

**NOAA
FISHERIES
SERVICE**



Assessment or Data Updates of 13 NE Groundfish Stocks through 2010

(NEFSC CRD#12-06)

Presentation: April 2012

List of stocks, their previous assessment date and review process. With the exception of the haddock stocks, these stocks are in rebuilding plans:

Stock Code	Count	Stock	Previously Assessed	Previous Review Process
A	1	GB cod	2008	GARM III
B	2	GB haddock	2008	GARM III
C	3	GOM haddock	2008	GARM III
D	4	CC-GOM yellowtail flounder	2008	GARM III
E	5	American plaice	2008	GARM III
F	6	witch flounder	2008	GARM III
G	7	Acadian redfish	2008	GARM III
H	8	white hake	2008	GARM III
I	9	GOM-GB windowpane flounder	2008	GARM III
J	10	SNE-MAB windowpane flounder	2008	GARM III
K	11	ocean pout	2008	GARM III
L	12	Atlantic wolffish	2008	DPSWG
M	13	Atlantic halibut	2008	GARM III

The Groundfish FMP has 20 stocks.

What about the other 7 that were not reviewed here?

5 were re-assessed during 2010-2012 in the SAW/SARC :

pollock

winter flounder (3 stocks)

GOM cod

2 are scheduled for peer review in 2012 :

Stock	Event	Date
SNE Yellowtail Flounder	SARC 54	June 2012
GB Yellowtail Flounder	TRAC	June 2012

Assessment Process

- **Followed the New Integrated Peer Review Process for Assessment Updates. Not the SAW/SARC process.**
- **Process approved by NRCC in April 2011.**
- **Emphasis on updating previous assessments. General rule: No changes made to underlying models.**
- **Final Written Report: NEFSC CRD 12-06**
<http://www.nefsc.noaa.gov/publications/crd/>
- **Report includes assessment uncertainty, general comments, short term projections, projection accuracy.**

Generic TORs for Assessment Updates, "New" Process

- 1. Update all input data (fishery-dependent and -independent) for model.**
- 2. Estimate stock biomass and fishing mortality rate, by year.**
- 3. Identify and quantify data and model uncertainty.**
- 4. If appropriate, update the values of the biological ref points (BRPs).**
- 5. Do a stock status determination.**
- 6. Do short-term projections**
- 7. Is a new assessment approach warranted?**
- 8. If model fails, suggest alternatives for going forward?**

Meeting location/date:

**Stephen H. Clark Conference Room – Northeast Fisheries Science Center
Woods Hole, Massachusetts
March 13-17, 2012**

Reviewers at the integrated peer review of assessments:

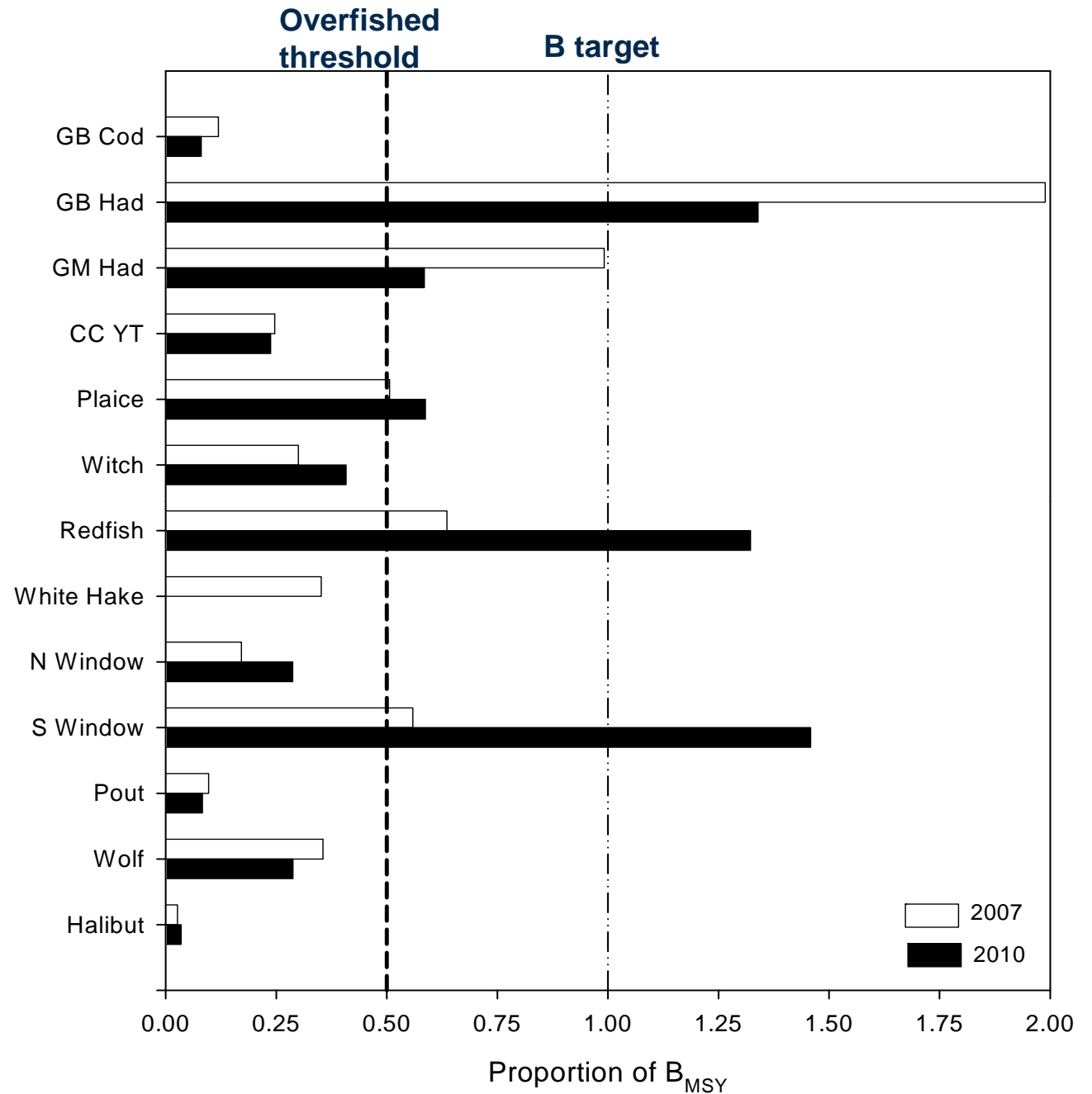
Dr. Steven Cadrin	UMass Dartmouth, SMAST
Dr. Alexei Sharov	Maryland Dept. Natural Resources
Mr. Steven Correia	Massachusetts Div. Marine Fisheries
Dr. Sandra Lowe	NMFS Alaska Fisheries Sci. Center
Dr. Paul Rago (co-chair)	NMFS Northeast Fisheries Sci. Center
Dr. James Weinberg (co-chair)	NMFS Northeast Fisheries Sci. Center

Results

Comparisons over Time:

2007 and 2010 biomass with respect to their BRPs.

Source:
GARM III (2008),
DPSWG, Groundfish
updates (2012).



GB = Georges Bank
GOM = Gulf of Maine

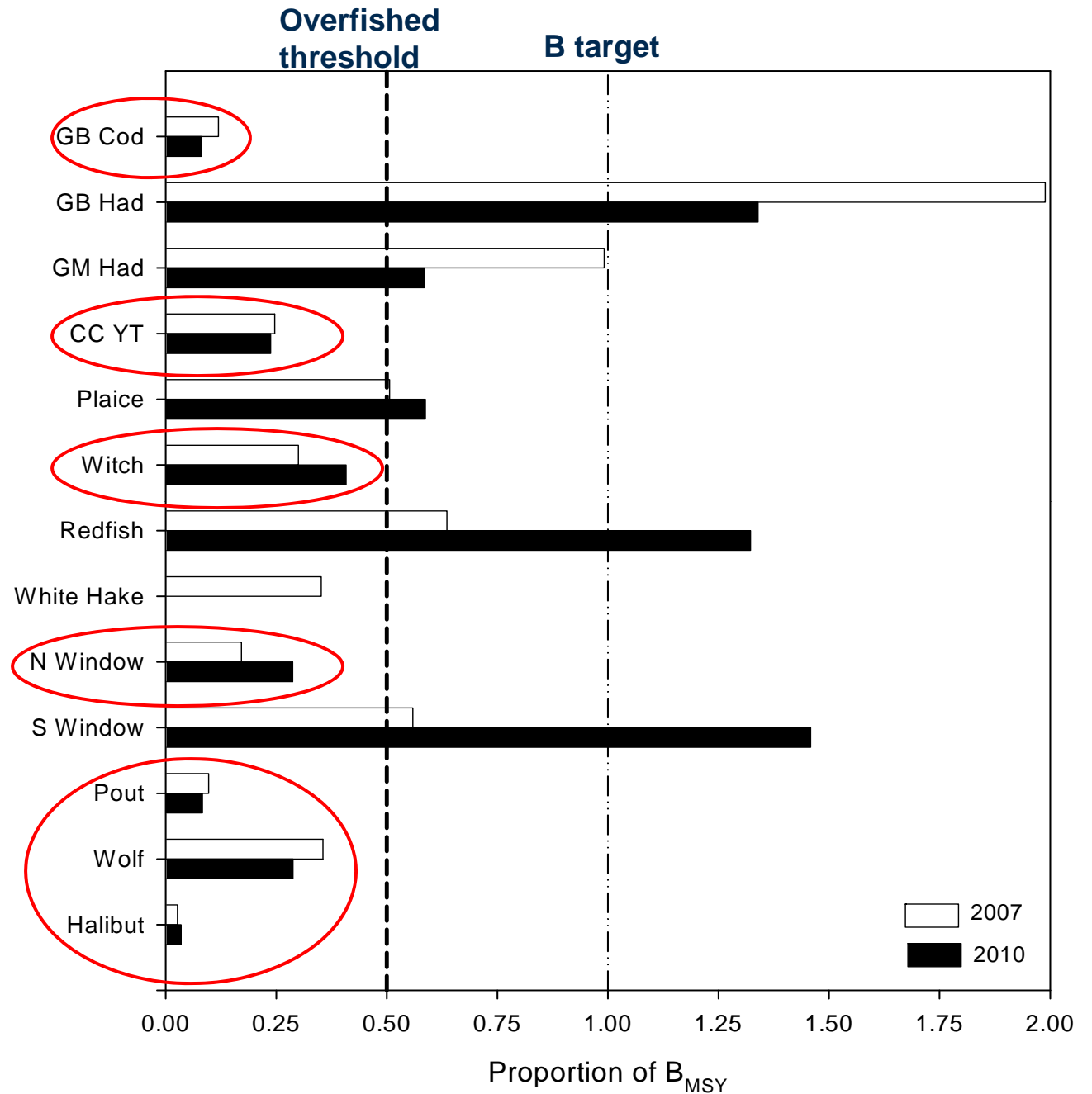
Summary of Status Findings regarding Stock Biomass:

- **Two stocks are newly rebuilt :**
redfish, S. windowpane flounder
- **3 of 12 stocks are equal to or greater than their Biomass targets :** **GB haddock, redfish, S. windowpane**
- **7 of 12 stocks analyzed are overfished**
- **3 stocks are at <10% of their respective biomass targets :**
Halibut, ocean pout, and GB cod
- **There were no (0) changes in overfished status between GARM III and current results**

Comparisons over Time:

2007 and 2010 **biomass** with respect to their BRPs.

Source:
GARM III (2008),
DPSWG, Groundfish
updates (2012).



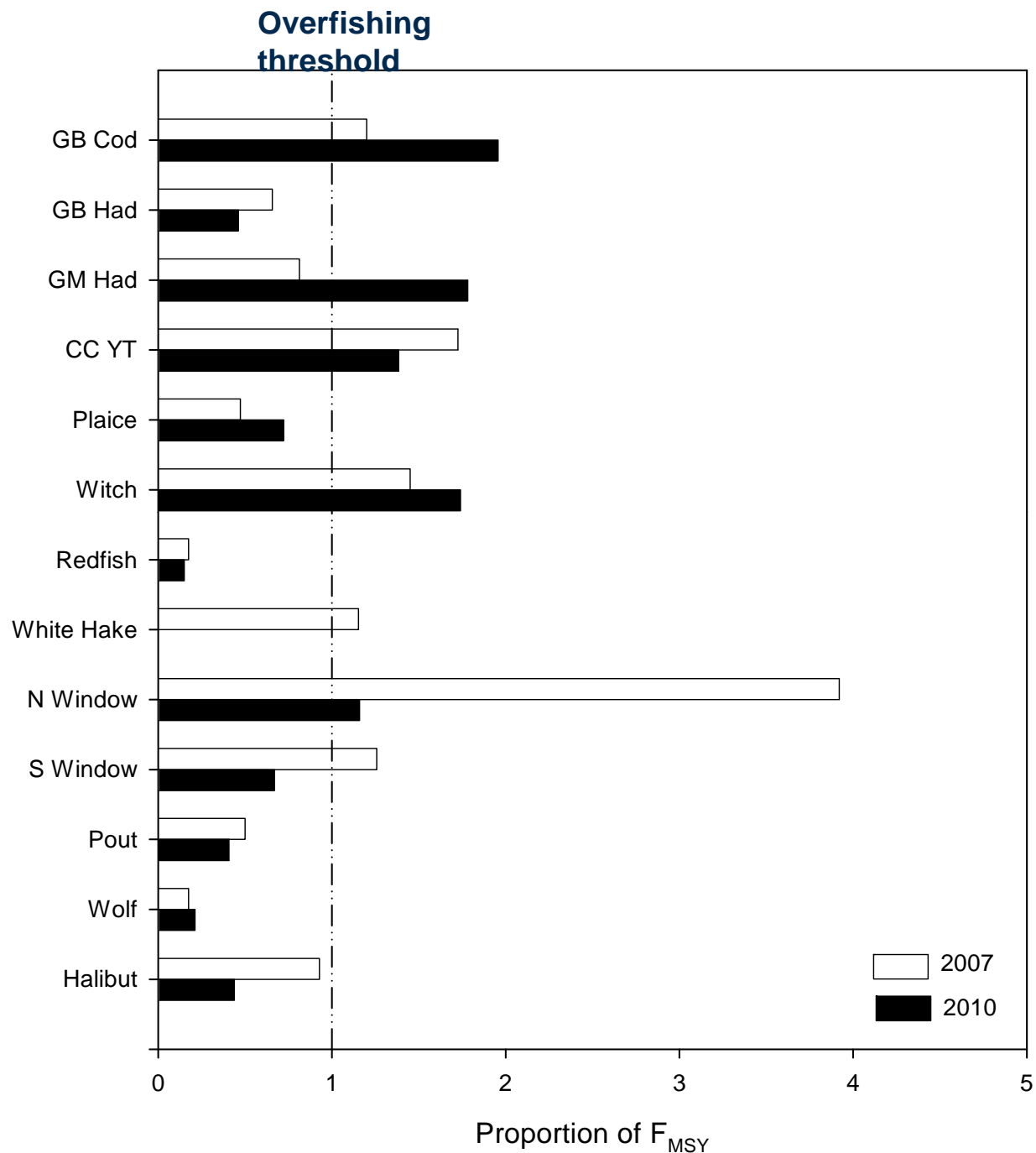
GB = Georges Bank
GOM = Gulf of Maine

Stock	Is stock OVERFISHED?		Any Status Changes ?
	Previous Assessment (2008)	New Update (2012)	
GB cod	Yes	Yes	
GB haddock	No	No	
GOM haddock	No	No	
CC GOM YT flounder	Yes	Yes	
American plaice	No	No	
witch flounder	Yes	Yes	
Acadian redfish	No	No	Rebuilt
white hake	Yes	(not determined)	
GOM GB windowpane	Yes	Yes	
SNE MAB windowpane	No	No	Rebuilt
ocean pout	Yes	Yes	
Atlantic wolffish	Yes	Yes	
Atlantic halibut	Yes	Yes	

Comparisons over Time:

2007 and 2010
fishing mortality
with respect to their
 F_{MSY} proxies.

Source:
GARM III (2008), DPSWG,
and Groundfish updates
(2012).



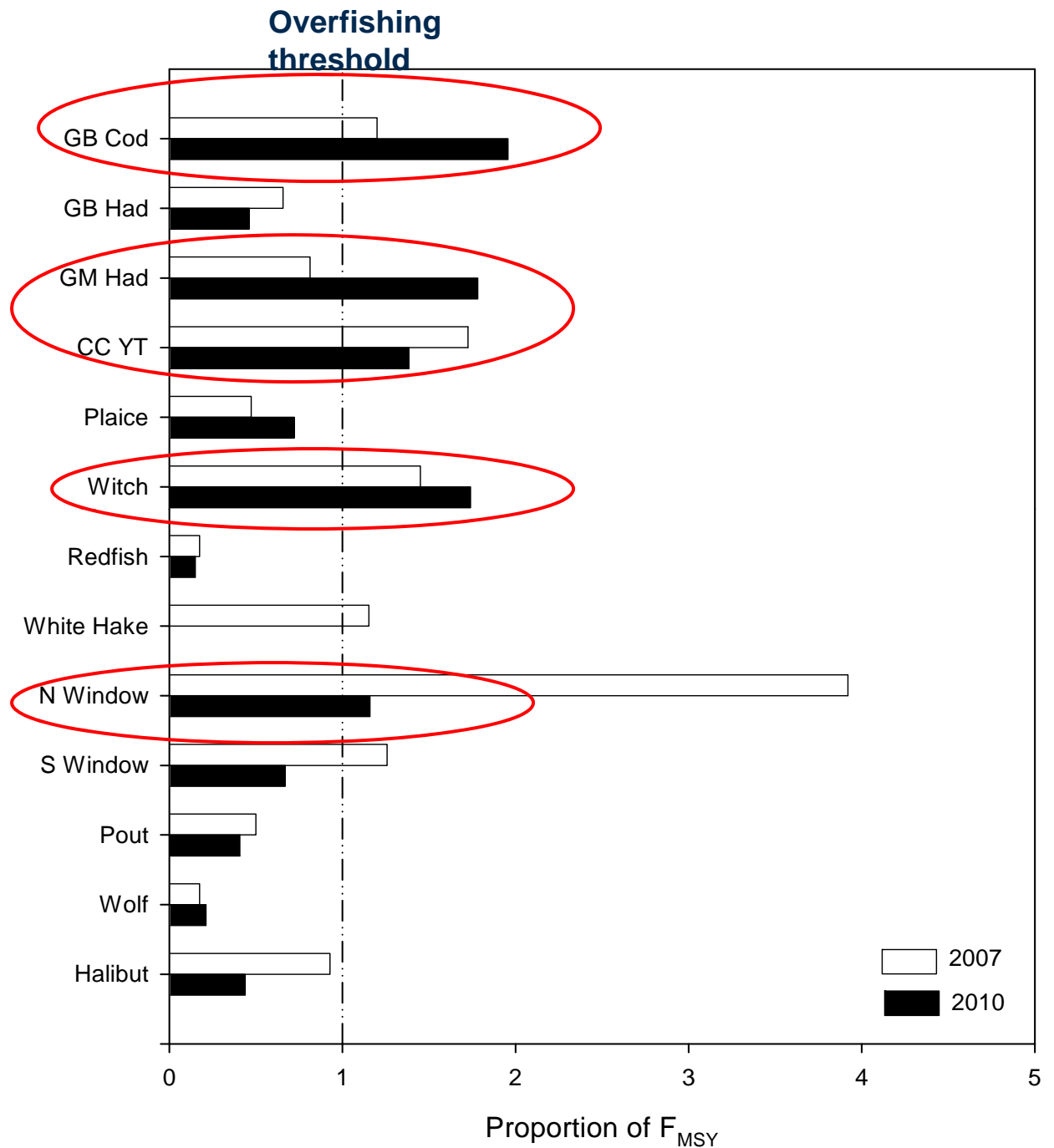
Summary of Status Findings regarding Overfishing:

- **Of the 12 stocks analyzed, 2 changed their overfishing status between GARM III and current results :**
GB haddock went from “No” to “Yes”.
S. windowpane went from “Yes” to “No”.
- **Overfishing is occurring in 5 of 12 stocks analyzed.**
- **3 stocks with the highest rate of overfishing, relative to their reference points, are:**
GB cod, GOM haddock, and witch flounder

Comparisons over Time:

2007 and 2010
fishing mortality
with respect to their
 F_{MSY} proxies.

Source:
GARM III (2008), DPSWG,
and Groundfish updates
(2012).



Stock	Is OVERFISHING occurring?		Any Status Changes ?
	Previous Assessment (2008)	New Update (2012)	
GB cod	Yes	Yes	
GB haddock	No	No	
GOM haddock	No	Yes	Overfishing
CC GOM YT flounder	Yes	Yes	
American plaice	No	No	
witch flounder	Yes	Yes	
Acadian redfish	No	No	
white hake	Yes	(not determined)	
GOM GB windowpane	Yes	Yes	
SNE MAB windowpane	Yes	No	Not overfishing
ocean pout	No	No	
Atlantic wolffish	No	No	
Atlantic halibut	No	No	

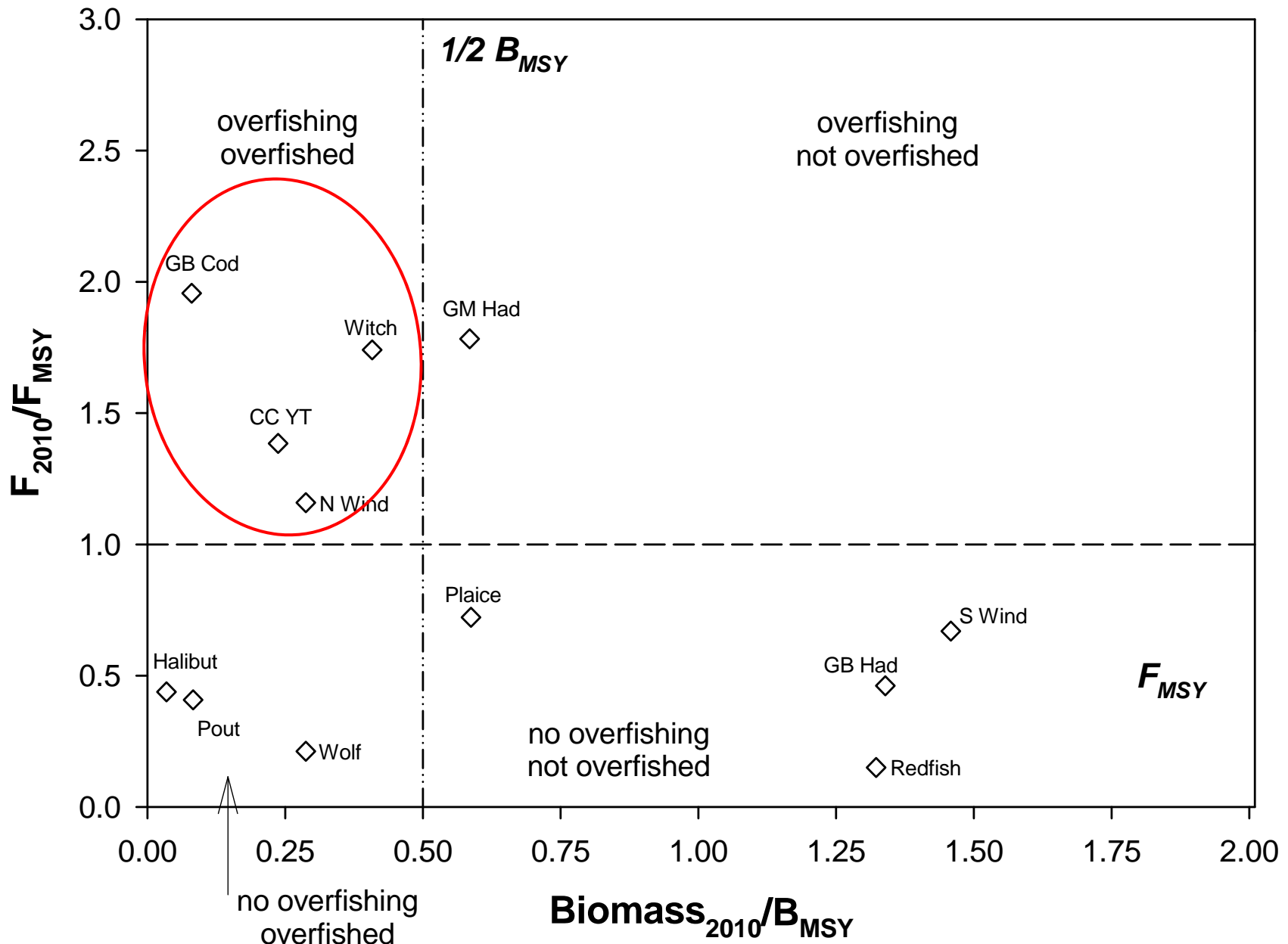
Biomass summary. Comparisons between GARM III and Groundfish Updates Peer Review, 2012.

ID	Stock	Model	¹ Biomass (mt or kg/tow if noted)				Status		
			2012 Update			GARM III		Overfished?	
			B _{msy proxy}	B ₂₀₁₀	B ₂₀₀₇	B _{msy proxy}	B ₂₀₀₇	² GARM III	2012 Update
1	GB cod	VPA	140,424	11,289	9,494	148,084	17,672	YES	YES
2	GB haddock	VPA	124,900	167,279	252,065	158,873	315,975	NO	NO
3	GOM haddock	VPA	4,904	2,868	6,796	5,900	5,850	NO	NO
4	CC GOM YT flounder	VPA	7,080	1,680	824	7,790	1,922	YES	YES
5	American plaice	VPA	18,398	10,805	12,271	21,940	11,106	NO	NO
6	witch flounder	VPA	10,051	4,099	2,710	11,447	3,434	YES	YES
7	Acadian redfish	SCAA	238,000	314,780	241,090	271,000	172,342	NO	NO
8	white hake	(data update)	--	--	--	56,254	19,800	YES	--
9	GOM GB windowpane	Index	1.60 kg/tow	0.46 kg/tow	0.242 kg/tow	1.40 kg/tow	0.24 kg/tow	YES	YES
10	SNE MAB windowpane	Index	0.24 kg/tow	0.35 kg/tow	0.19 kg/tow	0.34 kg/tow	0.19 kg/tow	NO	NO
11	ocean pout	Index	4.94 kg/tow	0.41 kg/tow	0.47 kg/tow	4.94 kg/tow	0.48 kg/tow	YES	YES
12	Atlantic wolffish ²	SCALE	1,756	505	490	2184 - 2202	562 - 998	YES	YES
13	Atlantic halibut	Replacement yield	49,000	1,700	1,320	49,000	1,300	YES	YES

Fishing mortality summary. Comparisons between GARM III and Groundfish Updates Peer Review, 2012.

Stock	Model	Fishing mortality (instaneous rates or 000 mt landings per survey kg/tow)					Status	
		2012 Update			GARM III		Overfishing?	
		F _{msy proxy}	F ₂₀₁₀	F ₂₀₀₇	F _{msy proxy}	F ₂₀₀₇	² GARM III	2012
GB cod	VPA	0.23	0.45	0.88	0.25	0.3	YES	YES
GB haddock	VPA	0.39	0.18	0.19	0.35	0.23	NO	NO
GOM haddock	VPA	0.46	0.82	0.23	0.43	0.35	NO	YES
CC GOM YT flounder	VPA	0.26	0.36	1.02	0.24	0.414	YES	YES
American plaice	VPA	0.18	0.13	0.08	0.19	0.09	NO	NO
witch flounder	VPA	0.27	0.47	0.52	0.2	0.29	YES	YES
Acadian redfish	SCAA	0.04	0.006	0.0049	0.04	0.007	NO	NO
white hake	(data update)	--	--	--	0.13	0.15	YES	--
GOM GB windowpane	Index ³	0.44	0.51	2.082	0.5	1.96	YES	YES
SNE MAB windowpane	Index ³	2.09	1.4	1.82	1.47	1.85	YES	NO
ocean pout	Index ³	0.76	0.31	0.35	0.76	0.38	NO	NO
Atlantic wolffish ²	SCALE	0.33	0.07	0.33	.13 - .32	0.158	UNK	NO
Atlantic halibut	Replacement yield ⁴	0.073	0.032	0.062	0.07	0.065	NO	NO

2010 Groundfish Stock Status



Changes in Biological Reference Point Values over Time¹

- **F_{MSY} proxies changed from [-8% to +35%].**
- **B_{MSY} proxies changed from [-5% to -21%].**
- **MSY proxies changed from [-7% to -16%].**

1. Based on 7 stocks updated with VPA or SCAA model.

White hake had a 'data' update, not an 'assessment' update.

**It requires significant analytical work, beyond an update,
and could not be handled in this process.**

Currently scheduled on future SARC.



Projections

Catch projections in this update are **provisional**.

Groundfish PDT will update the projections with improved or final estimates of catches for 2011. All projections here are based on the assumption that catches in 2011 were equal to 2010.

Provisional Projections of catches for 2012 at various fishing mortality rates (status quo, F_{rebuild} , F_{msy} and 75% of F_{msy}) were often lower than the ABCs and ACLs currently specified in Fwk-47.

OFL, ABC and ACL for 2012 by stock,
with provisional projected catch in 2012 (mt) under different F scenarios.

Stock	NEFMC SSC Recommendations		Framework 47	Projected catch (mt) for 2012 based on 2012 update			
	¹ OFL (mt)	¹ ABC (mt)	² ACL (mt)	Fmsy proxy	75% Fmsy proxy	Frebuild	F status quo
GB cod	7,311	5,616	4,861	--	2787	1566	6651
GB haddock	51,150	39,846	29,260	45,600	--	--	--
GOM haddock	1,296	1,013	958	327	258	--	--
CC-GOM yellowtail flounder	1,508	1,159	1,104	723	558		796
American plaice	4,727	3,632	3,459	--	1636	0	1075
witch flounder	2,141	1,639	1,563	1,207	919	854	--
Acadian redfish	12,036	9,224	8,786	13,654	10,286	--	2,196
white hake	5,306	3,638	3,465	--	--	--	--
GOM-GB windowpane flounder	230	173	163	201	--	--	--
SNE-MAB windowpane flounder	515	386	381	729	752	--	--
ocean pout	342	256	240	--	--	--	--
Atlantic wolffish	92	83	77	--	--	--	--
Atlantic halibut	143	85	83	--	--	91	--

Assessment Uncertainty:

Each stock update had 1 or more sources of uncertainty (from this overall list)

- **Changes in weights at age or other life history parameters**
- **Estimates of catch that depend on historical data, or assumed discard mortality rate**
- **Recruitment time series to include in projections**
- **Whether research surveys are representative of stock size/abundance**
- **Conversion to new research survey vessel**
- **Retrospective patterns in VPA model output**
- **Projections based on GARM III often underestimated realized F and overestimated realized B**