Mid Atlantic Management Council (MAFMC) ABC Control Rules and Risk Policy

MAFMC assigns managed stocks to specific control rule levels when developing ABC recommendations. The SSC reviews the criteria shown in **Table 1**, and any additional relevant information, to determine which level each stock will be placed in. The ABC control rule determination method specific to each level is shown in **Table 2**. The SSC reviews the ABC control rule level assignment for stocks each time an ABC is recommended and may even suggest a different control rule method and level criteria from the specified ABC control rule. However, an explanation of why the deviation is necessary and how it is consistent with National Standard 2 is required.

Finally, SSC uses the MAFMC's preferred tolerance for the risk of overfishing as identified in risk policy according to the stock status (**Table 3**) in conjunction with the ABC control rules in **Table 2** in the ABC development and recommendation process.

Table 1. Mid Atlantic Management Council (MAFMC)

Levels	Criteria
Level 1	All important sources of scientific uncertainty are captured in the Stock assessment (SA) model. Prob. Dist. Of OFL calculated and OFL uncertainty is described. SA provides F at MSY or MFMT, biomass and stock status, reference points & uncertainties. No substantial retrospective patterns.
Level 2	The SA provides reference points (or proxies), stock status, estimates of precision and uncertainties associated with each but key features of the stock biology, the fisheries that exploit it, and/or the data collection methods and some important source of uncertainty are missing. The accuracy of the MFMT and projected future biomass is estimated in the SA using ad hoc methods.
Level 3	Same as level 2 except that SA does not contain OFL probability distribution or does not adequately reflect uncertainty in the OFL estimate.
Level 4	None of the criteria for Levels 1-3 above were met.

Table 2. Mid Atlantic Management Council (MAFMC) – ABC determination

Tiers	ABC determination method
Level 1	ABC is based on the distribution of the OFL as provided from the assessment model; p* is based on the Council risk policy (Table 3).
Level 2	Uses an OFL distribution proxy provided from the assessment workgroup; p* is based on the Council risk policy (Table 3).
Level 3	Uses an OFL distribution proxy (with a proxy CV) or a default value of 75% of FMSY to set ABC.
Level 4	ABC set based on ad hoc, alternative approaches (e.g., adjustment to long-term catch history or survey index values).

Table 3. Mid Atlantic Management Council (MAFMC) – Risk Policy

Tiers	ABC control rule
Stocks under a rebuilding plan	$F_{REBUILD}$ must be at least 50 percent.
Stocks not subject to a rebuilding plan and for stocks with a atypical life history	The max. probability of overfishing (MPOF) will be 35% for stocks with a ratio of B/ B_{MSY} of 1.0 or higher. MPOF decrease linearly as the B/B_{MSY} ratio becomes <1.0 until the probability of overfishing becomes zero at a B/B_{MSY} ratio of 0.10.
Stocks not subject to a rebuilding plan and for stocks with a typical life history	The MPOF will be 40 % for stocks with a ratio of B to B_{MSY} of 1.0 or higher. The MPOF shall decrease as the B/B_{MSY} ratio becomes less 1.0 until the probability of overfishing becomes zero at a B/B_{MSY} ratio of 0.10.
Stock without an OFL or OFL proxy	ABC levels may not be increased until such time that an OFL has been identified unless biomass-based reference points indicate that the stock is greater than B_{MSY} and B is stable or increasing, or if best available science indicates that B is stable or increasing.

APPENDIX: REGULATORY INFORMATION

http://www.gpo.gov/fdsys/granule/CFR-2012-title50-vol12/CFR-2012-title50-vol12-sec648-21/content-detail.html

Metadata

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	Part 648 - FISHERIES OF THE NORTHEASTERN UNITED STATES
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§648.20 Mid-Atlantic Fishery Management Council ABC control rules.

The SSC shall review the following criteria, and any additional relevant information, to assign managed stocks to a specific control rule level when developing ABC recommendations. The SSC shall review the ABC control rule level assignment for stocks each time an ABC is recommended. The ABC may be recommended for up to 3 years for all stocks, with the exception of 5 years for spiny dogfish. The SSC may deviate from the control rule methods or level criteria and recommend an ABC that differs from the result of the ABC control rule calculation; however, any such deviation must include the following: A description of why the deviation is warranted, description of the methods used to derive the alternative ABC, and an explanation of how the deviation is consistent with National Standard 2.

(a) *Level 1 criteria.* (1) Assignment of a stock to Level 1 requires the SSC to determine the following:

(i) All important sources of scientific uncertainty are captured in the stock assessment model;

(ii) The probability distribution of the OFL is calculated within the stock assessment and provides an adequate description of the OFL uncertainty;

(iii) The stock assessment model structure and treatment of the data prior to use in the model includes relevant details of the biology of the stock, fisheries that exploit the stock, and data collection methods;

(iv) The stock assessment provides the following estimates: Fishing mortality rate (F) at MSY or an alternate maximum fishing mortality threshold (MFMT) to define OFL, biomass, biological reference points, stock status, OFL, and the respective uncertainties associated with each value; and

(v) No substantial retrospective patterns exist in the stock assessment estimates of fishing mortality, biomass, and recruitment.

(2) *Level 1 ABC determination.* Stocks assigned to Level 1 by the SSC will have the ABC derived by applying acceptable probability of overfishing from the MAFMC's risk policy found in §648.21(a) through (d) to the probability distribution of the OFL.

(b) *Level 2 criteria.* (1) Assignment of a stock to Level 2 requires the SSC to determine the following:

(i) Key features of the stock biology, the fisheries that exploit it, and/or the data collection methods for stock information are missing from the stock assessment;

(ii) The stock assessment provides reference points (which may be proxies), stock status, and uncertainties associated with each; however, the uncertainty is not fully promulgated through the stock assessment model and/or some important sources of uncertainty may be lacking;

(iii) The stock assessment provides estimates of the precision of biomass, fishing mortality, and reference points; and

(iv) The accuracy of the minimum fishing mortality threshold and projected future biomass is estimated in the stock assessment using ad hoc methods.

(2) *Level 2 ABC determination.* Stocks assigned to Level 2 by the SSC will have the ABC derived by applying acceptable probability of overfishing from the MAFMC's risk policy found in §648.21(a) through (d) to the probability distribution of the OFL.

(c) *Level 3 criteria.* (1) Assignment of a stock to Level 3 requires the SSC to determine that the stock assessment attributes are the same as those for a Level 2 assessment listed in §648.20(d)(1) through (4), except that the stock assessment does not contain an estimated probability distribution of OFL or the stock assessment provided OFL probability distribution is judged by the SSC to not adequately reflect uncertainty in the OFL estimate.

(2) *Level 3 ABC determination.* Stocks assigned to Level 3 will have ABC derived by one of the following two methods:

(i) The SSC will derive the ABC by applying the acceptable probability of overfishing from the MAFMC's risk policy found in §648.21(a) through (d) to an SSC-adjusted OFL probability distribution. The SSC will use default levels of uncertainty in the adjusted OFL probability distribution based on literature review and evaluation of control rule performance; or,

(ii) If the SSC cannot develop an OFL distribution, a default control rule of 75 percent of the F_{MSY} value will be applied to derive ABC.

(d) *Level 4 criteria.* (1) Assignment of a stock to Level 4 requires the SSC to determine that none of the criteria for Levels 1-3 found in §648.20(a) through (c) were met.

(2) *Level 4 ABC determination.* Stocks assigned to Level 4 will have ABC derived using control rules developed on a case-by-case basis by the SSC based on biomass and catch history and application of the MAFMC's risk policy found in §648.21(a) through (d).

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§648.21   Mid-Atlantic Fishery Management Council risk policy.

The risk policy shall be used by the SSC in conjunction with the ABC control rules in §648.20(a) through (d) to ensure the MAFMC's preferred tolerance for the risk of overfishing is addressed in the ABC development and recommendation process.

(a) *Stocks under a rebuilding plan.* The probability of not exceeding the F necessary to rebuild the stock within the specified time frame (rebuilding F or $F_{REBUILD}$) must be at least 50 percent, unless the default level is modified to a higher probability for not exceeding the rebuilding F through the formal stock rebuilding plan. A higher probability of not exceeding the rebuilding F would be expressed as a value greater than 50 percent (e.g., 75-percent probability of not exceeding rebuilding F, which corresponds to a 25-percent probability of exceeding rebuilding F).

(b) *Stocks not subject to a rebuilding plan.* (1) For stocks determined by the SSC to have an atypical life history, the maximum probability of overfishing as informed by the OFL distribution will be 35 percent for stocks with a ratio of biomass (B) to biomass at MSY (B_{MSY}) of 1.0 or higher (*i.e.,* the stock is at B_{MSY} or higher). The maximum probability of overfishing shall decrease linearly from the maximum value of 35 percent as the B/B_{MSY} ratio becomes less than 1.0 (*i.e.,* the stock biomass less than B_{MSY}) until the probability of overfishing becomes zero at a B/B_{MSY} ratio of 0.10. An atypical life history is generally defined as one that has greater vulnerability to exploitation and whose characteristics have not been fully addressed through the stock assessment and biological reference point development process.

(2) For stocks determined by the SSC to have a typical life history, the maximum probability of overfishing as informed by the OFL distribution will be 40 percent for stocks with a ratio of B to B_{MSY} of 1.0 or higher (*i.e.,* the stock is at B_{MSY} or higher). The maximum probability of overfishing shall decrease linearly from the maximum value of 40 percent as the B/B_{MSY} ratio becomes less 1.0 (stock biomass less than B_{MSY}) until the probability of overfishing becomes zero at a B/B_{MSY} ratio of 0.10. Stocks with typical life history are those not meeting the criteria in paragraph (b)(1) of this section.

(c) For instances in which the application of the risk policy approaches in either paragraph (b)(1) or (2) of this section using OFL distribution, as applicable given life history determination, results in a more restrictive ABC recommendation than the calculation of ABC derived from the use of $F_{REBUILD}$ at the MAFMC-specified overfishing risk level as outlined in paragraph (a) of this section, the SSC shall recommend to the MAFMC the lower of the ABC values.

(d) *Stock without an OFL or OFL proxy.* (1) If an OFL cannot be determined from the stock assessment, or if a proxy is not provided by the SSC during the ABC recommendation process, ABC levels may not be increased until such time that an OFL has been identified.

(2) The SSC may deviate from paragraph (d)(1) of this section, provided that the following two criteria are met: Biomass-based reference points indicate that the stock is greater than B_{MSY} and stock biomass is stable or increasing, or if biomass based reference points are not available, best available science indicates that stock biomass is stable or increasing; and the SSC provides a determination that, based on best available science, the recommended increase to the ABC is not expected to result in overfishing. Any such deviation must include a description of why the increase is warranted, description of the methods used to derive the alternative ABC, and a certification that the ABC is not likely to result in overfishing on the stock.

[76 FR 60616, Sept. 29, 2011, as amended at 77 FR 51857, Aug. 27, 2012]

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