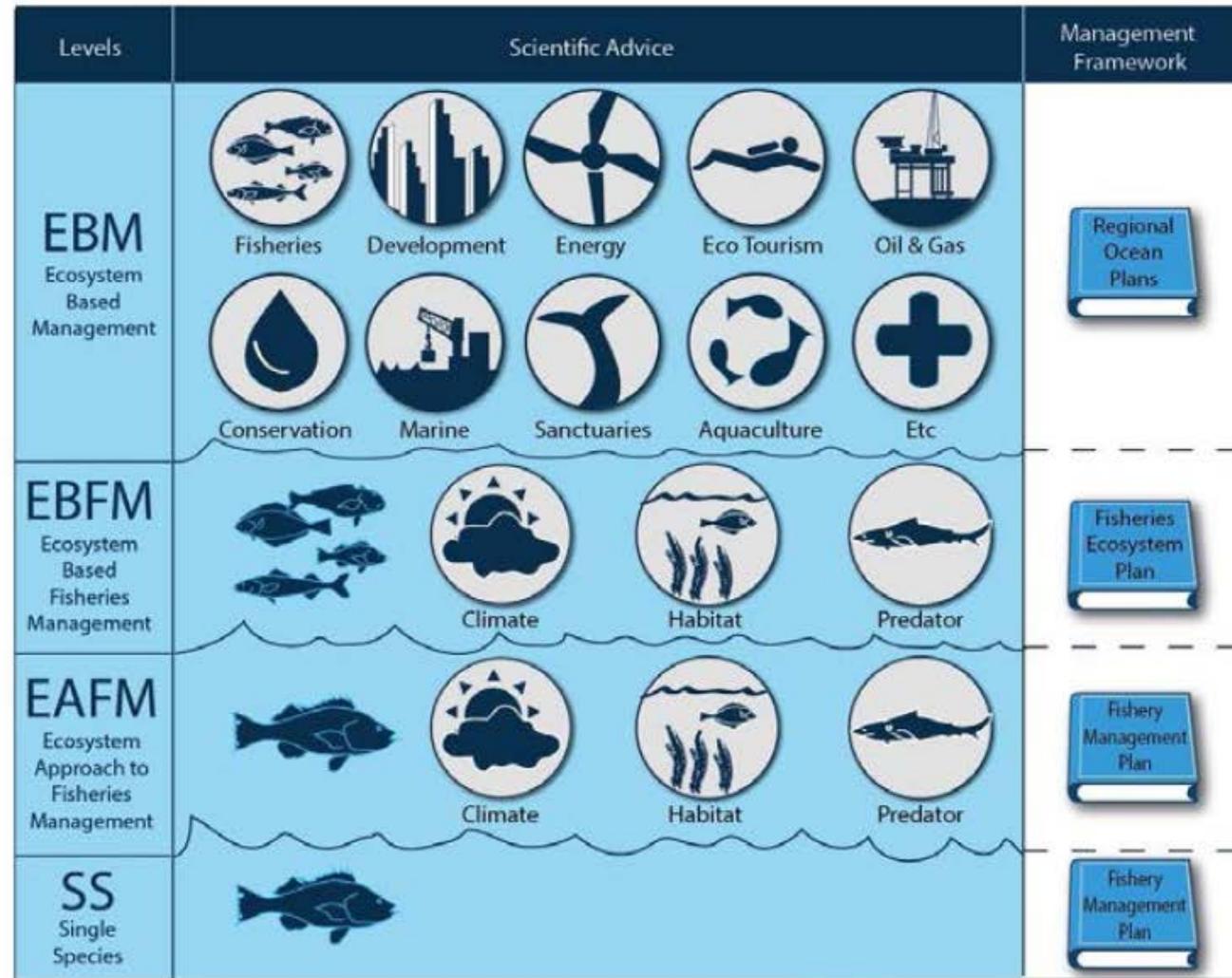
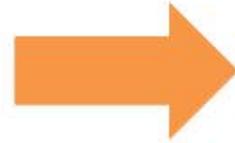
- The primary issue is the scope of the purported impact of the FEP and the unclear role of the FEP team within the existing NPFMC process.
 - The inability to reconcile whether the FEP would be working on tactical, short-term questions or tackling strategic, long-term synthesis is a key issue.
 - Although the document states multiple times that the FEP is designed to build on existing processes, many of the FEP components seem to duplicate effort in other management processes already undertaken by Council. One example is the process to develop and rank Research Priorities.
- ➔ **Duplication of effort should be avoided.**

However, SSC has concerns...

- The FEP should not duplicate the research underpinning the Ecosystem Status Reports (ESRs) and the Socioeconomic Profiles (ESPs), which are making clear progress in continuing to integrate ecosystem knowledge into the management process.
- Upon reading the working plans, there seems to be a great deal of redundancy with existing processes and effort.

Figure 4 The spectrum of ecosystem-based fisheries management

The FEP operates at this level



- The NPFMC already has a process to implement EAFM; the FEP should conduct synthesis/cross-cutting issues to help implement EBFM

SSC Recommendations

- **Set in the broader context of the NPFMC management process, the SSC suggests that the FEP team should be more strategic and long-term, proactively addressing gaps in management and knowledge, rather than overlapping with existing processes.**
- **The SSC recommends that the action modules of the FEP focus on strategic issues, such as cross-FMP fishing impact assessments, evaluations of trade-offs in current and alternative management strategies, and the identification of proactive actions that could be taken to avoid irreparable harm.**
- **A review of the FEP objectives is warranted to accomplish this; additional guidance and feedback from the Ecosystem Committee and the Council would be beneficial.**

SSC Recommendations

- It is important to avoid a disconnect between the FEP team and the SSPT to avoid redundancy of effort. **The SSC believes it is important for the FEP team to collaborate with the SSPT on human dimensions-related research;**
- **Further, the SSC recommends shared membership between the FEP team and the Groundfish, Scallop, and Crab Plan Teams to partition strategic and tactical issues thereby minimizing the overlap in the activities of these advisory bodies.**
- The primary utility of the FEP, as perceived by the SSC, is in the Action Modules; **the SSC requests an opportunity to review the research design and analytical methods that would be applied in these Action Modules.**

SSC Recommendations

- Finally, recognizing the fact that the Bering Sea ecosystem does not exist in isolation from the Aleutian Islands, Gulf of Alaska and communities in the Pacific Northwest, **the SSC suggests that the team resulting from this FEP undertake a broader geographic focus beyond the Bering Sea and become a North Pacific Fishery Ecosystem Plan Team.**
- **The SSC had many other comments and suggestions for improvement:**
 - NPFMC's management approach already incorporates elements of ecosystem-based fisheries management (Ch. 7); this section needs to be referenced in Chapter 2 to describe more accurately the baseline for EBFM implementation in the Bering Sea

Figures need to be carefully reviewed

- In a number of instances, the figures do not reconcile with information provided in the text
- The SSC agrees that workshops to review ecosystem information are needed; **we do not agree that this activity should be tasked to the FEP team.** Since the goals of the workshop will primarily address tactical issues (ecosystem conditions in a given year), the SSC recommends that they are led by a broader group and not limited to the FEP team. (Fig. 3-3 and 3-5)
- **The FEP focus on providing real-time data for stock assessments should be dropped. (Fig. 3-5).** The FEP should not duplicate existing information streams that already support EAFM. The ESR already provides timely delivery of ecosystem information to the Plan Teams and authors. This is fundamental to the developing ESP process.

Figures need to be carefully reviewed

- **The SSC recommends dropping Fig. 3-7.** It suggests that the FEP will tackle issues pertinent to every element of Council activities. However, the NPFMC's management system is working well already (Ch. 7). The FEP should supplement the existing EAFM approach by providing cross-FMP research products that inform strategic decision making, as well as informing the medium to long-term implications of current harvest strategies.
- **The map of communities, and associated discussion, should be revised** to illustrate that Bering Sea human networks can be usefully mapped in different ways (e.g., CDQ areas for fisheries engagement; ANCSA regions of cultural, sociopolitical, and economic cohesion; or ADF&G subsistence regions). (Fig. 6-8)

Other SSC Recommendations

- The SSC does not understand why there is an Action Module to develop conceptual models of the EBS. The EBS ecosystem is well-studied and information-rich. Knowledge of ecosystem linkages is very high, and a number of quantitative models have been developed. Others are under construction and testing. Currently, assessment authors are being asked to incorporate ecosystem considerations into their assessments through mechanistic linkages.
- **If a conceptual modeling Action Module goes forward, the SSC suggests that this Action Module should be refocused on “ecosystem components” (grenadiers, squid, forage fish) that are not well understood.**

Other SSC Recommendations

- **There is also a need to align the FEP team activities with those of groundfish, scallop, and crab PTs with respect to fishing impacts on habitat.** Regulatory requirements for EFH review focus on maintaining habitat necessary to sustain fisheries for specific species (a task best addressed by the Plan Teams). However, assessment of the overall effect of fishing on habitats (e.g., living marine structure, benthic epifauna, benthic infauna) is a synthesis activity that could be considered by the FEP.
- Quantitative indicators of reliance and engagement referenced in the FEP may have limited utility in small, rural, and/or Indigenous Alaska communities. **The FEP team should coordinate with the SSPT on the development and application social indicators.**

In Conclusion...

- **Given these major concerns, the SSC does not recommend releasing this initial draft for public review at this time**
- **The SSC has many suggestions for improvement and requests an opportunity for additional initial review of the BS FEP in February 2019**

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C6 BSAI Halibut Abundance-based Management



SSC Task

- The SSC appreciates the large amount of work that has gone into developing this analysis: workshop, many iterations of discussion papers, and the draft preliminary review in the current document.
- The SSC was tasked with reviewing and refining draft Alternatives for an initial review draft EIS/RIR that is to be completed in October 2019 (Figure A-1). The review draft provided:
 - Overview of the Alternatives and options considered
 - Description of the simulation model, and
 - Overview of migration and recruitment issues, and fishery descriptions.

Current Status

- The preliminary analysis did not provide adequate information from which to refine the alternatives beyond workgroup recommendations.
- The workgroup suggested revisions were based on technical changes to control rules, and not based on relevancy to the Council objectives and Purpose and Need statement.
- Since the first discussion paper in 2016, the workgroup has spent considerable time developing control rules and focusing on index development. These are all critical elements in the PSC evaluation, and the workgroup has provided details of these elements (with SSC input) throughout the process.

Simulation Model

- However, development of the simulation model (a focus of this draft) has lagged behind these other critical elements, and there has been limited opportunity for SSC review of the simulation model.
- A simulation model is central to the ABM analysis. Tradeoffs are evaluated by using the model to make predictions about the impacts of the Alternatives on performance metrics that are related to the objectives.
- The preliminary draft document describes a two-area simulation model, with a good overview of the sensitivities to both recruitment and migration assumptions.

Additional Work Needed on Simulation

- Nevertheless, substantial development work is still required before the model can be used to assess PSC scenarios:
 - Integrating movement rates by age class
 - Characterizing uncertainty associated with movement rates
 - Parametrizing area-specific recruitment and uncertainty, and
 - Evaluating size-at-age and natural mortality assumptions.
- Additionally, the modelling team should consider explicitly separating the probability of capture from the probability of retaining an individual of a given age/size by gear and fishery.
- The draft document did not provide details on how these issues would be handled.

Timeline and Need to Align Alternatives

- Proper handling of the model assumptions and further development of the model is a substantial technical effort and will take time to develop.
- **The SSC is concerned that the October 2019 initial review schedule is too ambitious given the need for development of the two-area model, specification of economic and community models and performance measures, and other analytical needs**
- Current alternatives cover a range of control rule scenarios; however, what is missing is context required to consider how Alternatives align with the Council's Purpose and Need Statement and Objectives.

Purpose and Need; Directed Fishery

- The SSC appreciates the retrospective look at the ABM alternatives using previous fishing years but this exercise is of limited value for comparing alternatives owing to lack of feedback between years
- **The SSC recommends the next iteration of the analysis put results directly in context with the Purpose and Need statement and Objectives, and provide a description of limitations and assumptions associated with the model, as appropriate**
- The SSC appreciates the fishery descriptions as an important starting point for the economic analysis
- **However, the SSC notes that the directed halibut fishery is not yet reflected in the analysis and must be included based on the Purpose and Need statement.**

Fleet Impact Work Plan

- Concerning the fleet impact work plan: The SSC's June 2018 minutes indicated *“The other components of the proposed plan for the October 2018 meeting should proceed as outlined in the discussion paper; moving forward with the initial components of an EIS and social impact assessment will likely result in additional ideas of what be needed in the refinement of the outputs of the modeling effort.”*
- This version does not provide sufficient progress on the EIS and social impact assessment components to allow for further refinement of the methods and outcome measures for the SSC to provide guidance.

Economic Analysis

- **The SSC recommends the analysts articulate how the economic analysis will be developed from narrative information provided.**
 - This should include a plan for how subfleets will be identified for analysis, and how changes in fleet behavior be mapped into social and community impacts.
 - The plan should identify outcome measures that will be modeled to facilitate comparison among ABM alternatives, including average outcomes and interannual variance in outcomes. These choices will be particularly important to understanding potential distributional effects of ABM.
- **The SSC again requests to review a work plan that includes details on these important elements of the analysis prior to an initial review draft.**

View of Current Alternatives

- The SSC interprets the currently specified set of alternatives as bookend scenarios intended to provide guidance to the modelers as they develop the simulation tool needed to understand which features of the control rules affect biological, economic or social outcomes.
- This information will inform further refinement of the alternative set at initial review (given current schedule), and the potential for substantial revisions to alternatives should not be ruled out.
- **The SSC recommends focusing effort on developing the analytical tool and demonstrating that ABM is capable of meeting its objectives under any control rule, rather than further narrowing the policy parameter space without additional information.**

Revision of Alternatives

- **The SSC supports the following revisions to the Alternatives:**
 - **Combining Alternatives 3 and 4:** the appendix shows how these alternatives are equivalent given a slope= 1. The SSC supports combining these Alternatives under the slope=1 scenario;
 - **Adding Alternative 6:** the workgroup recommended adding this alternative given it provides for a smoothed control rule when indices are above and below minimums, which is currently not the situation for Alternatives 3 and 4.
 - **Moving Element 1:** This is not a requirement for formulating the control rule, and is a simplification of the current Alternative set.

Additional SSC Model Recommendations

- Include the most up to date information on movement at-age in the simulation model (as staff presented)
- Integrate movement rates by age class
- Characterize uncertainty associated with movement rates
- Parametrize area-specific recruitment and uncertainty
- Evaluate size-at-age and natural mortality assumptions; a 2-5 year old halibut captured as bycatch is as large as many other small flatfish in the Bering Sea. Thus, natural mortality may not be substantially higher at younger ages than mortality rates for other flatfish species
- Consider explicitly separating the probability of capture from the probability of retention of an individual of a given age/size by gear and fishery

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B1 SSPT Plan Team Nominations

B1 Nominations to the Social Science Plan Team (SSPT)

- In June 2018, the Council released call for nominations for additional membership on the Social Science Planning Team (SSPT) to add expertise in Local and Traditional Knowledge and those who work directly with rural and Alaska Native coastal villages and/or tribal organizations in the fields of anthropology, human geography, and sociology. Seven nominations were received.
- The SSC sought to identify candidates:
 - whose affiliations allow independence
 - who had experience and a broad understanding of social systems and issues throughout the North Pacific region, and
 - who had experience with the marine fisheries under federal jurisdiction.

B1 SSC Review of SSPT Nominations

- The SSC examined nominees' record of:
 - advancing the frontiers of their field, and
 - experience applying qualitative or local and traditional knowledge within regulatory processes.
- This experience is critical for the nominee to support the SSPT in providing guidance to the SSC and the Council on which questions arising from federal fisheries policy can have their analysis improved by inclusion of qualitative data or local and traditional knowledge.
- For this task, the SSC finds two nominees qualified for participation:
 - (1) Dr. Courtney Carothers, Associate Professor with UAF/CFOS, and
 - (2) Dr. Davin Holen, a Coastal Community Resilience Specialist, Alaska Sea Grant, UAF.

B1 SSPT: A Look Ahead

- As key research areas for the application of LTK and data required to address them are better identified, it may be desirable to strengthen the connection with ADF&G's Division of Subsistence.
- Establishing a future seat on the SSPT for an ADF&G Subsistence representative is one way to coordinate federal priorities with that division's capacity and extensive experience with people and communities throughout Alaska.

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B1 SSC Subcommittee on AFSC Surveys

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- At the June 2018 meeting, the SSC received a report from AFSC Deputy Director, Mr. Jeremy Rusin, about funding concerns that could lead to only three vessels for groundfish surveys in 2018 rather than the standard five vessels.
- Mr. Rusin requested the assistance of the SSC to help the AFSC explore and prioritize alternatives for survey deployment based on NPFMC needs in FY19 and FY20.
- The SSC nominated a Subcommittee, chaired by Gordon Kruse.
- The SSC Subcommittee met with AFSC staff at the AFSC facility at Sand Point, WA, on September 10th.
- The SSC Subcommittee provided a written report (see B reports).

B1 SSC Subcommittee on AFSC Surveys

- The meeting opened with a general discussion of the value of trawl surveys. **SSC Subcommittee members reiterated that these surveys have been identified in the Council's research priorities as Critical Ongoing Monitoring, and, as such, are considered to be the highest priority level for the NPFMC.**
- Mr. Rusin provided an update on the funding outlook for FY19, which improved since June.
 - Unspent slope survey funds will be carried to FY19
 - Sand Point facility costs will remain stable in FY19
 - Job vacancies and other minor cost savings were realized
 - \$700K of temporary funding from the Office of Science and Technology was provided to AFSC

B1 SSC Subcommittee on AFSC Surveys

- These factors combined to mean that the AFSC will almost certainly be able to afford four survey vessels in FY19.
- Under a one-year ahead funding strategy, funding a fifth vessel in FY19 could compromise the ability to fund a fourth vessel in FY20.
- **Members of the SSC sub-committee indicated that a minimum of four vessels is critical, and that dramatically impacting FY20 to maximize vessels in FY19 is not advisable**
- **Sub-committee members noted that fully funding five vessels in is status quo; we need more sampling is needed rather than less**
- **Reduced surveys can affect Council management: catch specifications (tier levels) and PSC, etc. Surveys provide much additional information (biology, life history, etc.)**

B1 SSC Subcommittee on AFSC Surveys

- Stan Kotwicki noted several new research projects that could provide helpful information about survey decisions. This studies will:
 1. Derive model-based estimates of abundance for key species using subsets of existing data, essentially mimicking reductions in survey frequency;
 2. Statistically evaluate thinning of samples on a systematic basis; and
 3. Develop spatial temporal models (e.g., VAST).
- Until results from such studies are available, we lack the ability to objectively defend why a specific level of survey frequency and sampling density is needed. **The SSC sub-committee strongly recommends maintaining current levels of survey effort until the analyses are completed.**

5 Questions Posed to Subcommittee

- Question 1: *What are the ranked order of priorities for our present suite of bottom trawl surveys: the eastern Bering Sea shelf, eastern Bering Sea slope, northern Bering Sea shelf, Gulf of Alaska, and Aleutian Islands?*
- Response: **The sub-committee suggested the following priority list: 1) eastern Bering Sea shelf; 2) Gulf of Alaska; 3) Aleutian Islands; 4) northern Bering Sea; and 5) Bering Sea slope.** The rationale for this priority list was based on economic importance, community dependence, and connections of important stocks between the southern and northern Bering Sea.

5 Questions Posed to Subcommittee

- Question 2: *If the Center has four, rather than five charter vessels on contract in FY19, we propose to put two vessels on the eastern Bering Sea shelf and two in the Gulf of Alaska. If additional funds are available, then these will be used to support a northern Bering Sea survey. Do you agree?*
- Response: **For all of the reasons noted in Question 1, the SSC sub-committee agrees with the plan put forward by the AFSC.** If sufficient resources are available, the sub-committee recommends conducting as complete a survey as possible in the northern Bering Sea.

5 Questions Posed to Subcommittee

- Question 3: *Given the answer to Question #2, which surveys should we prioritize for FY20 under a four-boat scenario?*
- Response: **The SSC sub-committee was reluctant to answer this question until more information on the consequences of changing survey frequency or decreasing sample density in time or space became available.** Ongoing analytical projects should provide information necessary to make more informed decisions about how altering the present design of surveys might affect stock assessments, and thus waiting for their results seems prudent. The sub-committee also additionally noted the fluidity of the funding situation between now and 2020.

5 Questions Posed to Subcommittee

- Question 4: *If the Center is only able to fund 3 charter vessels in FY19, which survey(s) should we attempt?*
- Response: **The sub-committee was glad to hear that four vessels are likely to be available in FY19 so that an answer to this question may not be necessary.** However, if three vessels became the reality, the subcommittee very reluctantly supported the option of surveying the Gulf of Alaska with two boats and the Bering Sea slope with one boat under this hypothetical scenario. The sub-committee felt that the survey of the Gulf of Alaska may be the greater priority given the recent survey of the eastern Bering Sea in 2018.

Additional Related Items

- The subcommittee recommends a presentation at the Council meeting in February 2019 on progress of the three research projects outlined by Stan Kotwicki
- The subcommittee also encourages the AFSC to investigate the implications of survey reduction using an MSE-based approach.
- **At this Council meeting, the full SSC endorsed the report prepared by the SSC Subcommittee**
- **The full SSC reemphasizes that surveys are a very high priority currently designated as Critical Ongoing Monitoring, and reiterates that securing funding for a full complement of five vessels to conduct annual bottom trawl surveys is fundamental to successful fisheries management in the North Pacific**

SSC Discussion at Meeting Conclusion

- The SSC had a discussion on its workload during Council meetings
- Often reports are received <2 weeks before the meeting
- Number of SSC agenda items often too many to address
- Possibility to spread out items across meetings? October and December meetings are packed
- Need for longer SSC meetings?
 - Start on Sunday afternoon? Staffing? Public participation?
 - Extend to Thursday? – Creates more overlap with Council
 - Council to start on Thursday?
- Discussion about preparation of SSC report