

## Stock structure and spatial management policy

Grant Thompson

Resource Ecology and Fisheries Management Division  
Alaska Fisheries Science Center  
National Marine Fisheries Service  
National Oceanic and Atmospheric Administration  
7600 Sand Point Way NE., Seattle, WA 98115-6349

(See appendix for excerpts from relevant Team and SSC minutes.)

### Part 1: identifying levels of “concern”

It is not completely clear that a standard scale of “concern” has been established with respect to stock structure or spatial management issues.

The BSAI Team identified a scale consisting of *monitor*, *alert*, and (eponymously) *concern* at its September 2013 meeting, but these were developed in the context of “awaiting future guidance on the Council’s future spatial management policy.”

The policy adopted by the Council at its October 2013 meeting did not address the above (or any other) scale of “concern.” The policy is shown below:

1. As soon as preliminary scientific information indicates that further stock structure separation or other spatial management measures may be considered, the stock assessment authors, plan teams (groundfish, crab, scallop), and SSC should advise the Council of their findings and any associated conservation concerns.
2. With input from the agency, the public, and its advisory bodies, the Council (and NMFS) should identify the economic and management implications and potential options for management response to these findings and identify the suite of tools that could be used to achieve conservation and management goals. In the case of crab and scallop management, ADF&G needs to be part of this process.
3. To the extent practicable, further refinement of stock structure or other spatial conservation concerns and potential management responses should be discussed through the process described in recommendations 1 and 2 above.
4. Based on the best information available provided through this process, the SSC should continue to recommend OFLs and ABCs that prevent overfishing of stocks.

At their November 2013 meeting, the Joint Teams discussed, but stopped short of adopting, the following scale (with the understanding that all actions described here would be contingent on SSC concurrence):

- a. Little or no concern, in which case no action needs to be taken
- b. Moderate concern, in which case special monitoring (e.g., frequent updating of the template) is required at a minimum and Steps 2 and 3 of the Council's process may be activated
- c. Strong concern, in which case Steps 2 and 3 of the Council’s process must be activated
- d. “Emergency,” in which case the Team will recommend separate harvest specifications at the ABC level, the OFL level, or both, for the next season (straight to Step 4 of the Council policy)

Although the Joint Teams had not adopted the above scale, the BSAI Team implicitly did so during the same meeting in its discussion of blackspotted/rougheye rockfish, referencing the Joint Team discussion in the process. The SSC accepted the BSAI Team’s designation of “strong concern” for the WAI component of this stock complex.

In September of this year, the BSAI Team reverted to the monitor/alert/concern scale it had adopted as an interim measure in September 2013. The SSC attributed this action to both the BSAI and GOA Teams, and requested that the Teams, at their November 2014 meeting, use this scale to assign levels of concern to all stocks for which a stock structure template has been completed and a level of concern has not previously been specified (Table 1).

Some possible actions for the Teams at this time include the various possible combinations of the following two factors:

Factor 1:

1. Use the monitor/alert/concern scale
2. Use the little/moderate/strong/emergency scale

Factor 2:

1. Fill in the blanks in Table 1 at this meeting
2. Fill in the blanks in Table 1 at the September 2015 meeting

## **Part 2: remaining issues**

All but the first item in the following list of issues have been raised previously by the Teams:

- Does the Council's policy apply only to spatial structure, or does it also apply to stock structure? For example, does it apply to the process of splitting a stock out from a complex, or only to spatial management of the complex?
- Need for specific guidance on the role of the Teams.
- Need for a proactive default policy that covers both of the following cases: 1) data are insufficient to determine whether a biological concern exists, and 2) sufficient data exist to make such a determination but time or other resource constraints are anticipated to prevent those data from being analyzed for several years.
- Clarification of whether the current inconsistencies in spatial management between the two FMP areas that were summarized by the Stock Structure Working Group should be further examined or revised (and to whom such a charge would be assigned).
- How much time is allowed for acceptance (by the Council or SSC) of an industry response to a management concern?
- What is the relationship between evidence of stock structure and degree of concern? Two possibilities have been discussed: 1) degree of concern is synonymous with strength of evidence of stock structure, and 2) degree of concern is a function of both the strength of evidence of stock structure and the extent to which the fishery is impacting that structure.

Table 1—Stocks to which the template (or its equivalent) have been applied. Gray cells indicate stocks for which levels of concern have not yet been specified. BSAI blackspotted/rougheye rockfish were given “concern” status in September 2013, “strong concern” status in November 2013, and “concern” status in September 2014. Thank you to Dana Hanselman for compiling the list of stocks.

FMP	Chapter	Stock	Author	Level
BSAI	1A	AI pollock	Barbeaux	monitor
BSAI	2	BS Pacific cod	Thompson	
BSAI	4	Yellowfin sole	Wilderbuer	
BSAI	6	Arrowtooth flounder	Spies	monitor
BSAI	13	Northern rockfish	Spencer	
BSAI	14	Blackspotted/rougheye rockfish	Spencer	(strong) concern
BSAI	15	Shorthead rockfish	Spencer	alert
BSAI	16	Other rockfish	Spies	alert
BSAI	17	Atka mackerel	Lowe	
BSAI	18	Skates	Ormseth	
BSAI	21	Sharks	Tribuzio	
GOA	1	Pollock	Dorn	
GOA	7	Arrowtooth flounder	Spies	
GOA	9	Pacific ocean perch	Hanselman	
GOA	12	Dusky rockfish	Lunsford	
GOA	13	Rougheye/blackspotted rockfish	Shotwell	
GOA	17	Atka mackerel	Lowe	
GOA	18	Skates	Ormseth	
GOA	20	Sharks	Tribuzio	

## **Appendix: excerpts from relevant minutes**

*From the minutes of the 9/13 Joint Team meeting (“Spatial management”):*

“The Teams recommend that the Council consider the following in developing new policy and process for determining spatial management of stocks/assemblages.

- Provide specific guidance on the role of the Teams;
- Develop a proactive default policy that covers both of the following cases: 1) data are insufficient to determine whether a biological concern exists, and 2) sufficient data exist to make such a determination but time or other resource constraints are anticipated to prevent those data from being analyzed for several years;
- Clarify whether the current inconsistencies in spatial management between the two FMP areas that were summarized by the Stock Structure Working Group should be further examined or revised (and to whom such a charge would be assigned);
- Two potential pathways for the role of the Teams in the Council’s future policy:
  1. One approach would have the Plan Team(s) alert the Council when either Team or both Teams identify a biological concern about a stock/assemblage; it then would await direction from the Council on next steps (i.e., the default policy would be triggered or specific direction to the Teams by the Council would be provided.
  2. Another approach would have the Team(s) consider economic and management issues when it identifies a biological concern for a particular stock/assemblage:
    - a) By adding new members with in-season management and economic expertise to the stock structure working group (and possibly renaming the working group) so that biology, economics, and management implications are included in the determination of whether the Team(s) have a concern regarding status quo management of a stock/assemblage; or
    - b) The Team(s) would discuss the biological, economic, and management implications at the full Plan Team meeting. If stock assessment authors identify biological concerns in their application of the stock structure template to their stock/assemblage, then they would initiate a request for economic and in-season management effects when determining whether to raise concerns for a stock/assemblage.”

*From the minutes of the 9/13 BSAI Team meeting (“Spatial management case studies”):*

“The Team reviewed application of the stock structure template to three BSAI groundfish stocks: shortraker rockfish, Aleutian Islands pollock, and the blackspotted/rougheye rockfish assemblage. The Team referenced its earlier discussion with the GOA Plan Team (see joint Team minutes) to guide its reviews. The Team identified issues regarding stock structure, and raised concerns where appropriate, while awaiting future guidance on the Council’s future spatial management policy. The following stocks provide good examples for Council consideration of the range of cases to which the future policy and process would need to apply: 1) *monitor* (no concern at this time due to other fishery constraints): AI pollock; 2) *alert*: shortraker rockfish; and 3) *concern*: blackspotted/rougheye rockfishes. Under the status quo process for spatial management, the BSAI Team may have recommended subarea splits for the latter assemblage; but, due to the pending development of new Council policy for spatial management of all stocks, the Team only recorded its evaluations of stock structure and its concerns regarding status quo management. The Team awaits policy guidance, but notes the need for clear direction on how to proceed, including cases for which limitations on data or other resources do not permit determination of concern (or lack thereof).”

*From the minutes of the 11/13 Joint Team meeting (“Stock structure and spatial management policy”):*

“Grant Thompson relayed the Council’s October 2013 policy on stock structure and spatial management of North Pacific stocks and stock complexes:

1. As soon as preliminary scientific information indicates that further stock structure separation or other spatial management measures may be considered, the stock assessment authors, plan teams (groundfish, crab, scallop), and SSC should advise the Council of their findings and any associated conservation concerns.
2. With input from the agency, the public, and its advisory bodies, the Council (and NMFS) should identify the economic and management implications and potential options for management response to these findings and identify the suite of tools that could be used to achieve conservation and management goals. In the case of crab and scallop management, ADF&G needs to be part of this process.
3. To the extent practicable, further refinement of stock structure or other spatial conservation concerns and potential management responses should be discussed through the process described in recommendations 1 and 2 above.
4. Based on the best information available provided through this process, the SSC should continue to recommend OFLs and ABCs that prevent overfishing of stocks.

“Prior to The Team meeting, discussions between Council member John Henderschedt and members of the SSC, Plan Teams, and Council staff focused on three questions:

- A. Are the steps in the Council process in chronological order? The answer appears to be, “Yes,” except as noted immediately below.
- B. Can the order of the steps be changed in the event of an emergency? The answer appears to be, “Yes.”
- C. What is the Council’s expectation as to the typical amount of time that Steps 2 and 3 will take? The answer appears to be, “About a year.”

“Grant presented the following two interpretations of the Council policy stemming from these discussions.

“Interpretation #1

1. The SSC will discuss the available evidence for stock structure each December
2. The SSC will then rule on whether or not there is compelling evidence to necessitate separate stock management
3. If the Council wanted to try to continue to manage the separate stocks under a single ABC, then it would request a management response from industry that would demonstrate how the separate stocks could be managed sustainably under a common ABC
4. The SSC would review this plan in February:
  - If the proposed management response does achieve the goal of maintaining catch at a sustainable level for both stocks, then management would continue under a single ABC
  - If success cannot be demonstrated within a reasonable period of time, then the SSC would manage separate stocks

“Interpretation #2

1. When the Team receives new information regarding the existence of stock structure or the impacts of fishing on stock structure, the Team would evaluate the extent to which this information causes concern about the way the stock/s is/are being managed (this is Step 1 in the Council's process)
2. A possible scale of concern (all actions are contingent on SSC concurrence):
  - a. Little or no concern, in which case no action needs to be taken

- b. Moderate concern, in which case special monitoring (e.g., frequent updating of the template) is required at a minimum and Steps 2 and 3 of the Council's process may be activated
- c. Strong concern, in which case Steps 2 and 3 of the Council's process must be activated
- d. 'Emergency,' in which case the Team will recommend separate harvest specifications at the ABC level, the OFL level, or both, for the next season (straight to Step 4 of the Council policy)

“The Teams discussed how well the two interpretations mesh with the Council policy, given the answers to questions A-C above:

- A. Interpretation #1 does not follow the chronological order of the Council policy, whereas Interpretation #2 does.
- B. Both interpretations allow for moving straight to specification of separate ABCs, OFLs, or both in the case of an emergency.
- C. Interpretation #1 does not allow for Steps 2 and 3 of the Council process to take the anticipated time of approximately one year, whereas Interpretation #2 does.

“Team members suggested that the following issues merit further clarification or guidance:

- How much time is allowed for acceptance (by the Council or SSC) of an industry response to a management concern? Interpretation #1 sets a hard deadline of two months for submission of a management response, but the only limit on the amount of time required for demonstrating the plan's success is that it be “reasonable.” Interpretation #2 sets no limit on the amount of time taken by Steps 2 and 3 in the Council policy. Either interpretation could be amended by specifying a limit on the amount of time. Also, both interpretations allow for moving directly to separate harvest specifications at any time, in the event that the SSC determines the rate of progress to be insufficient.
- What is the relationship between evidence of stock structure and degree of concern? One possibility, which is most consistent with Interpretation #1, is that degree of concern is synonymous with strength of evidence of stock structure. Another possibility, which is most consistent with Interpretation #2, is that degree of concern is a function of both the strength of evidence of stock structure and the extent to which the fishery is impacting that structure.
- How can the process for passing stock structure information to the SSC be improved? The Team minutes attempt to document all presentations made at the Team meetings, but it is not always clear which other documents from the September Team meetings get forwarded to (or reviewed by) the SSC, and the time available for the Team report at the October SSC meeting is sometimes short. Moreover, to keep the Team reports of reasonable length, they tend to focus on those items for which the Team(s) made some sort of recommendation, so it is possible that stock structure information is not being emphasized in those cases (if any) where the Team made no recommendation. It would be helpful if the SSC minutes consistently acknowledged receipt of information on stock structure.

“The procedure used by the BSAI Team in evaluating stock structure information during this year's September meeting was similar to that described in Interpretation #2. In following this procedure, the BSAI Team communicated to the SSC both the evidence of stock structure and the rationale for the Team's determination of the associated level of conservation concern.”

*From the minutes of the 11/13 BSAI Team meeting (“Blackspotted and rougheye rockfish spatial structure discussion”):*

“At this meeting, the Team repeated its ‘strong concern’ about the WAI component of the stock (see Interpretation #2 in the Joint Team minutes on “Stock structure and spatial management policy”). If the SSC concurs with this level of concern, the Team anticipates a management response in 2014.”

*From the minutes of the 12/13 SSC meeting (“Blackspotted and rougheye rockfish complex”):*

“The Plan Team also expressed ‘strong concern’ about the WAI component of the stock. The SSC shares this concern....”

*From the minutes of the 12/13 SSC meeting (“Stock structure and management policy”):*

“The SSC received a presentation from the Joint Plan Team with respect to stock structure and spatial management of North Pacific stocks and stock complexes and the Council’s Policy on Spatial Management. The SSC had discussion and recommendations to clarify the SSC’s view of the process and their own role in it based on the two interpretations summarized by the Joint Plan Team. The SSC sees the process to be a combination of interpretation 1 and 2, in which stock structure evidence would be reviewed and discussed by the SSC and the SSC would make a determination as to whether the biological evidence is sufficiently strong to warrant the delineation of stocks into separate components. This determination would be made along with recommendations about types of information that might be collected and research that might be conducted to determine if there is a concern about fishing impacts on the stock components. This does not imply that the SSC’s determination of separate stock structure is a determination that separate ABC/OFLs would be needed.

“The next step of the process would be to determine if there is sufficient evidence for concern about impact on the stock structure from fishing removals. If the SSC determines there is sufficient evidence that a conservation concern exists that would warrant management action to achieve stock unit conservation, the process of evaluating possible actions that might be taken would begin. These could range from monitoring to recommending separate harvest specifications in the following year or years, depending on the urgency of the situation. If a management alternative is proposed by industry or the Council that can accomplish protection of the stocks, then that would be brought forward for consideration. The SSC would still maintain its policy of notifying the Council at least a year in advance of a possible stock split for ACL purposes.

“The SSC has previously recommended that all stocks be subjected to the stock structure template and anticipates reviewing several templates per year as these are prepared. It is envisioned that completion of the template is not the only opportunity to comment on stock structure or concerns about impacts on stock structure because new evidence might come forward after a template is completed and commented on. Thus, the process is iterative and may evolve differently for different stock groupings.”

*From the minutes of the 10/14 SSC meeting (“Stock structure templates”):*

“Guidelines were developed by the Stock Structure Working Group several years ago to promote a rigorous and consistent procedure for evaluating the appropriateness of existing stock categorizations and providing advice to guide spatial management decisions on stock structure for Alaska stocks. Information on stock structure is gathered by authors and evaluated by the Plan Teams and SSC at their September/October 2014 meetings for a number of species in the GOA and BSAI. These examinations were part of the first step of the process adopted by the Council in December 2013, where the Plan Teams and SSC are to consider scientific information on stock structure and advise the Council on any potential changes to spatial division of OFLs and ABCs. The Plan Team created three levels of concern to help provide advice and for each particular species or species group: 1) monitor, 2) alert, or 3) concern. For species where a stock structure template has been completed and a level of concern has not specified, the SSC requests Plan Teams do so for the December SSC meeting.”