

GROUND FISH MANAGEMENT TEAM REPORT ON REBUILDING PLAN REVISION POLICY

In November, the Council will be presented with updated rebuilding analyses for eight overfished stocks. The Groundfish Management Team (GMT) and other advisory bodies have suggested that it would be beneficial to have a stated policy for evaluating rebuilding progress on these stocks prior to the November meeting.

As discussed in the situation summary, the options recommended by the GMT, Groundfish Advisory Subpanel (GAP) and others at the June meeting were relative to different reference points than those that were established in the fishery management plan (FMP) (P_0 , the initially chosen probability of rebuilding by T_{MAX} , as opposed to T_{TARGET} , the year in which the probability of rebuilding was equal to 50%). Consequently, the Management Strategy Evaluation (MSE) recommended in the June meeting was not conducted, and we do not have new quantitative simulation results on the expected performance of different policy options.

Despite this, the initial round of simulations conducted by the Scientific and Statistical Committee (SSC) (Agenda Item C.6.a, Attachment 3, June 2005) have provided the Council community with some understanding of the trade-offs between alternative policies for responding to new information on rebuilding stocks. Based on the general guidance from the Council and advisory bodies at the June meeting, and a preliminary understanding of the recent proposed changes to the National Standard 1 Guidelines, the GMT offers a range of potential strategies for evaluating progress that we consider to be consistent with the objectives of maintaining both management stability and steady progress towards rebuilding depleted stocks.

Alternative 1: *Revise harvest rates upon completion of updated rebuilding analyses to maintain exactly a 50% probability of recovery by T_{TARGET} . The possibility exists that there would be no harvest rate that would allow a 50% probability of rebuilding by T_{TARGET} , as fixed in the FMP, but there could be a harvest rate that allows for a 50% probability of rebuilding by T_{MAX} , the legal standard. In such a scenario, the Council would be faced with a decision of either adopting a harvest rate that would allow for no less than a 50% probability of rebuilding by T_{MAX} , or revising the rebuilding plan. If there is no feasible fishing mortality rate that would allow a 50% probability of rebuilding by T_{MAX} , even after accounting for any potential past overages, then there is no alternative but to revise the rebuilding plan. This would be comparable to resetting harvest rates to achieve the initial probability (P_0), of recovery by T_{MAX} that was the basis for determining T_{TARGET} in the FMP. Although this is a viable option, the analyses that have been done suggest that this policy is overly responsive to environmental and statistical noise, is inconsistent with maintaining management stability, and would likely lead to longer rebuilding times.*

Alternative 2: *If the probability of recovery by T_{TARGET} is 50% or greater, maintain the current harvest rate. If the probability of recovery by T_{TARGET} is less than 50%, lower the harvest rate to achieve a 50% probability of rebuilding by T_{TARGET} . If there is no feasible fishing mortality rate that would allow a 50% probability of rebuilding by T_{TARGET} , act in accordance with Alternative 1. This alternative maintains a probability of rebuilding that is no less than that chosen in the FMP. This alternative is also consistent with the proposed National Standard 1 Guidelines for*

“banking” good performance in rebuilding plans to rebuild faster, and for avoiding any extension of rebuilding plans unless the best available estimates of stock productivity change substantially.

Alternative 3: *If the probability of recovery by T_{TARGET} is 45% or greater, but the probability of rebuilding by T_{MAX} is still greater than 50%, maintain the current harvest rate. If the probability of recovery by T_{TARGET} is less than 45%, lower the harvest rate to achieve a 50% probability of rebuilding by T_{TARGET} . If there is no feasible fishing mortality rate that would allow a 50% probability of rebuilding by T_{TARGET} , act in accordance with Alternative 1. This alternative would establish a buffer of five percent around the probability of rebuilding by T_{TARGET} so long as the probability of rebuilding by T_{MAX} was greater than 50% (the legal precedent) in order to avoid making frequent changes to harvest rates. The intent of a buffer would be to allow for small movements around the target rebuilding year that are likely to result from recruitment variability and estimation uncertainty. As with Alternative 2, this would “bank” good performance in order to rebuild as fast as possible. The Council could also reserve the ability to reduce a harvest rate if sequential assessments indicated that the probability of recovery by T_{TARGET} was less than 50%.*

Alternative 4: *If the probability of recovery by T_{TARGET} is greater than 55%, then on a case-specific basis, consider liberalizing harvest rates to a degree consistent with half of the difference between 55% probability of achieving T_{TARGET} and the most recently estimated probability of achieving T_{TARGET} . If the probability of recovery by T_{TARGET} was less than 45%, act in accordance with Alternative 1. The GMT recognizes that where stocks are rebuilding faster than expected, the Council may wish to consider increasing the harvest rate in order to reduce the constraints on fisheries for co-occurring healthy stocks. This strategy would balance any such liberalization by banking no less than half of any improvement in rebuilding performance. Although recent court decisions and the proposed National Standard 1 Guidelines suggest a de-facto policy of maintaining target harvest rates in order to accelerate the rebuilding process is preferable, there is also a recognized commitment to avoid unduly constraining fishery opportunities.*

Alternative 5: *If the probability of recovery by T_{TARGET} is greater than 55%, and the corresponding P_{MAX} (probability of rebuilding by most recent estimate of T_{MAX}) is greater than 80%, then on a case-specific basis, consider liberalizing harvest rates to maintain a probability consistent with a P_{MAX} of 80%. If the probability of recovery by T_{TARGET} was less than 45%, act in accordance with Alternative 1. The strategy of establishing and maintaining a P_{MAX} of 0.8 was identified through simulations as a strategy that led to generally the shortest rebuilding times, and the most infrequent needs to redefine harvest rates or rebuilding plans. This strategy would be intended to “bank” all improved rebuilding performance towards a P_{MAX} of 0.8 before liberalization of harvest rates was considered. As such, this option is consistent with Sustainable Fisheries Act of 1996 interpretation and National Standard 1 proposed revisions to rebuild as soon as possible, yet does not preclude the possibility of increasing harvest rates when performance is well above what is expected. (Note: Although a new P_{MAX} and T_{MAX} result from each new analysis, our intent here is relative to the original P_{MAX} from which T_{TARGET} was derived).*

Regardless of the strategy chosen, the GMT would recommend suspending revision rules when a stock approaches T_{TARGET} (within five years of T_{TARGET} , or 10% of the total expected rebuilding time, whichever is greater). This is consistent with simulation results reviewed by the SSC that

suggest that trying to fine-tune harvest rates in the waning years of a rebuilding plan would not be likely to actually improve rebuilding performance, again due to small scale variations in recruitment and estimation uncertainty.

Figure 1 (attached) provides a simple decision-tree schematic of these five alternatives. In our discussions, the GMT has identified Alternative 5 as that which minimizes the need to make fine-scale adjustments in harvest rates and management measures, maintains the overarching objective of rebuilding stocks in as short a time period as is feasible, and concurrently allows for a reasonable degree of flexibility in liberalizing harvest rates when rebuilding is proceeding considerably faster than expected. The Council may also wish to seek further SSC guidance on the extent to which given alternatives might be qualitatively described with respect to risk of achieving rebuilding objectives. Additionally, the Council may also wish to receive guidance from Legal Counsel on the extent to which a given alternative is consistent with both existing and newly proposed National Standard 1 Guidelines and court precedent.

The GMT recognizes that there are a large number of plausible scenarios that could arise as a result of adoption of decision rules for evaluating rebuilding progress. For example, an optimistic analysis may suggest faster than expected rebuilding, such that some liberalization of harvest rates was implemented, but subsequent analyses suggest slower than expected rebuilding. Although we note that some logical minimum performance standards (attain no less than 50% probability by the original T_{TARGET}) would be reasonable, in general an appropriate course of action would need to be determined on a case-specific basis.

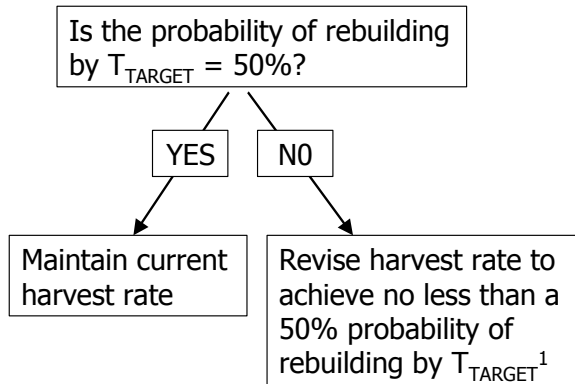
In closing, the GMT would like to clarify that the above alternatives are examples of plausible evaluation criteria, and variations on these alternatives may be preferable to the Council. Moreover, adoption of a given alternative as a preferred strategy should not be construed as constraining Council flexibility, as Amendment 16.1 of the Groundfish FMP clearly states that the Council retains the ability to evaluate rebuilding plans on a case-specific basis. Such flexibility could include reducing harvest rates to achieve higher probabilities of rebuilding by either T_{TARGET} or T_{MAX} , as well as liberalizing harvest rates for highly constraining species, so long as such exceptions maintained a probability of T_{TARGET} of no less than 50%.

GMT Recommendations

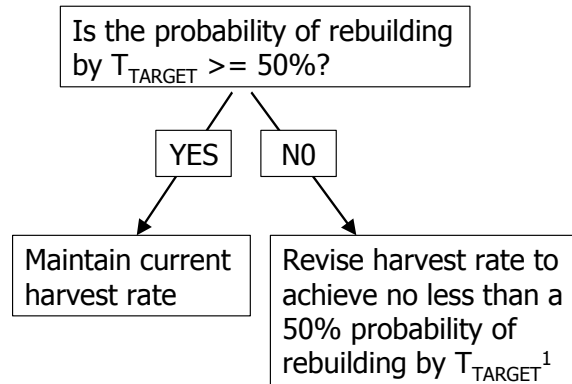
1. Adopt Alternative 5 as a stated policy for responding to new rebuilding analyses, while maintaining the flexibility to consider alternative rebuilding strategies on a case-specific basis.
2. Adopt a policy that would suspend revision rules when a stock approaches T_{TARGET} (within five years of T_{TARGET} , or 10% of the total expected rebuilding time, whichever is greater) to avoid chasing noise in recruitment or estimation uncertainty near the end of the rebuilding period.

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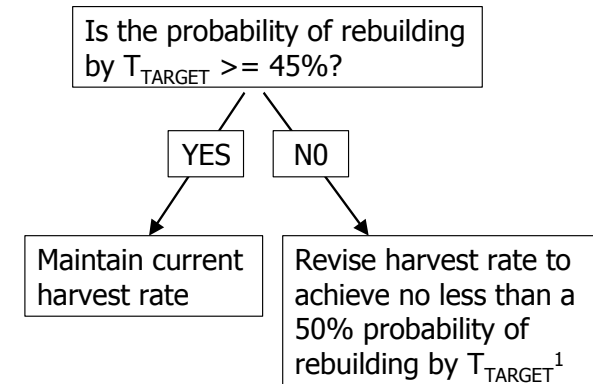
Alternative 1



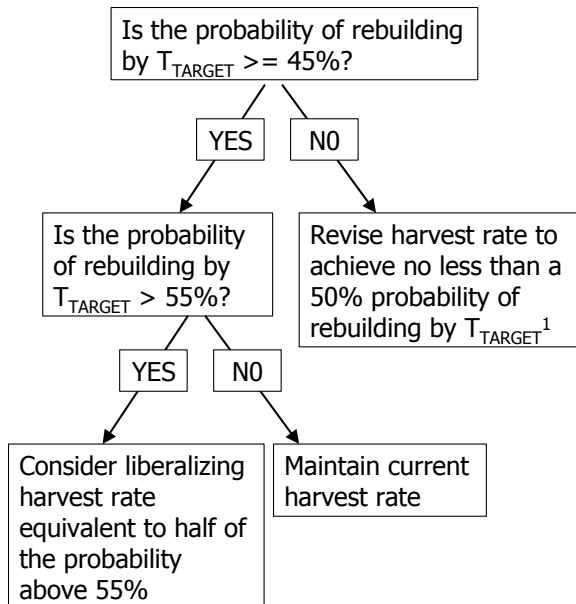
Alternative 2



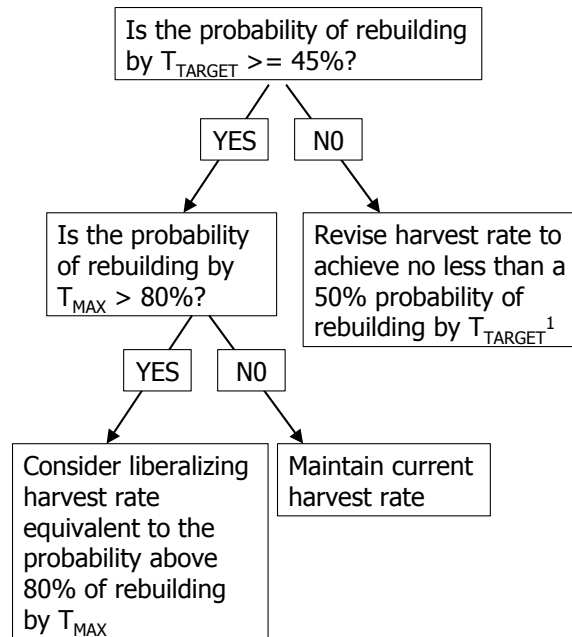
Alternative 3



Alternative 4



Alternative 5



¹ If there exists no harvest rate that would allow a 50% probability of rebuilding by T_{TARGET} , but there exists a harvest rate that allows at least a 50% probability of rebuilding by T_{MAX} , the Council must decide whether to adopt a harvest rate that would allow for no less than a 50% probability of rebuilding by T_{MAX} , or revise the rebuilding plan. If there exists no harvest rate that would maintain at least a 50% probability of rebuilding by T_{MAX} , revise FMP to establish new T_{TARGET} .