



New England Fishery Management Council

50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116

John F. Quinn, J.D., Ph.D., *Chairman* | Thomas A. Nies, *Executive Director*

#2

MEMORANDUM

DATE: January 17, 2020
TO: Whiting AP and CTE
FROM: Whiting PDT
SUBJECT: **Southern Red Hake Rebuilding Draft Management Alternative Approaches**

This memo summarizes the outcomes and discussion of the latest Whiting Plan Development Team (PDT) meetings in support of further developing draft management alternative approaches to rebuild the Southern red hake stock. This memo was developed from December 2019 to January 2020 over a few meetings of the PDT.

The PDT did not reach any conclusions on rebuilding approaches for Southern red hake during these conference calls. Impacts on catch for rebuilding are uncertain, however, under optimal conditions, S. red hake could rebuild with changes in fishing and reduction in fishing mortality.

The three Council-approved rebuilding approaches include:

1. Allow post-season accountability measures (AM) to take hold
2. Establish a year-round possession limit of 400 lbs. or another amount based on input from the Advisory Panel and further analysis
3. Reduce S. red hake catch by a stairstep approach until biomass sufficiently increases

Overall, the PDT discussed that given the lack of population dynamic models, it is unclear the effect of reducing Southern red hake catch on rebuilding potential and rebuilding timeline. Reduction in catch from the current ABC may not increase biomass unless the stock produces above or above average recruitment. The results from the red hake stock structure working group meeting suggest a southwest to northeast re-distribution of red hake in response to warming waters which could affect recruitment and result in a relative change in S. red hake productivity.

The PDT developed rebuilding draft alternative measures (Table 1) that could be analyzed by the following types of analyses (which are not yet comprehensive):

- Quantify the amount of landings and revenue affected by a reduction in possession limit
 - This could be potentially ineffective given S. red hake isn't a target species and the stock has a high discard mortality rate
- Analyze the effect of catch avoidance on reducing discarding using haul data on observed trips
 - Fishermen may not be able to land high amounts of S. red hake
 - Fishermen may choose to fish in other areas or use more selective gear
- Analyze time-area closures by gear or fishery
 - Determine when discards are high relative to kept species using observed haul data by depth
 - This applies to other fisheries with high S. red hake bycatch

- Analyze gear modifications that reduce bycatch but that account for any potential change in fishing behavior
 - Bycatch rates by gear type and characteristics have been uncertain in previous red hake bycatch analyses

Table 1. Southern red hake rebuilding alternative approaches including level of effectiveness, pros, cons, action type, and a summary of the PDT views on the alternatives.

Alternative Rationale	Effectiveness	Pros	Cons	Action type	PTD Summary Recommendations
Status quo (2018-2019 regulations)	Did not prevent overfishing in 2018	No further work or action needed	Fishery exceeded the ABC in the 2018 fishing year and overfishing was occurring in 2017 despite not exceeding the ABC.	N/A	Evaluating status quo is limited from the current index-based modeling framework.
Interim rebuilding (control rule) Purpose is to allow responsive or trigger adjustments to allowable catch					
No Action: No specific rebuilding schedule or expectation	Rebuilding time chosen based on biological characteristics	If feasible, life history information could provide a quasi-basis for determining a time horizon for rebuilding	In the absence of a model that characterizes the population dynamics of southern red hake, this approach does not provide all the necessary key data to fully inform a rebuilding plan for SRH	N/A	Missing the necessary parameters given it's an index-based model (mean generation time, exploitation rate that'll allow population to rebuild → relative F during a positive population response to a lower exploitation rate compared to current levels?) to estimate rebuilding time and potential – need additional time to explore.
Rebuilding schedule based on an annual target for biomass increases	Flags a need for Council action	Probably the most practical alternative given the level of information available for this stock	This is an ad-hoc approach. Will require frequent monitoring of the population index and other key population indicators to determine the sufficiency of a given target.	Framework	Discards are the primary issue in this fishery (not landings) so evaluating biomass changes could be the most practical approach.
Rebuilding schedule based on an annual target for biomass increases with trigger threshold	Threshold triggers a specific reduction in ABC via specifications, more effective than ad hoc adjustments	Probably the most practical alternative given the level of information available for this stock	This is an ad-hoc approach. Will require frequent monitoring of the population index and other key population indicators to determine	Framework	Discards are the primary issue in this fishery (not landings) so evaluating biomass changes could be the most practical approach.

	without these thresholds		the sufficiency of a given target.		
Rejected by Council (Dec. 2019): Catch reduction based on biological characteristics or expected change in productivity			Requires a population model or assessment that does not exist.	Amendment?	Hold off on this until other alternatives are considered more in depth.

Limit landings of southern red hake (Landings contribute to small portion of total catch)					
Purpose to incentivize fishing where southern red hake bycatch is less					
Analysis 2-4 months					
No action (AM trigger at 40.4% of TAL)					
● Possession limit reduction was implemented in the north without triggering excessive discarding	Limited, relies on changes in behavior when red hake catches are high relative to the target species	Least cost;	Discard survival is low.	N/A	
Reduce possession limit (1,500 lbs.); in-season AM applies					
A lower AM trigger and possession limit reduction allowed the rebuilding of northern red hake in 2015-2018.	May reduce targeting on shorter trips and induce changes in fishing behavior		Possibly more targeting red hake in the north. Discard survival is low.	Specifications	May not be as effective as N red hake rebuilding if bycatch rates weren't as high as S. red hake.
Reduce possession limit (400 lbs.)					
Prohibits targeting in any form; possession limit was chosen in Amendment 19 to represent an amount to accommodate incidental catch.		Targeting unlikely	Discard survival is low.	Specifications	No realistic projections can be done with an index-based model to determine how this would impact the stock.

Prohibit southern red hake landings					
Maximum reduction in landings		Maximum reduction in landings and no targeting	Will cause excessive discarding in all fisheries Discard survival is low.	Specifications	May result in an increase in bycatch and dead discards; not effective in rebuilding the stock.

Reduce discards of southern red hake (the majority of catch is estimated to be from bycatch) Purpose is to identify times/areas/gears with high southern red hake bycatch relative to target species and restrict fishing Analysis 3 to 6 months; observer/ASM data set for 2017 to 2019 nearly ready					Focusing efforts on reducing discarding/bycatch (~75% of catch is discarded) will more effectively help the stock rebuild rather than focusing efforts on reducing landings
--	--	--	--	--	---

Identify seasonal or area closures that apply to specific gears or fisheries					
Reduces discards without requiring new gear or changes in fishing gears	Likely to be effective, but may be mitigated by annual variation and shifts in effort	Could limit fishing in specific areas having high red hake bycatch (D/Kall) Most effective with least cost? Ease of implementation	Will require detailed analysis of observer data; Enforcement at sea is difficult; Could be mitigated by effort shifts	Framework or Amendment	Need to determine if observer coverage is sufficient and summarize observer and VTR catches to determine if there are any patterns of discards. This alternative will most likely take the most time to complete relative to the other alternatives.

Require raised footrope trawl for small-mesh trawls					
Red hake are more bottom tending than other small-mesh species and would escape capture	Effectiveness uncertain	Minimizes discard mortality Gear in use by the fishery in other areas	Cost of using new gear	Framework or specifications when applied to exemption area regulations	Unsure if this is sufficiently effective to reduce discards and rebuild stock. Some fishermen say this works but others disagree; raised footrope trawl required in the North but not South.

Require rope trawl and/or large-mesh belly panel for use in small-mesh trawls					
Smaller red hake would pass through the large mesh and are less likely to herd within the net	Effectiveness uncertain	Minimizes discard mortality Gear in use by the fishery in other fisheries	Cost of using new gear	Framework or specifications when applied to exemption area regulations	Approach would primarily only affect part of the discard problem (squid fishery) and not scallop – this could be applied in conjunction with other preferred alternatives.

Prohibit ground cable greater than ??? feet					
Red hake are thought to herd less than target small-mesh species	Effectiveness unknown	Can be analyzed using observer data; preliminary analyses were equivocal	Untested; anecdotal evidence	Framework or specifications when applied to exemption area regulations	Unsure how this approach would work and its effectiveness; need to understand the N. red hake bycatch analyses first and determine if this approach should be excluded or not.