New England Fishery Management Council
50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116
C. M. “Rip” Cunningham, Jr., *Chairman* | Paul J. Howard, *Executive Director*

MEMORANDUM

DATE: Draft

TO: Science and Statistical Committee (SSC)
Groundfish Oversight Committee

FROM: Groundfish Plan Development Team (PDT)

SUBJECT: **FY 2013 - 2014 ABCs**

1. This memo provides information to support FY 2013 -2014 ABCs recommendations for GB haddock, redfish, two windowpane flounder stocks, ocean pout, wolffish, and Atlantic halibut. The remainder of the groundfish stocks will be addressed at a subsequent meeting.

2. The recommendations are based on groundfish assessment updates completed in February, 2012. Generally these assessments are updates of GARM III assessments. The assessment report is provided as a separate document.

3. The terminal year of the assessments is 2010. For GB haddock and redfish projections – the two stocks with analytic assessments and a projection model – 2011 catches were estimated, and an assumption was developed for 2012. Details are provided in enclosure (1). All other projection assumptions were those approved at the assessment meeting.

4. ABCs are based on the current default ABC control rule that was proposed by the SSC and adopted in Amendment 16:

4. There are two overarching issues related to the analytic assessments that are discussed below.

Performance of Projections

5. Over the last few years evidence has increased that the projections used to set future catches and plan rebuilding strategies often do not perform well.

- During development of ABCs for FY 2010 – 2012, the PDT explored a complicated framework for evaluating scientific uncertainty. This approach was tested by applying it to several GARM II assessments and evaluating whether the resulting catches would have ended overfishing during the period 2004 – 2007. The results showed that the method would not have ended overfishing because the projection results were biased high. Interpretation was confounded, however, because at GARM III several assessment models were different than those used at GARM II. These results were part of the reason the SSC recommended a default ABC control rule.

- In the summer of 2011 the NEFSC augmented the PDT to examine an alternative to using updated assessments for setting FY 2012 – 2014 ABCs. Extensive analyses based on the GARM III assessments showed that in most instances projections were biased high – that is, they over-estimated stock growth and future catches. Since these analyses were based on the GARM III assessment, they avoided the problems caused by a change in assessment models.

- As part of the assessment updates, for the stocks with analytic assessments a comparison was made between projected stock size and realized stock size. There are only minor differences between the models used at GARM III and the updated assessments, and for most stocks the 2008 and 2009 actual catches are similar to those used as projection inputs. This work is detailed in Appendix (XXX) of the assessment report. For x of x stocks, the projected stock size was well outside the 90 percent confidence interval of the projection. For X of X stocks, the realized fishing mortality was outside the 90 percent confidence interval of the projection. This is additional evidence that the projections often over-estimate stock growth, and over-estimate the catch that will achieve the target fishing mortality. The errors cannot be entirely

6. Given this information and the results of the updated assessments, *the current ABC control rules may not adequately account for scientific uncertainty.*

Retrospective Patterns

7. The assessment updates document that retrospective patterns continue to trouble groundfish stock assessments. While the pattern for redfish is reduced when compared to that observed at GARM III, the patterns for GB cod, plaice, and witch flounder have increased. Both GOM haddock and CC/GOM yellowtail flounder – two stocks that did not have a retrospective pattern at GARM III – now have substantial patterns. While considerable work has been done over the years on possible causes for these patterns, the specific causes for these stocks have not been identified.

8. The assessment updates followed the precedents set at GARM III for addressing retrospective patterns. GARM III generally adopted two methods to reduce these errors: *either* resource surveys were split into two time series, *or* an adjustment was applied to the terminal year numbers at age prior to performing projections. The same approach was used for the updated assessments. For two stocks that have a split survey time series (GB cod, witch flounder), the updated assessments have large retrospective patterns in spite of this split. For GOM haddock, the adjustment in numbers at age was not applied because the retro-adjusted estimates of SSB and F do not fall outside the confidence intervals of the unadjusted estimates.

9. The persistence of the retrospective errors warrants careful consideration in the setting of ABCs. *The PDT recommends that these errors be considered when setting ABCs, even if the assessment uses a split-survey time series to reduce the pattern.*

Discussion

10. The apparent inability to set catches that will achieve the desired fishing mortality is troubling. The ability to set accurate ABSs is essential for the success of a quota-based management system.

Catch Assumption for Stock Projections

The terminal year for the updated assessments is 2010. ABCs are being set for 2013 -2014. In order to perform the projections, and input of catch or fishing mortality is needed for 2011 and 2012.

For 2011, NERO APSD provided an estimate of total catches. Estimates are provided in Table 1.

For 2012, catch assumptions were developed using {fill in the blanks}. The resulting assumptions are shown in **Table 2**.

Table 1 - CY 2011 End of Year Accounting of NE Multispecies Catch (mt)

	ACLs and sub-ACLs; (with accountability measures (AMs))							sub-components: No AMs	
Stock	**Total Groundfish**	Commercial Groundfish*	Sector	Common Pool	Recreational	Herring Fishery	Scallop Fishery	State Water	Other
	A to G	A+B+C	A	B	C	D	E	F	G
GB cod	3,768.6	3,542.0	3,433.8	108.2				48.0	178.6
GOM cod	7,963.3	7,333.2	4,424.3	84.9	2,824.0			597.0	33.1
GB Haddock	5,884.5	5,354.8	5,343.1	11.7		89.8		342.0	97.8
GOM Haddock	695.6	677.3	431.0	2.6	243.6	2.6		9.0	6.7
GB Yellowtail Flounder	1,032.8	950.2	948.2	2.0			63.2	0.0	19.4
SNE Yellowtail Flounder	425.3	276.5	260.0	16.5			128.0	7.0	13.9
CC/GOM Yellowtail Flounder	746.8	722.9	711.5	11.4				10.0	13.9
Plaice	1,624.0	1,574.3	1,568.0	6.2				34.0	15.7
Witch Flounder	1,069.0	910.2	905.5	4.7				14.0	144.7
GB Winter Flounder	1,937.1	1,888.1	1,887.0	1.1				0.0	49.0
GOM Winter Flounder	204.8	140.3	137.5	2.8				60.0	4.4
SNE Winter Flounder	318.1	95.4	91.9	3.5				72.0	150.7
Redfish	2,302.9	2,215.4	2,211.6	3.7				84.0	3.5
White Hake	2,903.1	2,852.8	2,838.6	14.2				33.0	17.4
Pollock	8,950.9	7,310.4	7,236.4	74.0				769.0	871.5
Northern Windowpane	169.3	158.4	158.1	0.3				2.0	8.8
Southern Windowpane	436.5	65.9	53.8	12.0				2.0	368.6
Ocean Pout	87.0	49.6	46.6	3.0				3.0	34.5
Halibut	79.1	38.7	37.6	1.1				39.0	1.4
Wolffish	32.7	31.7	30.4	1.2				1.0	0.0

Values in live weight

Sector/Common Pool - from DMIS

*Includes estimate of missing dealer reports

Source: NMFS Northeast Regional Office

Run Date: March 7, 2012

These data are the best available to NOAA's National Marine Fisheries Service (NMFS). Data sources for this report include: (1) Vessels via VMS; (2) Vessels via vessel logbook reports; (3) Dealers via Dealer Electronic reporting. Differences with previous reports are due to corrections made to the database.

Rec - GOM Cod	- subcomponent value
Rec - GOM Haddock	- avg of MRIP, MRFSS, landings only
Herring	- approx. from monitoring reports
Scallop	- CY11 Scalop Est. = CY11 Kall * disc rate from Nov. '10 to Oct. '11
State Water	- subcomponent value
Other subcomponent - GB cod and pollock: same as "other stocks" + FY10 recreational catch	- For SNE winter flounder & S. windowpane: CY11 non-scallop Kall * non-scallop disc rate from Nov. '10 through Oct. '11, + CY11 scallop catch est. - For other stocks: CY11 non-scallop Kall * non-scallop disc rate from Nov. '10 through Oct. '11 + FY10 actual scallop catch where included

Table 2 - CY 2012 End of Year Accounting of NE Multispecies Catch (mt)

	ACLs and sub-ACLs; (with accountability measures (AMs))							sub-components: No AMs	
Stock	**Total Groundfish**	Groundfish Fishery	Sector	Common Pool	Recreational	Herring Fishery	Scallop Fishery	State Water	Other
	A to G	A+B+C	A	B	C	D	E	F	G
GB cod	4,069.0	3,814.0	3,756.9	57.1				51.0	204.0
GOM cod	6,087.1	5,385.1	3,093.8	76.3	2,215.0			468.0	234.0
GB Haddock	7,476.0	5,654.0	5,602.8	51.2		286.0		307.0	1,229.0
GOM Haddock	605.9	559.9	298.2	2.7	259.0	9.0		15.0	22.0
GB Yellowtail Flounder	530.5	200.4	197.5	2.9			307.5	0.0	22.6
SNE Yellowtail Flounder	602.9	426.9	383.4	43.5			126.0	10.0	40.0
CC/GOM Yellowtail Flounder	860.4	802.4	782.4	19.9				35.0	23.0
Plaice	1,959.1	1,778.1	1,754.8	23.3				36.0	145.0
Witch Flounder	1,342.6	1,227.6	1,194.0	33.6				49.0	66.0
GB Winter Flounder	2,746.4	2,558.4	2,551.8	6.7				0.0	188.0
GOM Winter Flounder	769.7	443.7	419.3	24.4				272.0	54.0
SNE Winter Flounder	327.6	27.6	27.3	0.3				175.0	125.0
Redfish	3,086.6	2,625.6	2,619.8	5.8				92.0	369.0
White Hake	3,124.7	2,942.7	2,903.8	39.0				73.0	109.0
Pollock	6,379.1	4,255.1	4,215.2	39.9				754.0	1,370.0
Northern Windowpane	215.0	180.0	177.8	2.2				2.0	33.0
Southern Windowpane	343.4	34.4	34.0	0.4				39.0	270.0
Ocean Pout	84.4	58.4	57.7	0.7				3.0	23.0
Halibut	80.4	33.4	33.0	0.4				43.0	4.0
Wolffish	26.4	22.4	22.1	0.3				1.0	3.0

Values in live weight	Sector: - For allocated stocks, FY10% of sub-ACL caught * FY12 sub-ACL

Source: NMFS Northeast Regional Office Run Date: March 9, 2012	- For non-allocated stocks, FY10 % of commercial sub-ACL caught * FY12 commercial sub-ACL * (sum of allocated **sector** sub-ACLs/sum of allocated commercial sub-ACLs)
These data are the best available to NOAA's National Marine Fisheries Service (NMFS). Data sources for this report include: (1) Vessels via VMS; (2) Vessels via vessel logbook reports; (3) Dealers via Dealer Electronic reporting. Differences with previous reports are due to corrections made to the database.	Common Pool: - For allocated stocks, FY10% of sub-ACL caught * FY12 sub-ACL - For non-allocated stocks, FY10 % of commercial sub-ACL caught * FY12 commercial sub-ACL * (sum of allocated **common pool** sub-ACLs/sum of allocated commercial sub-ACLs)
	All other components: - FY12 subcomponent value