



**NOAA  
FISHERIES**

Northeast  
Fisheries  
Science Center

# Assessment Accomplishments and Shortfalls

TOR V Accomplishments

Presented by  
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May 21, 2014

# What's Ahead

Number of Stocks and Assessments

Assessment Levels

Stock Status

Population Projections from Assessments

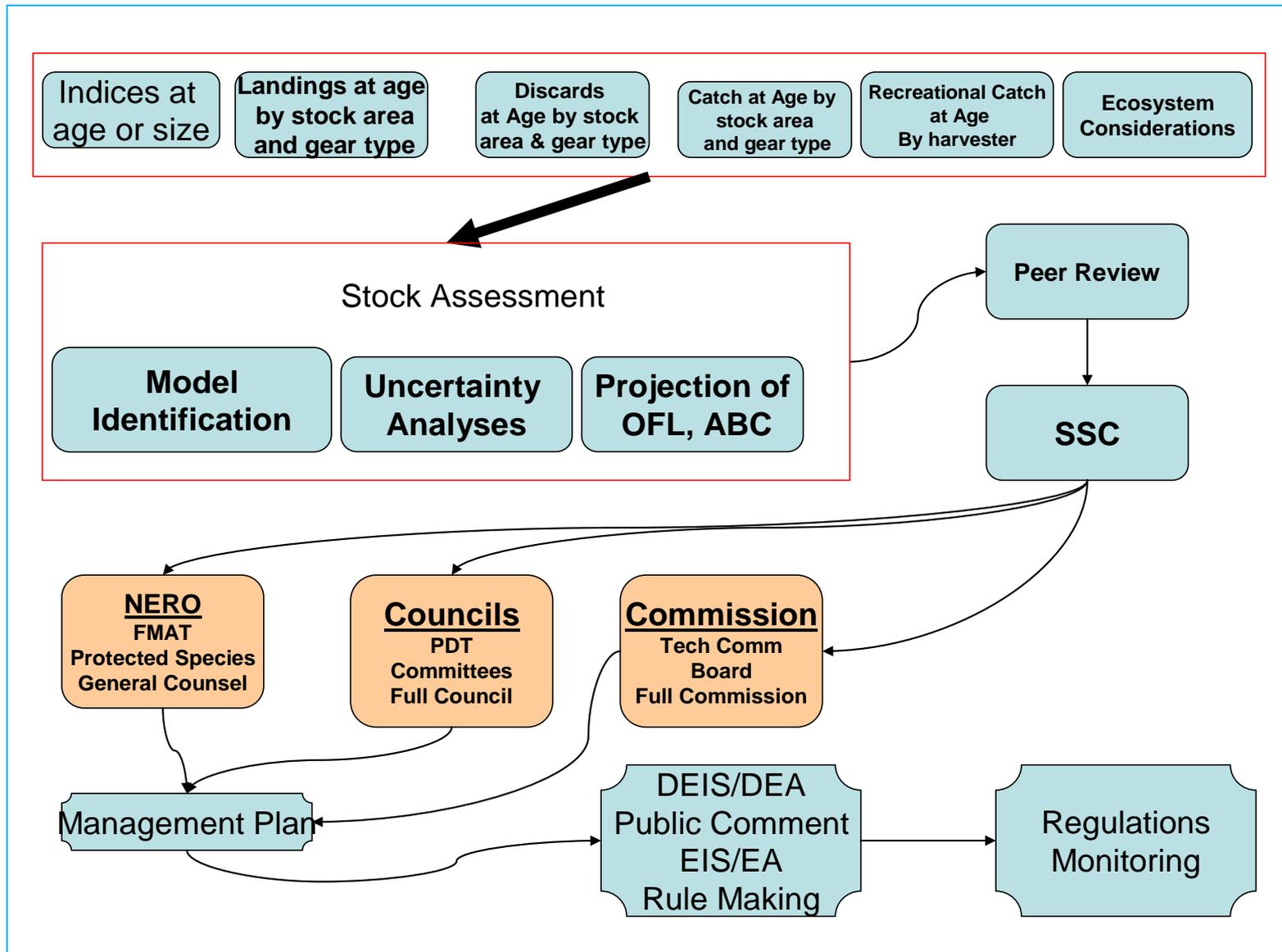
Major changes to assessments

Supporting the fishery management process

# 1. Number of managed stocks

- 49 federally managed (FSSI) stocks
  - 35 New England stocks
  - 11 Mid-Atlantic stocks
  - 3 stocks co-managed by both Councils
- An additional ~15 stocks are primarily managed by the Atlantic States

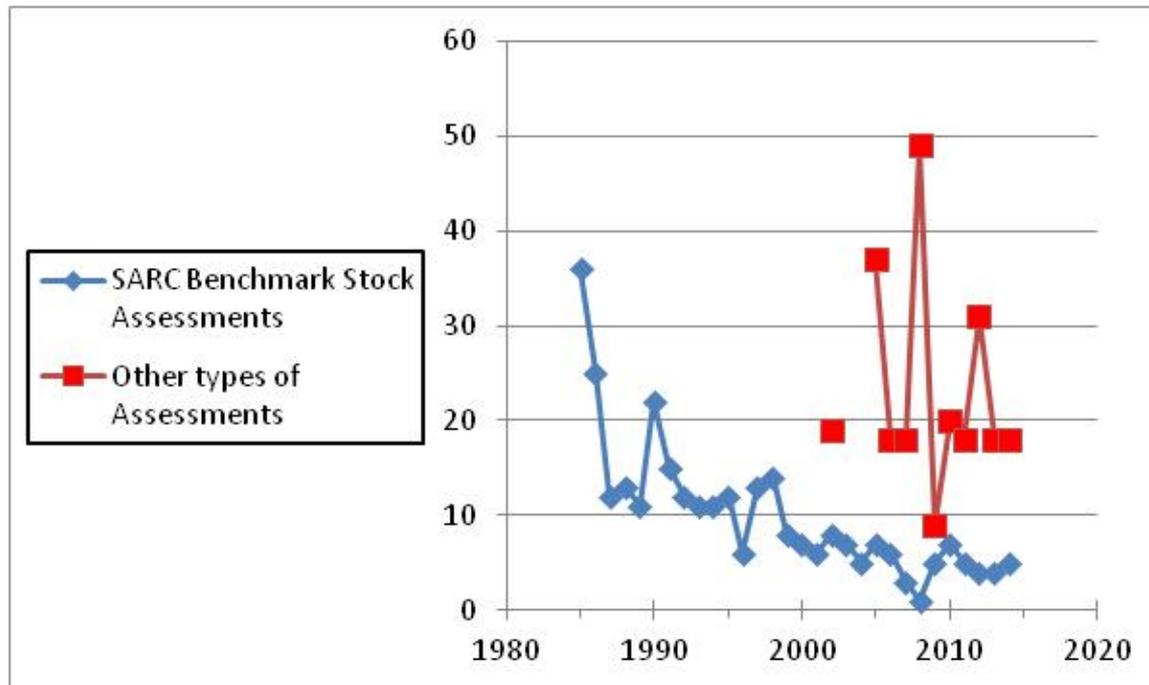
# Benchmark Assessment Flowchart



# Number of assessments

- **Number of “benchmark” assessments** per year has declined since 1985, whereas the total number of assessments of all types has remained steady or increased.
- **Diversity of assessment types** has increased over time (with NRCC oversight) to match needs of Councils and GARFO.
- **Assessment TORs** for SAW/SARC benchmark assessments have expanded greatly since 2000 (e.g., ecosystem considerations now included in every assessment). More resources required per benchmark assessment.

# Assessment Tally (#) over time



“Other types” include:

- GARM (Groundfish Assessment)
- Annual Assessment Updates
- Operational Assessments
- Data Poor Stock WG

## 2. Benchmark Stock Assessment Level

### "SIS" Assessment Levels

- 1 = index only
- 2 = simple life history equil. model
- 3 = aggregated production model
- 4 = size/age/stage-structured model
- 5 = add ecosystem (multispp, environment), spatial, seasonal analyses

### Assessments Recently Moved to a Higher level

- Butterfish : Level 5, availability with respect to thermal habitat
- Herring : Level 5, consumption of herring used to scale M in the model

### Frequency Distribution of "Levels" for Stocks in our Region

<b>Assessment Level</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Frequency</b>	<b>18</b>	<b>1</b>	<b>1</b>	<b>27</b>	<b>2</b>

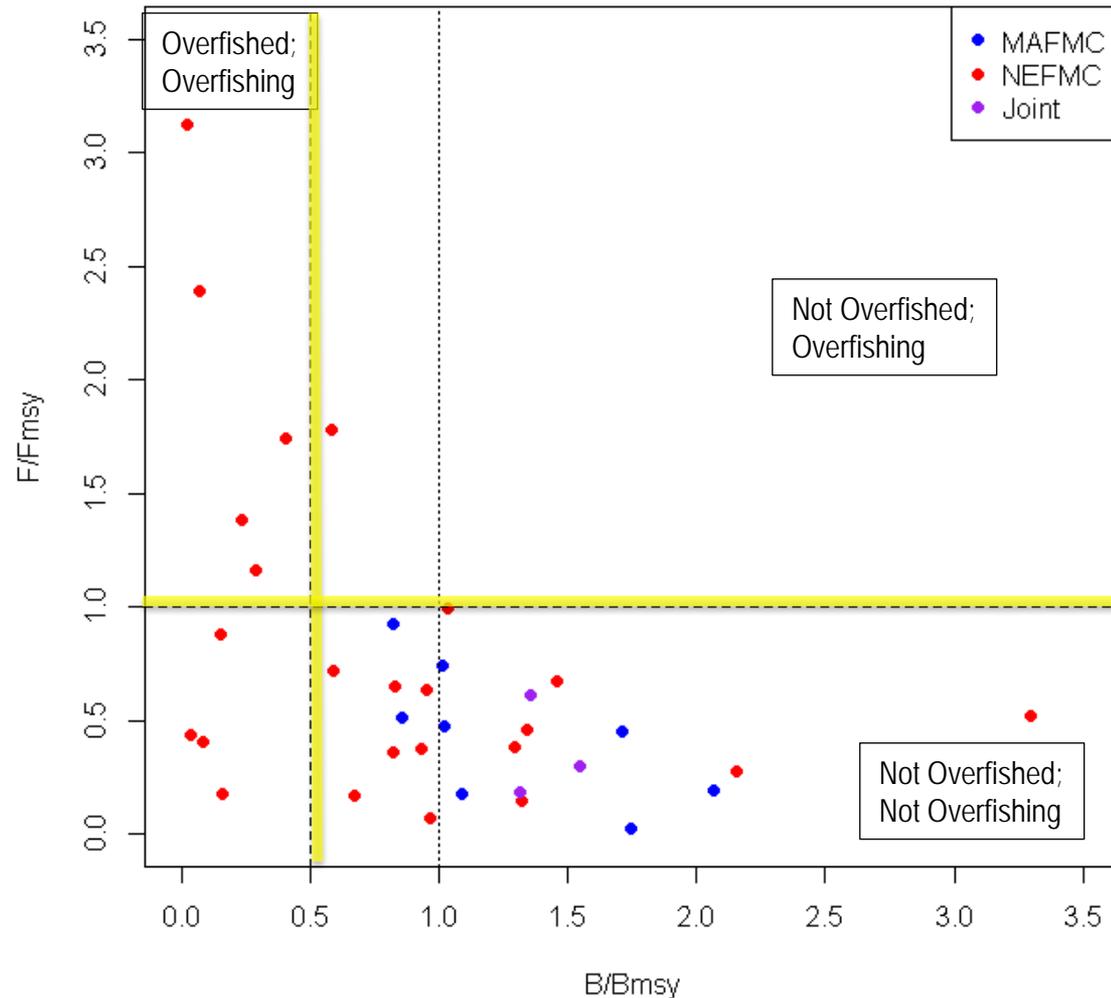
# 3. Stock status

-Sample shown:  
35 stocks from the  
SIS database

-Most are not  
overfished, not  
overfishing.

- There are regional  
differences

All Stocks with Known Status

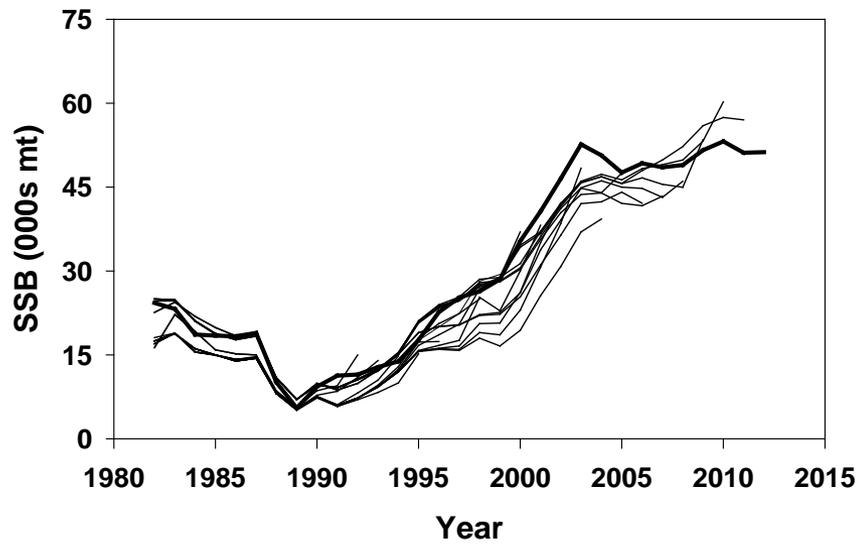
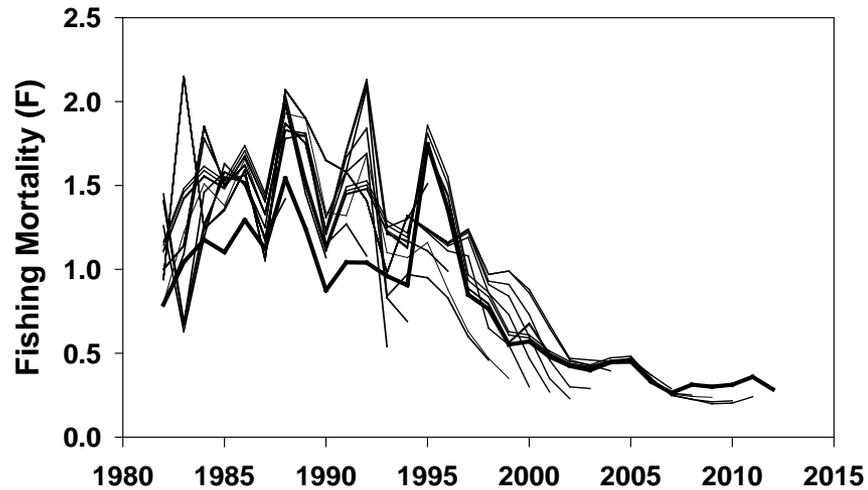


## 4. Population Projections from Assessments

- Accuracy of population projections is a function of the assessment (data quality, model type and fit, time lag between data and projection interval) & environmental stability.
  - Combination of frequent stock assessments and management have led to stock rebuilding (e.g., summer flounder, scup)
  - Retrospective patterns in some assessments have underestimated  $F$ , overestimated  $SSB$ , and produced overly optimistic projections (e.g., GB cod).

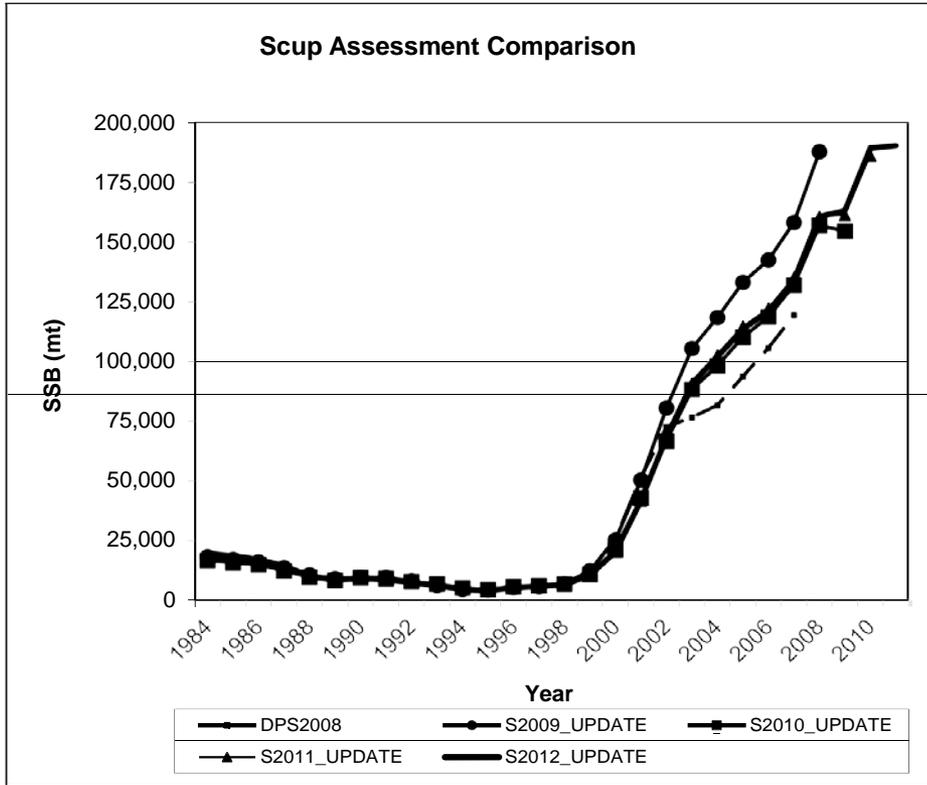
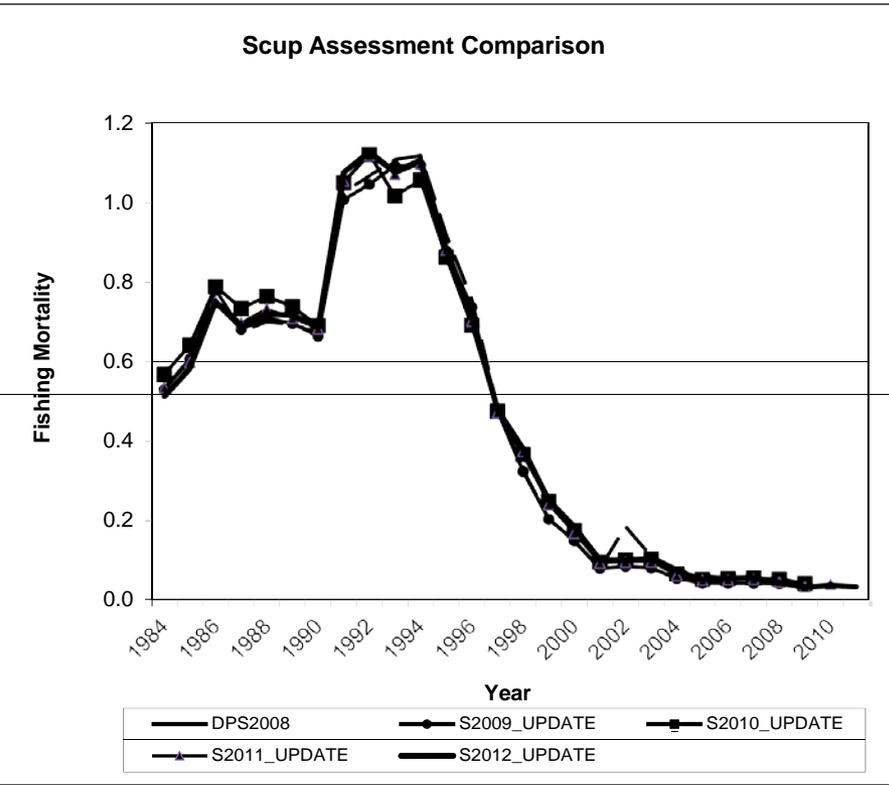
(examples follow)

## Summer Flounder Historical Retrospective 1990-2013 Stock Assessments



From M. Terceiro 2013  
NEFSC Reference  
Document 13-16

# Scup – An historical retrospective comparison of previous assessments.

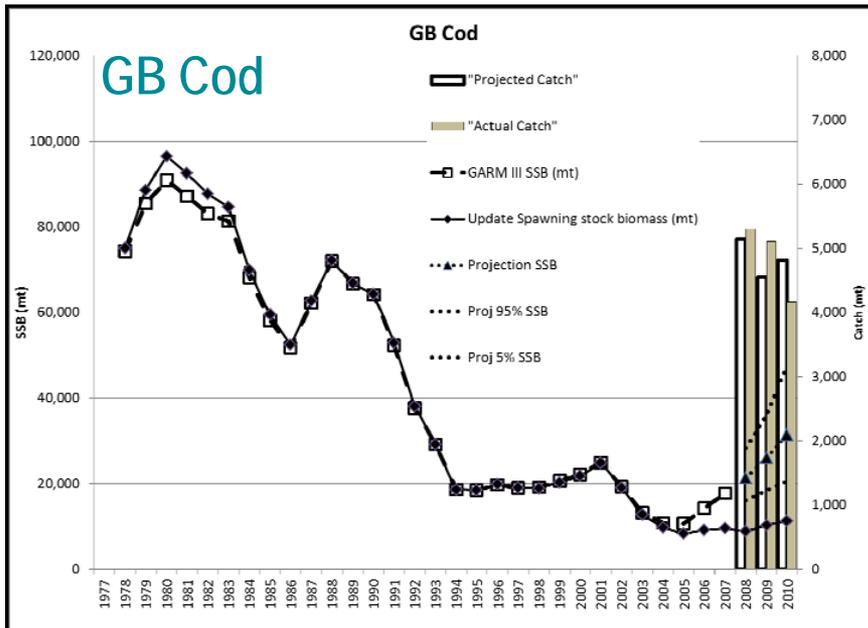


From M. Terceiro, 2012  
NEFSC Reference Document 12-25

# NE Groundfish Example

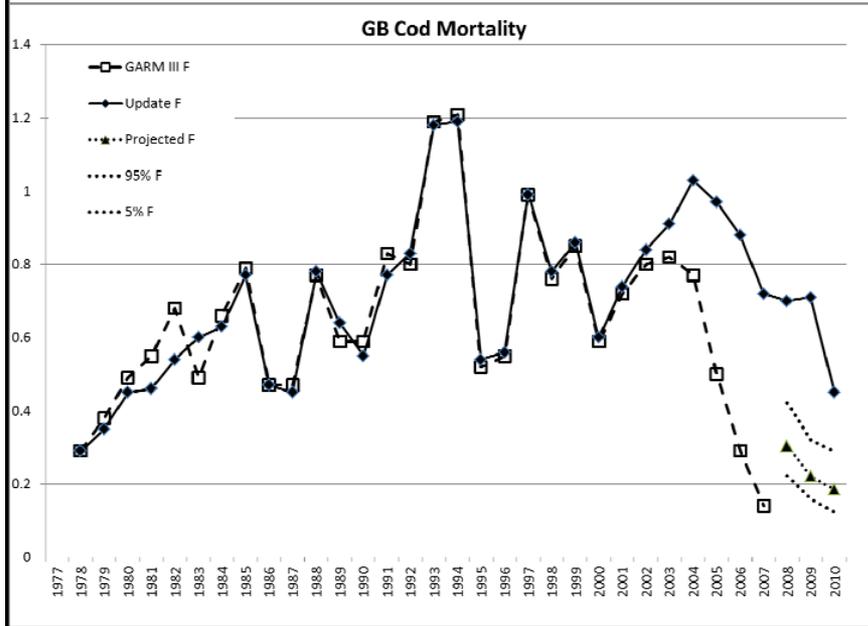
Historical retrospective of Catch advice from GARM III (in 2008), with realized SSB and F (source: 2012 update)

SSB



Catch

F



T. Nies *in* NEFSC Reference Document 12-06, Appendix 5

## 5. Major changes to assessments

- Stock status changes can result from adopting a new assessment model, or from making a new critical assumption in the model
- Perceptions about stock status can also change from one assessment to the next if what appears to be a large recruitment event is not realized
- Environmental change, and changes in  $M$ , from one assessment to the next can also lead to unexpected results
- Clear public explanations of these outcomes should be provided

(Recent assessment examples: pollock, monkfish, butterfish, GOM cod)

## 6. Supporting the fishery management process

- Existing processes for bringing science to managers:
  - SAW/SARC
  - TRAC
  - GARM
  - Assessment updates
  - Plan Development Teams (Council PDTs)
  - SSC

# Joint Planning Exercises are Conducted:

**Scheduling Worksheet for Stock Assessments.** **date: May 7, 2014**  
**Basis for entries in Table: April 2014 NRCC meeting**

2013: 1st half	2013: 2nd half
White hake - SARC 56, Feb 19 -22, 2013	Striped bass - SARC 57, [July 23-26]
Atlantic surfclam - SARC 56	Summer flounder - SARC 57
(River herring - Extinction Risk Analysis)	(Data Review, August 5-9)
(EGB cod benchmark - Ap. 9-11, 2013, TRAC)	
(TRAC - EGB cod, EGB haddock, GB YT - June 25-27 Canada)	
(Updates: Bluef, Scup [w/ SSC], Dog, skates, monkfish -Ap. 8-9 Op. Assess., Ocean quahog, Mackerel, butterfish, tilefish, squid	

2014: 1st half	2014: 2nd half
N. shrimp - SARC 58, Jan. 27-31	Scallops - SARC 59, July 15-18
Tilefish - SARC 58	GOM haddock - SARC 59
Butterfish - SARC 58	
(GB YT Alternative - April 14-19, WH)	(Pollock, GOM winter fl, GB winter fl, updates, Aug 11-13, Oper. Assess.)
(Model Review - May 19-23)	
(TRAC - EGB cod, EGB haddock, GB YT ) June 23 -27, WH	
( Updates: Bluefish, BlkSeaBass [data update; research report], Scup [rumble], Fluke [rumble strip], Mackerel [data update, research plan], squids [data update] )	(Updates: Dog [rumble], skates, hakes [silver, red, offshore] )

2015: 1st half	2015: 2nd half
Scup - SARC 60, June 2-5 , with incomplete 2014 data	
Bluefish - SARC 60 June 2-5 , with incomplete 2014 data	
(ASMFC - Sturgeon -Feb).	(20 Groundfish Stocks, Operational Assessment, Sept. 21-25)
(ASMFC - Lobster peer review -Spring 2015)	
(Scallop Survey Methods- March 17-19, WH)	
(Herring, Operational Assessment, May)	
(TRAC - EGB cod, EGB haddock, GB YT - June)	
(Protected species: Program Review - DATE in 2015 TBD)	
(Updates: BlkSeaBass [data update],Fluke, surfclam [data update], Dog, skates, Mackerel, butterfish, tilefish [data update] )	

2016: 1st half	2016: 2nd half
<i>Skates - SARC 61, Month TBD</i>	<i>Mackerel, Black sea bass, monkfish ( SARC 62, Nov./Dec.; pick 2; choice dependent on research progress)</i>
<i>Ocean quahog - SARC 61</i>	
<i>(TRAC - EGB cod, EGB haddock, GB YT - June)</i>	<i>(possible Groundfish benchmarks)</i>
<i>(Black sea bass - SARC or another process run by ASMFC )</i>	
<i>(Cumul. Discard Methodology - January)</i>	
<i>(Ecosystem Applications, Management, Habitat : Program Review - DATE TBD)</i>	
<i>(Updates: BlkSeaBass [data update],Fluke, surfclam [assessment update], Dog, Mackerel, butterfish, tilefish [data update] )</i>	

Key:

*Italics = Under consideration, but not officially scheduled.*

"( )" = not in the SARC process.

Cells filled with gray = work completed.

~/sarc/boilerplate/Schedule-worksheet-assessments(date).xls 5/07/2014

# The broad view:

## Strengths

Diversity of assessment processes are now in use

Tracking stock status

Documenting stock assessment level

Support for management and regulatory processes for two Councils

## Challenges

Projection accuracy

Sudden changes in Stock Status

Large # of stocks, and keeping assessments "current"

Appropriate timing for delivery of results to managers

## Solutions

NRCC oversight

Use of Alternative processes

Communicating assessment results (linked with SSC)

Synch assessment freq. to management cycles