

Excerpt from Summary Minutes of the February 2003 GMT Meeting

P. Thresholds for Mid-Course Corrections to OYs During the Multi-Year Management Process

The Team was asked to recommend a methodology to react to survey results (or any new relevant information) in an off-year that is dramatically different from those previously considered to set OYs under multi-year management. The Team initially considered a percentage drop in biomass as a trigger for action but stock health is also dependent on the strength of individual age classes. However, survey results are highly variable and corrections should not be based on one survey alone. In addition to survey results changing, exceeding OYs in a given year could also be a reason for mid-course correction.

The Team proposed some modeling of future stock productivity to test the sensitivity of management measures or OYs to stock fluctuations but these efforts cannot begin until after this year's STAR panels. This issue needs to be more fully developed with input from the Science Centers and the SSC. Thresholds need to be established for adjustments for both decreasing and increasing stock sizes.

Table from the GMT Statement at the November, 2002 Council meeting:

Multi-year Management Timeline (Alternative 3, Amendment 17)							
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Survey	A	B	C	D	E	F	G
Assessment		A		A-C*		A-E	
Management			A		A-C		A-E
Fishing				A	A	A-C	A-C

Mid-course assessments, like those in 'Year 4' in the above table, will be calculating an OY for the next two year period (Years 6 and 7) which is not directly comparable to the previously calculated OY for the current two year period. The only directly comparable values following the mid-course assessment would be things like biomass estimates.

The Council intent for the schedule is that the GMT will work on this in February for SSC review during the March meeting, and for Council and GAP consideration at the April meeting. The GMT has the discretion to change the schedule if this time line cannot be met (the November, 2003 Council meeting is the start of the initial multi-year management process). Even a relatively simple trigger will likely take all year to development given the current workload. If the end result is a COP change and not an FMP amendment the administrative workload would be less. A COP could be administered as a mechanism for management, but a NEPA analysis will be required to assess the effects of the decision.

Dr. MacCall proposed a scenario where the threshold consideration is a product of the STAR panel. There would then need to be a formal public process to address what actions, if any, need to be taken. He proposed the following steps:

- 1) Identify the potential issue, e.g., value of upcoming survey abundance  
(Note: this can only apply to statistics than are not subject to behavioral modification, so something like CPUE cannot be used.)
- 2) Give the anticipated expected value, based on the current stock assessment. This is status quo.
- 3) Identify range of alternative values, +100%, -50% etc.
- 4) Do simulated assessment using alternative values of the survey abundance.
- 5) Give resulting biomass estimates. Assume  $F_{MSY}$  is unchanged.
- 6) Give resulting ABC values  $B * F_{MSY}$ .
- 7) Present to Council as an if-then action (could be based on ranges, or on a linear

*formula, for example), which will be pre-decided at the time the first OY is adopted, and will be adopted automatically when the actual number comes in.*

Do we need several thresholds, one for how a new assessment can change management, another for how catch deviations from expectations can change management? This is also a stock-specific situation. For some species for which we already do not attain OY, a large change in OY will not have any appreciable effect on management. Therefore, thresholds need to be considered on a case by case basis. If triggers or thresholds are set at too sensitive a level the process will slide back into annual management.

Stock assessment scientists would have a new task of looking forward to consider the likely range of future population trends. The GMT then would have a new task of considering what the management implications may be in response to the new stock assessment and these projections.

It is important to include in the NEPA document a range of possible threshold mechanisms and responses so that if a threshold is met, action needed to be taken can happen in an efficient manner. The threshold process should be kept fairly simple and automatic and should not require a huge workload given the other tasks ahead and the novelty of multi-year management. As the multi year program gets more institutionalized, a more complicated threshold and action process can evolve.

The GMT considered the possibility of exempting rebuilding species' OYs from mid-course correction. The only consideration would be if a rebuilding threshold is attained ( $B_{MSY}$ ). However, if you do not develop thresholds for the species that are constraining fisheries, then the development of thresholds for other stocks has little use or value to management

Ms. Robinson reviewed the following threshold options for consideration:

- Only species not under rebuilding
- Any change (in either direction) that has significant effects- "case-by-case" basis
- Minimum change of 5-10% in OY (in either direction)
- Maximum change of 20% in OY (in either direction) as a cap on the amount of change allowed
- Include potential changes in NEPA documents when two one-year OYs are adopted for analytical purposes

A review of stock assessments over the last 10 years to estimate the variability in stock assessment results was proposed. It would be helpful to then see how often your mid-course corrections would have been made under various threshold policies. Dr. Hastie will work with staff at the NWFSC to determine the value of the work and to see what sort of resources are available for this exercise.

There could be need in the future, after initial review by the GMT and SSC, of holding a workshop with technical, industry and management people. The question of thresholds is more than a technical question and will have to be decided at a policy level as well.