Development of Framework 51 to the Multispecies FMP

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Groundfish Oversight Committee
August 14, 2013

Outline

- **Questions to consider**
- **FW 51 timeline**
- **Recent PDT work**

Questions

- **What should be included in Framework 51?**
  - Regulatory requirements
  - Additional groundfish issues

- **Does the GF OSC have any feedback on the development of the American plaice and GOM cod rebuilding plans?***

*The SSC will review the PDT work at the next SSC meeting.

Timeline

2013	Jun	Council initiates FW51
	Jul-Sep	Develop measures
	Sep	Council selects measures to include in FW51
	Sep-Nov	Develop NEPA analysis
	Nov	Council takes final action on FW51

Recent PDT work

REGULATORY REQUIREMENT

- **Revising the GOM cod rebuilding plan**
- **Revising the American plaice rebuilding plan**
- **Specifications for white hake**
- **US/CA TACs (GB yellowtail flounder, EGB cod, EGB haddock)**

ADDITIONAL GROUNDFISH ISSUES

- **Small-mesh fishery AMs for GB yellowtail flounder sub-ACL**
- **RA authority for in-season US/CA adjustment**
- **Discuss halibut and wolffish AMs**
- **Haddock spillover**
- **Carryover**
- **Disapproved reporting/monitoring issues in FW48**

Regulatory Requirements

1.1 Updates to Rebuilding and ACLs

- **Revising the GOM cod rebuilding plan**
- **Revising the American plaice rebuilding plan**
- **Specifications for white hake**
- **US/CA TACs (GB yellowtail flounder, EGB cod, EGB haddock)**

Rebuilding Plans

The PDT is concerned that, for most stocks, rebuilding has not occurred according to plan due to:

1) **starting in the wrong place** (e.g., terminal year of the assessment),
2) the **difficulty of setting catch advice** that is related to achieving a target fishing mortality rate, and
3) **recruitment** that was **less optimistic** than what is seen in the projections.

The PDT also discussed developing alternatives to traditional approaches, but such approaches would require further discussion and development.

Rebuilding Plans

The PDT proposes to develop two rebuilding plan options for each stock that meets **two requirements**:

- Assume no changes in the SSC's ABC decisions.
- F-rebuild is not allowed to be initially limiting

$$75\%F_{MSY} < \text{F-rebuild}$$

Rebuilding plan options

- Developed to be more conservative using a time period less than 10 years, with $75\%F_{MSY}$ still estimated to be below but closer to the F-rebuild estimate.
- Developed based on the maximum 10-year plan.

Rebuilding Plans

The PDT felt that one way to rebuild stocks is with uncertainty buffers on the fishing mortality rate.

Basing ABCs on F-rebuild is not desirable, since it can quickly lead to dramatic reductions in the ABCs based on less accurate longer term projections as the rebuilding end date gets closer.

In addition, as F-rebuild approaches zero then it is less likely to get adopted for ABC determination.

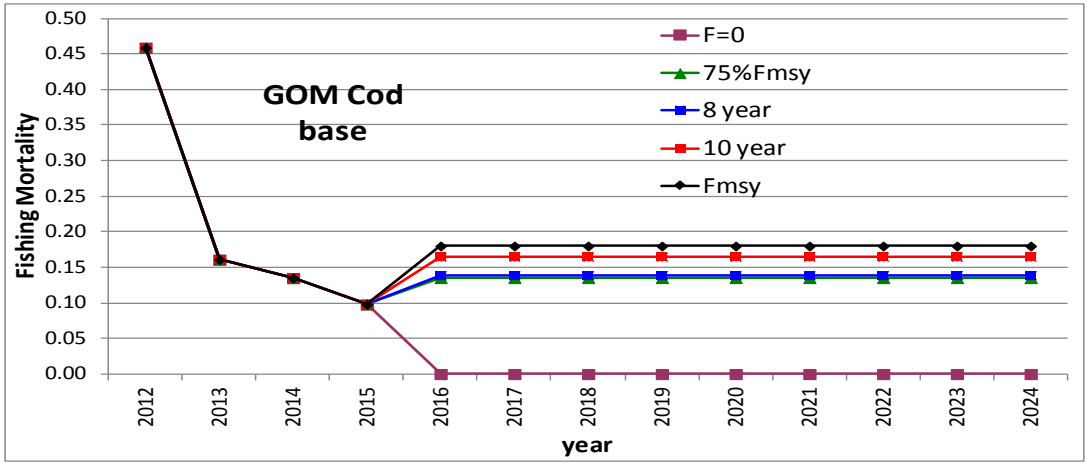
ABCs based on F-rebuild are less desirable since considerable uncertainty surrounds the F-rebuild estimate due to the estimate's dependence on future recruitment, which is difficult to predict.

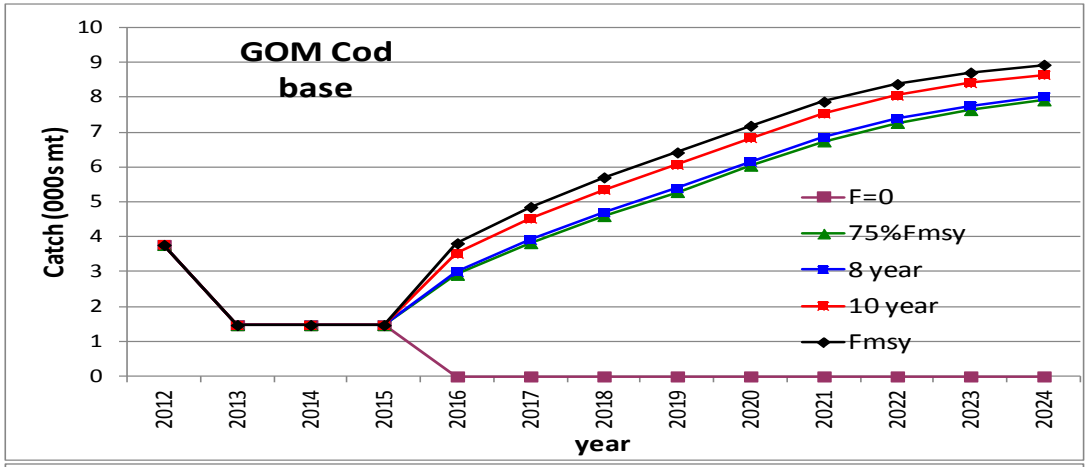
GOM Cod Rebuilding Plan

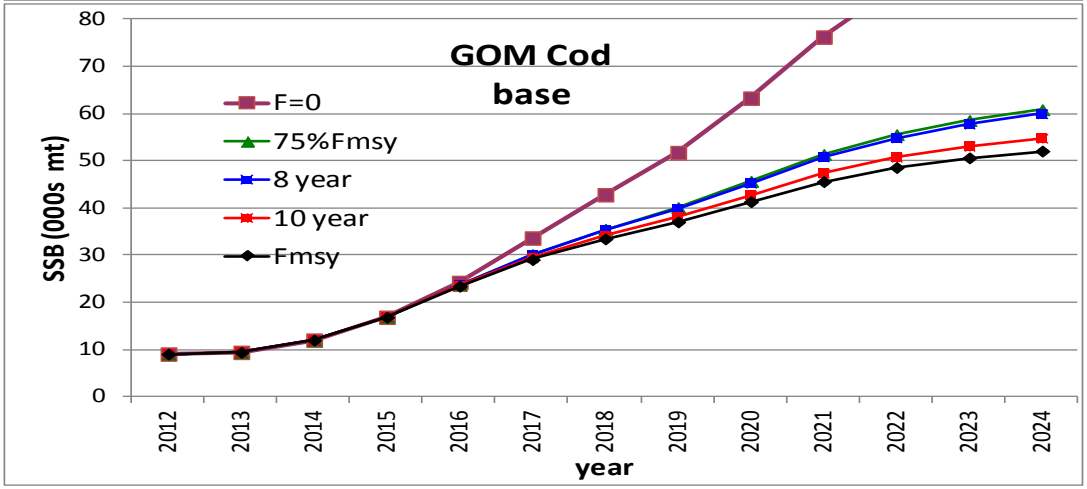
Option 1: No Action

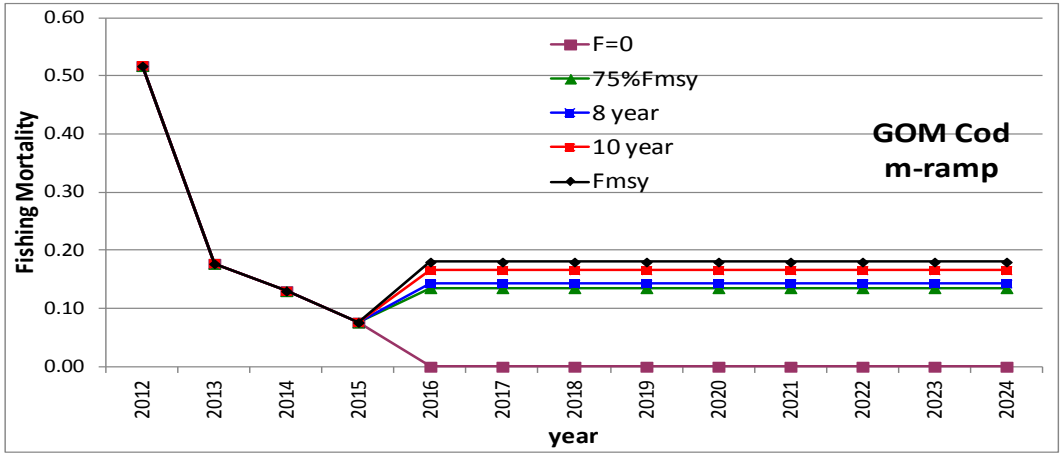
Option 2: Revised rebuilding strategy

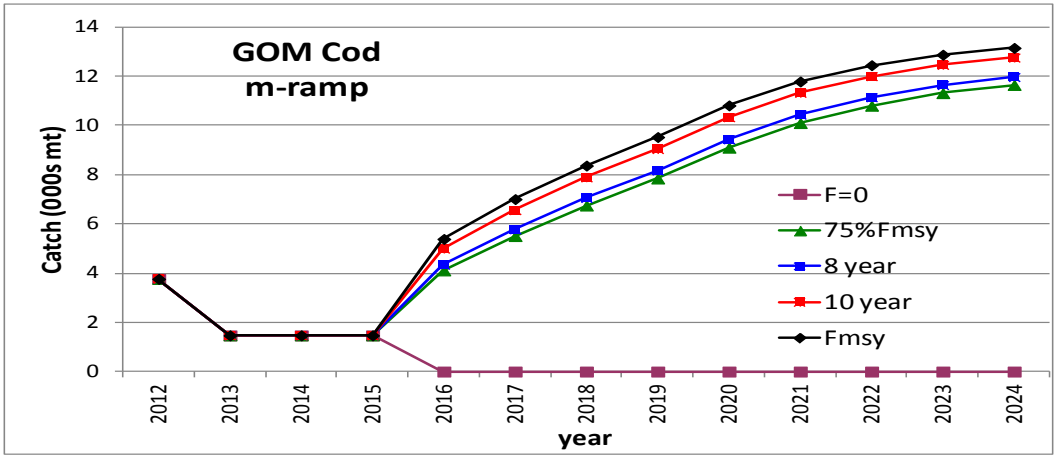
- **Sub-Option A**: The rebuilding strategy would be to rebuild the stock with a median probability of success by 2022. *8-year plan*
- **Sub-Option B**: The rebuilding strategy would be to rebuild the stock with a median probability of success by 2024. *10-year plan*

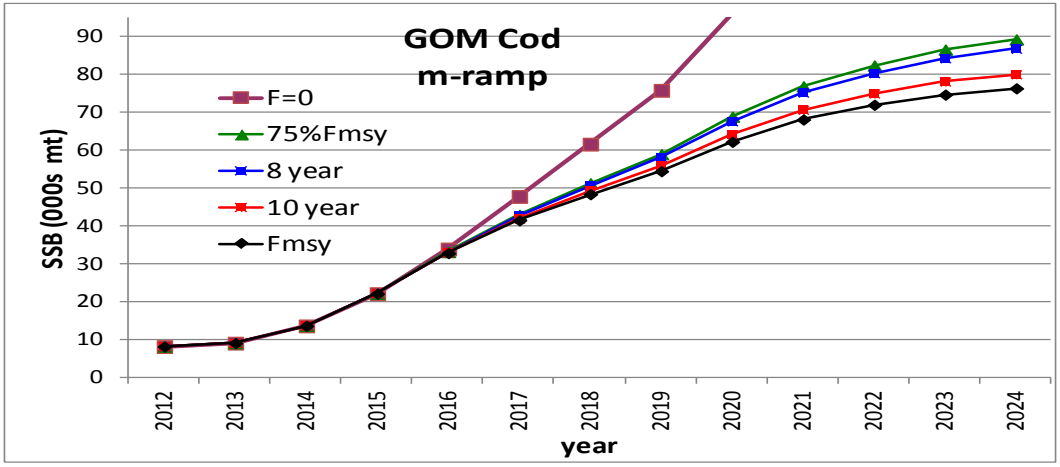

GOM Cod
base
Fishing Mortality
year
F=0
75%Fmsy
8 year
10 year
Fmsy


GOM Cod
base
Catch (000s mt)
year
F=0
75%Fmsy
8 year
10 year
Fmsy


GOM Cod
base
SSB (000s mt)
year
F=0
75%Fmsy
8 year
10 year
Fmsy


GOM Cod
m-ramp
F=0
75%Fmsy
8 year
10 year
Fmsy
Fishing Mortality
year


GOM Cod
m-ramp
F=0
75%Fmsy
8 year
10 year
Fmsy
Catch (000s mt)
year

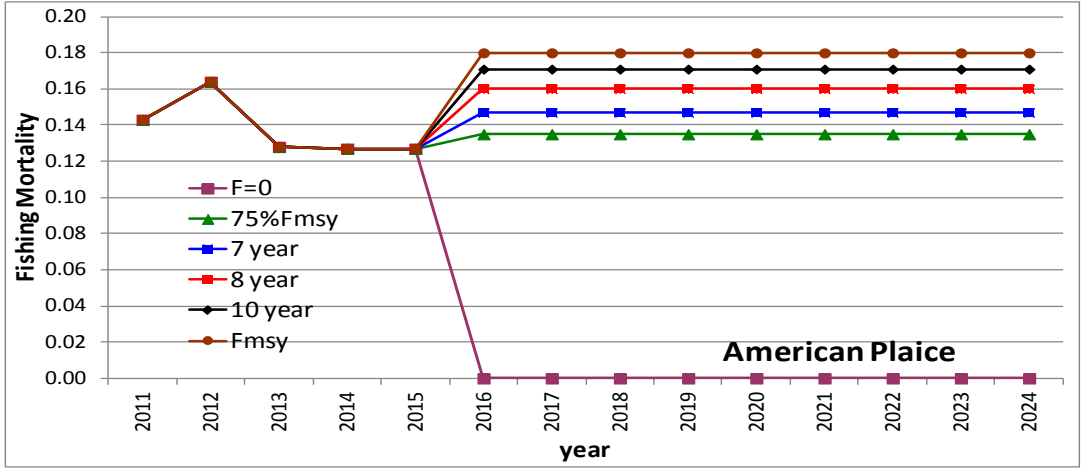

GOM Cod
m-ramp
F=0
75%Fmsy
8 year
10 year
Fmsy
SSB (000s mt)
year

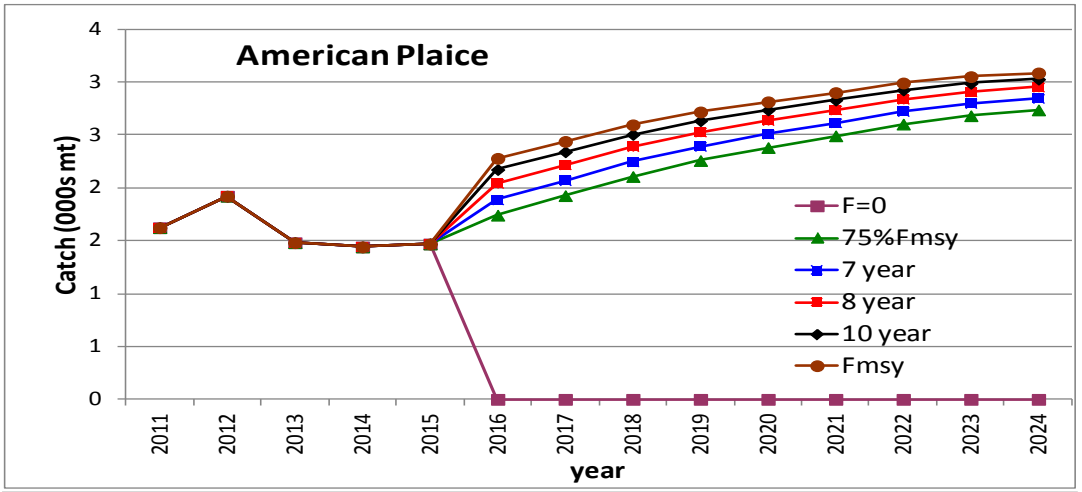
American plaice rebuilding plan

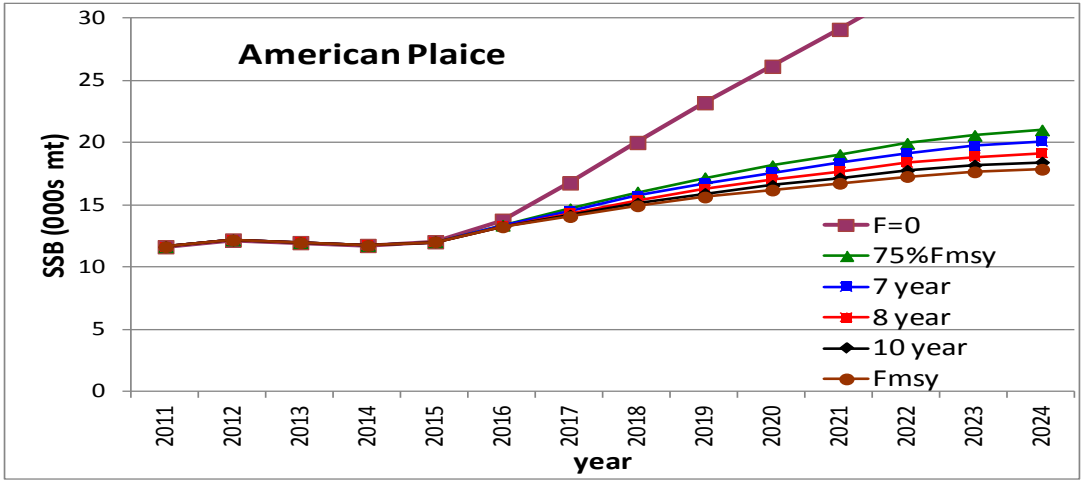
Option 1: No Action

Option 2: Revised rebuilding strategy

- **Sub-Option A**: The rebuilding strategy would be to rebuild the stock with a median probability of success by 2021. *7-year plan*
- **Sub-Option B**: The rebuilding strategy would be to rebuild the stock with a median probability of success by 2022. *8-year plan*
- **Sub-Option B**: The rebuilding strategy would be to rebuild the stock with a median probability of success by 2024. *10-year plan*


Fishing Mortality
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
F=0
75%Fmsy
7 year
8 year
10 year
Fmsy
American Plaice
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
year


American Plaice
Catch (000s mt)
4
3
3
2
2
1
1
0
F=0
75%Fmsy
7 year
8 year
10 year
Fmsy
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
year


American Plaice
SSB (000s mt)
30
25
20
15
10
5
0
F=0
75%Fmsy
7 year
8 year
10 year
Fmsy
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
year

Annual catch limits

Option 1: No Action

Option 2: Annual specifications for FY2014 through FY2015

- White hake
- Eastern Georges Bank cod
- Eastern Georges Bank haddock
- Georges Bank yellowtail flounder

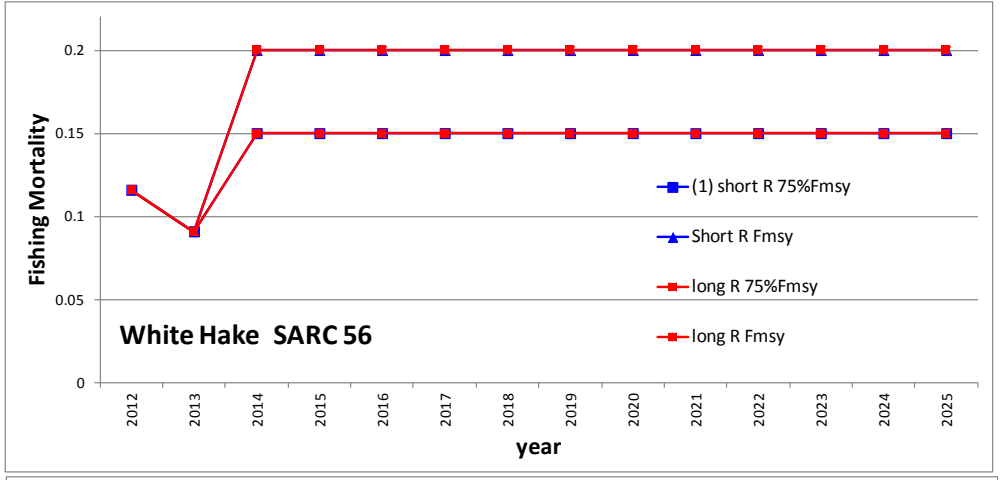
White Hake Specs

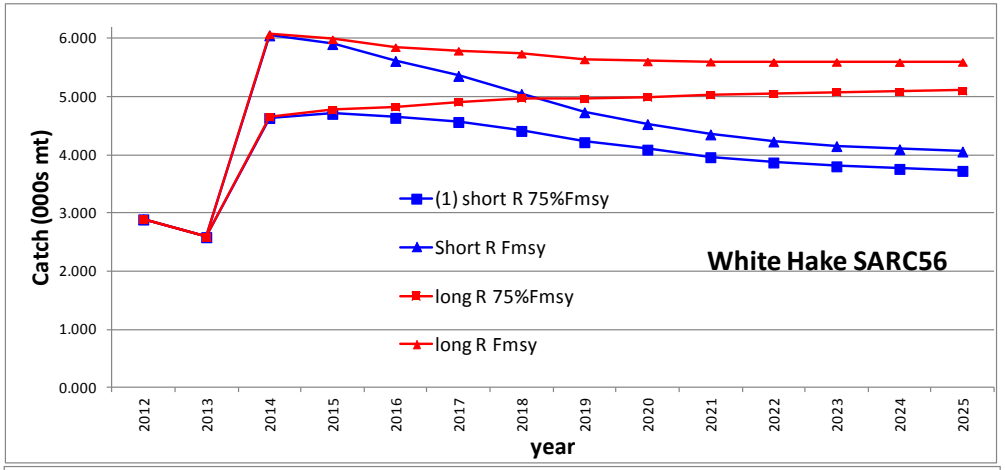
Candidate 2014-2016 ABCs

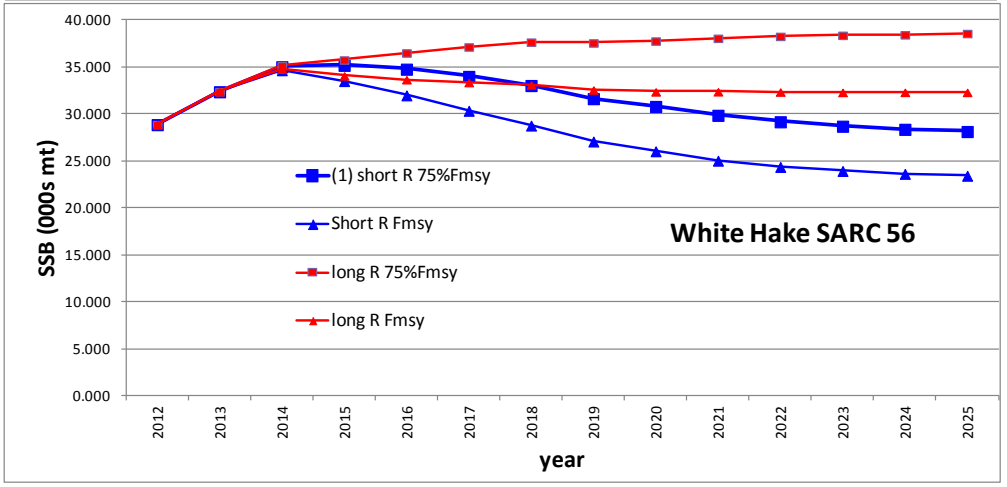
year	(1) ABC	(2) ABC	(3) ABC	(4) ABC	(5) ABC
2014	4,642 mt	4,642 mt	4,177 mt	3,997 mt	3,659 mt
2015	4,713 mt	4,642 mt	4,177 mt	3,997 mt	3,659 mt
2016	4,645 mt	4,642 mt	4,177 mt	3,997 mt	3,659 mt

1) 75% F_{MSY} from the projections
2) Constant at 2014 F_{MSY}
3) Constant at 2013 75% F_{MSY}
4) Constant at estimated 100 year projection F_{MSY}*
5) Constant at estimated 100 year projection 75%F_{MSY}*

* Assuming recruitment does not increase from what was observed over that last 15 years.



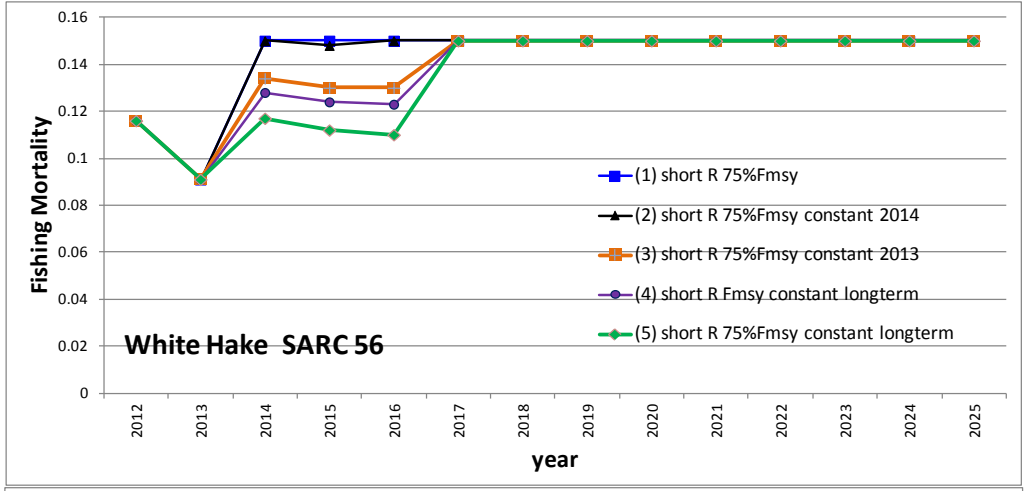


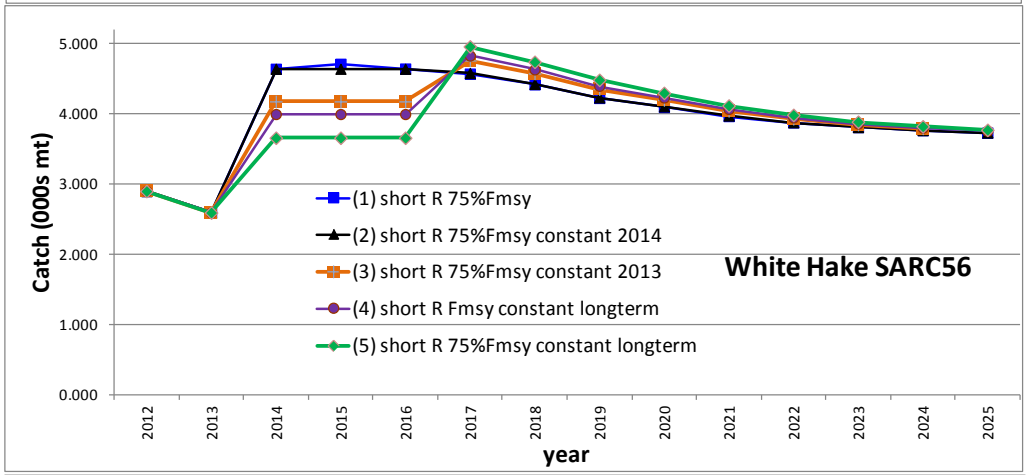


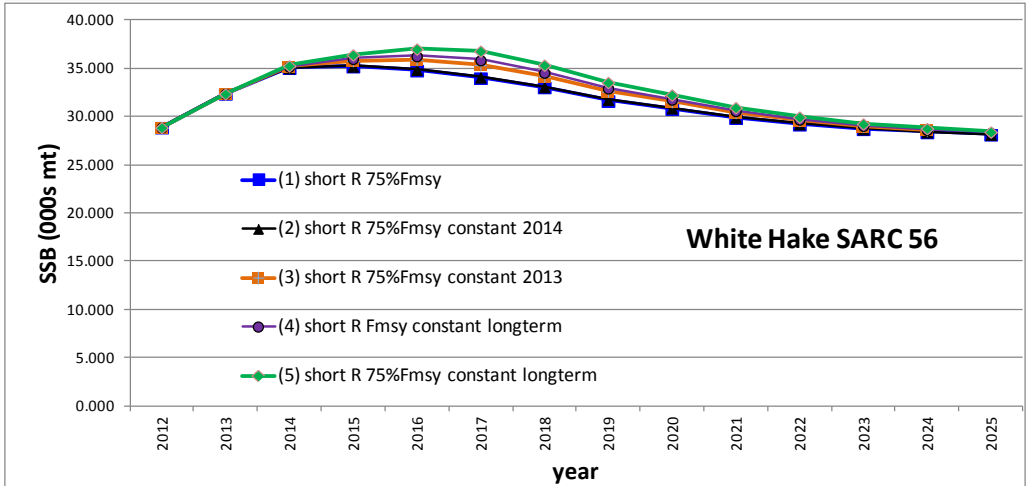
White Hake Projections

F_{MSY} & $75\%F_{MSY}$

Long term & Short term Recruitment



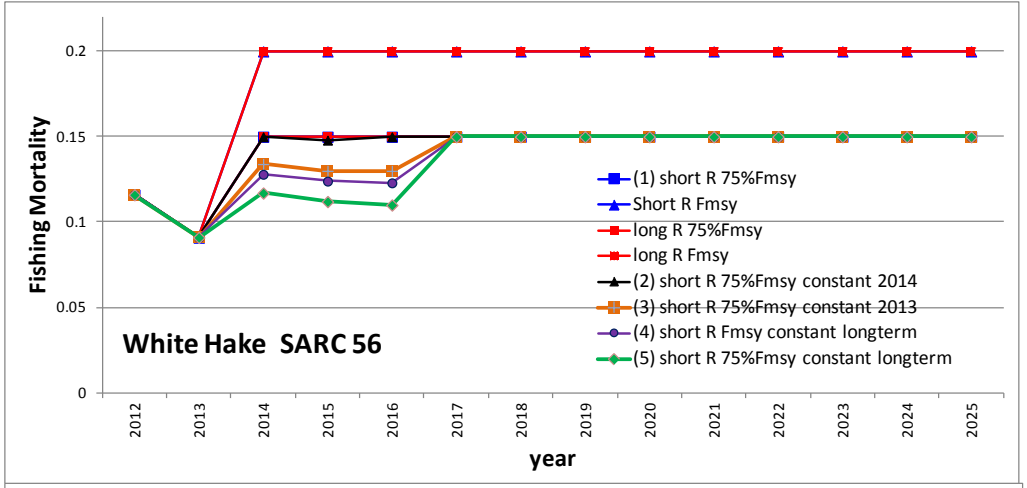


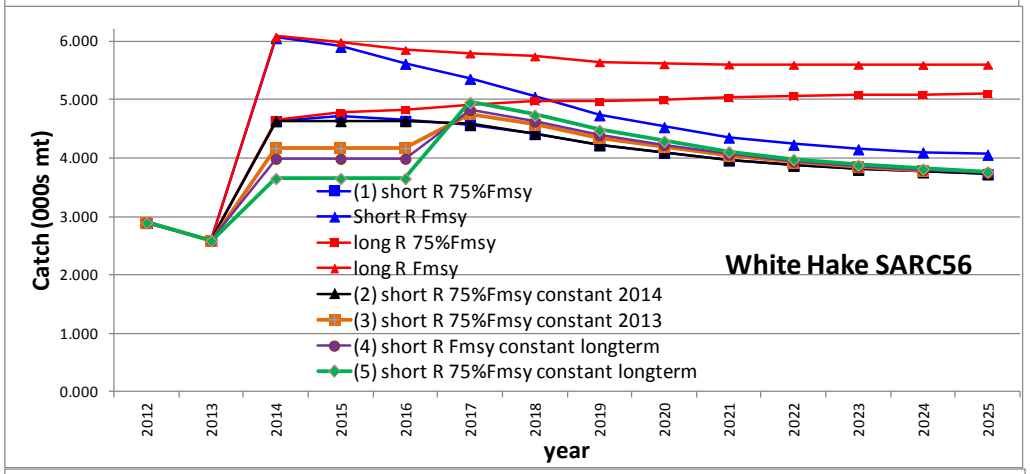


White Hake Projections

PDT Candidate ABCs (1-5)

Short term Recruitment


Fishing Mortality
0.2
0.15
0.1
0.05
0
White Hake SARC 56
(1) short R 75%Fmsy
Short R Fmsy
long R 75%Fmsy
long R Fmsy
(2) short R 75%Fmsy constant 2014
(3) short R 75%Fmsy constant 2013
(4) short R Fmsy constant longterm
(5) short R 75%Fmsy constant longterm
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
year


Catch (000s mt)
6.000
5.000
4.000
3.000
2.000
1.000
0.000
White Hake SARC56
(1) short R 75%Fmsy
Short R Fmsy
long R 75%Fmsy
long R Fmsy
(2) short R 75%Fmsy constant 2014
(3) short R 75%Fmsy constant 2013
(4) short R Fmsy constant longterm
(5) short R 75%Fmsy constant longterm
2012
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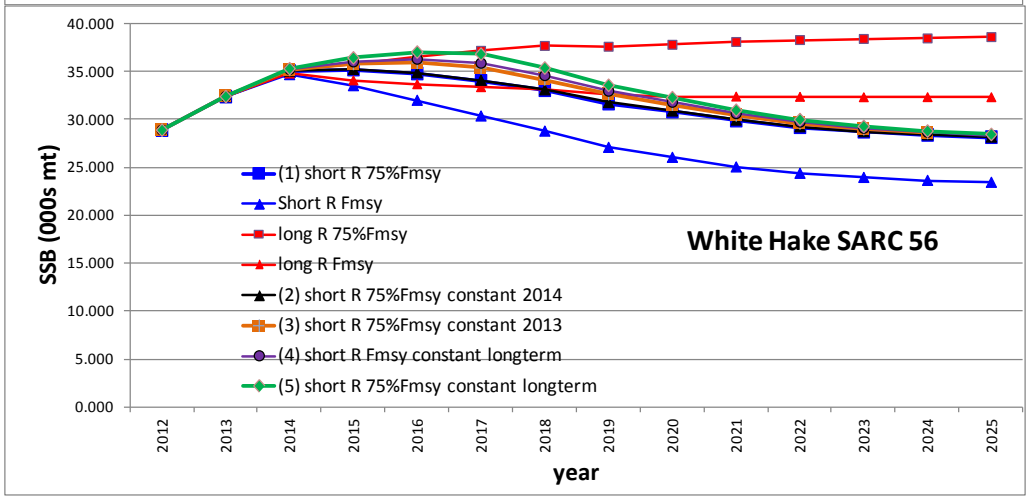
year


SSB (000s mt)
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
White Hake SARC 56
(1) short R 75%Fmsy
Short R Fmsy
long R 75%Fmsy
long R Fmsy
(2) short R 75%Fmsy constant 2014
(3) short R 75%Fmsy constant 2013
(4) short R Fmsy constant longterm
(5) short R 75%Fmsy constant longterm
2012
2013
2014
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2016
2017
2018
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2020
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2022
2023
2024
2025
year

US/CA TACs

TRAC Results

Eastern Georges Bank Cod

- Recent Benchmark:
  - Catch advice was provided on a single assessment model (VPA M 0.8).
  - Natural mortality (M) was fixed at 0.2 for all ages in all years except for ages 6+ in years after 1994 (i.e., assumed higher natural mortality of M=0.8 for older ages post-1994).

- Results from TRAC:
  - The 2003 year class is estimated to be the highest recruitment since 2000, but the assessment indicates that 2010 could be higher than 2003.
  - Fish condition, previously stable, has declined in recent years.
  - Lower weights at age in the population in recent years and poor recruitment have contributed to the lack of rebuilding.
  - In order to not exceed F=0.11 and to achieve a 10% increase in biomass, catches must not exceed 600 mt.

US/CA TACs

TRAC Results

Eastern Georges Bank Haddock

- The strong 2010 year class (474 million age 1 fish) could be the largest cohort in the assessment time series.
- Fish condition has generally been below the time series average since 2000.
- Assuming a 2013 catch equal to the 10,400 mt total quota, a combined Canada/USA catch of 31,500 mt in 2014 results in neutral risk (50%) that the 2014 fishing mortality would exceed Fref=0.26.
- The probability that the 2015 biomass will not increase is greater than 75% at the Fref catch level and it is unlikely that it will increase by 10% at any of the catch scenarios considered.

US/CA TACs

TRAC Results

Georges Bank Yellowtail Flounder

- The Split Series VPA, was used for the stock assessment, but a retrospective adjustment was applied to the terminal year estimates for both status determination and when providing catch advice (Quota at Fref= 123 mt).
- The TRAC acknowledges that the assumptions made about population dynamics in the model do not fully capture the trends in the data. However, the model's conclusion that stock conditions are poor is valid.
- To achieve a high probability that F in 2014 will be less than Fref, a 2014 quota of less than 200 mt would be required.
- In order to achieve high probability that adult biomass will increase from 2014 to 2015, a 2014 quota of less than 500 mt would be required.
- Due to the assumption used for the 2012 year class in the projections, the increase in adult biomass will be optimistic if the 2012 year class is as poor as the recent year classes.

Additional Groundfish Issues

1.2 Commercial Fishery Measures

- **Small-Mesh Fishery Measures**
- **Management Measures for US/CA TACs**

Small-mesh AMs

Option 1: No Action

Option 2: AM for small-mesh fishery Georges Bank yellowtail flounder sub-ACL

- Framework 48 adopted the sub-ACL for George Bank yellowtail flounder in the small-mesh fisheries.
- AMs needed by FY2014 and could be retroactive if there is an overage in FY2013.
- Coordination interest: Whiting (NEFMC) and squid (MAFMC).
- PDT discussed AMs in a general sense (e.g., gear restrictions, area-based closures, gear-restricted areas for the sub-ACL).

RA authority US/CA in-season adjustment

Option 1: No Action

Option 2: Revised in-season adjustment for US/CA TACs

- The Regional Administrator would be allowed to adjust the US/CA quotas during the FY (i.e., after allocations were made).
- Additional quota would be allocated consistent with the current ABC distribution.
- The RA would not have the authority to change the allocations to the sub-ACLs during the FY.

Other Groundfish Issues

- **Halibut and wolffish AMs**
- **Haddock spillover**
- **Carryover**
- **Disapproved monitoring and reporting requirements from FW 48**

Halibut and wolffish AMs

- The total halibut quota for FY2012 was 83 mt, with 61 mt of commercial catch caught in federal waters and State waters and other sub-component catch remain forthcoming.
- An overage of the total ACL in 2012 would trigger gear-based AMs in 2014 (as adopted in Framework 48).
- This AM does not overlap with areas being considered by Habitat Omnibus Amendment 2.
- However, alternatives under consideration in Habitat OA2 may open areas in the southern part of the Western Gulf of Maine Closure.
- If that happens, halibut and wolffish catch rates could rise in those areas, and the AMs for these stocks adopted in Framework 48 may need to be revisited.

Haddock spillover

At the April, 2013 NEFMC meeting, the Council passed a motion:

*To task the PDT and SSC to examine the issue of GB haddock spillover into the GOM stock area, provide an estimate of the amount of spillover when large year classes of GB haddock occur, and provide suggestions as to how the anticipated spill over of the strong 2010 year class can be used to adjust the GOM haddock ABC for FY 2013, 2014 and 2015.**

*The SSC will review the PDT work at the next SSC meeting.

Haddock spillover

Commercial Haddock Catches by Stock (mt)				
Fishing Year	Stock	Commercial sub-ACL	Total Commercial Catch	% of sub-ACL Caught
2010	GOM	825	377.7	46
	GB	40,440	8,340.2	21
2011	GOM	778	485.6	62
	GB	30,580	3,840.5	13
2012	GOM	653	246.0	38
	GB	27,438	1,197.6	4
2013	GOM	187	38.5	21
	GB	26,196	268.3	1
Note. 2013 catches for data reported through July 24, 2013.				

Haddock spillover

- The PDT is concerned that spillover is an inexact term than can cover a broad range of mechanisms (i.e., some synchrony with year-class strength, movement of haddock from one stock area to another).
- The PDT also recognizes that GOM haddock is approaching an overfished condition.
- The PDT completed:
  - a literature review and
  - several analyses:
    - projections scenarios
    - survey diagnostics
    - year class analyses
    - survey and assessment cohort tracking
    - assessment diagnostics
    - assessment results with regards to the strong GB 2003 year class

Haddock spillover

- Projection scenarios conducted by the PDT reveal that net movement rates greater than 2% of just the 2010 GB year class into the GOM would quickly inundate the GOM stock with GB haddock due to large differences in stock sizes between GB and GOM.
- Assuming relatively small percentages of net movement into the GOM will have large consequences for the GOM stock if spillover is not occurring.
- These projections suggest that ad-hoc adjustments of quota for spillover increase the risk of overfishing and spawning biomass decline for the GOM stock in 2014 and beyond.

Haddock spillover

- The PDT also investigated the 2003 GB year class. Spillover of just 1% of the large 2003 GB year class would have approximately doubled the size of the GOM 2003 year class and obscured cohort signals within the survey indices.
- If spillover of GB haddock were occurring in these large quantities, it would add considerable variability to survey indices, making the tracking of cohorts within the GOM stock difficult and introduce diagnostic issues into the stock assessment model.
- Examination of the tracking of cohorts within survey indices at age as well as assessment model diagnostics (survey residuals, retrospective patterns) yielded no evidence to support a spillover of a detectable magnitude.

Haddock spillover

- In addition, the PDT finds some synchrony in year classes, although the association is positive, the strength of the association is weak to moderate (with only 4 to 26% explanatory power), generally explaining a small amount of variation in Gulf of Maine recruitment.
- Furthermore, some correlation in year class strength could be due to similar environmental conditions in both stock areas.

Haddock spillover

From the PDT Consensus Statement:

Based on the PDT's literature review and analyses on the potential for haddock spillover from the Georges Bank haddock stock to the Gulf of Maine haddock stock, the PDT is unable to provide a technical basis for adjusting the quota between the two stocks.

Carryover

- Framework 50 used 305(d) of MSA to clarify carryover, which remains unchanged
- Beginning in FY 2014 and beyond, under the clarified carryover program, there are two components:
  - A *de minimus* amount automatically provided that is not expected to cause any ACL overage
  - Changes to catch accounting for sectors that bring forward and use more than the *de minimus* amount (up to the full 10% available).
- NERO received comments during the Framework 50 rulemaking that the Council should be working to modify the carryover program.
- NERO will continue to move forward unless the Council takes action.
- **If further FW51 clarification is needed on this issue, the OSC and Council might want to consider discussing how best to proceed.**

Disapproved monitoring/reporting- FW 48

- Framework 48 had several disapproved monitoring/reporting issues.
- The PDT has not examined these issues in detail at its meetings.
- **The Committee may want to consider if any of these issues should be examined in FW51.**

Groundfish Meeting Schedule

Dates	Group	Location	Action	Possible Outcomes
8/14/2013	GF OSC	Peabody, MA	FW51/A18/ Priorities	Potential measures to include in FW51 and A18; initial 2014 potential priorities discussion
8/20/2013-8/21/2013	SSC	Boston, MA	FW51	GB yellowtail flounder ABC, white hake ABC, review of GOM cod/American place rebuilding plan options, haddock spillover discussion
8/26/2013	PDT	Mansfield, MA	FW51/A18/ Priorities	Potential measures to include in FW51 and A18; continue 2014 priorities discussion
9/10/13-9/12/13	TMGC	Halifax, NS	FW51	Quota setting for GB YTF, EGB cod, and EGB haddock; discuss quota trading
9/13/2013	PDT	Conference Call	FW51/A18	Follow-up from TMGC; update on analyses
9/16/2013	GAP	Portsmouth, NH	FW51/A18	Discussion of measures
9/17/2013	GF OSC	Portsmouth, NH	FW51/A18	Discussion of measures; 2014 priorities
9/24/2013-9/26/2013	Council	Hyannis, MA	FW51/A18	Select measures to include in FW51; A18 update; 2014 priorities

Thank you

Questions?