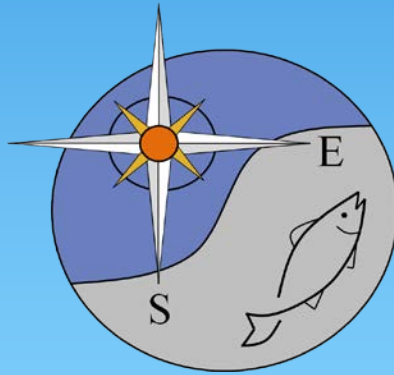


# SEDAR Assessment Summary Report



**Proposed Modifications**  
**October 2011**



# History of the Summary Report

- Originally intended to provide a brief, somewhat technical summary of assessment
- 2008/2009 working group redesigned summary:
  - very technical
  - quite lengthy
  - geared towards staff and SSCs
- Recent need for brief layman's summary for the general public



# Main Subject Headings

- Executive Summary\*
- Status of the stock
- Stock identification and management unit
- Assessment data and model summary
- Release mortality
- Significant assessment modifications\*
- Catch trends
- Fishing mortality
- Stock abundance and biomass trends
- Key sources of uncertainty\*
- Plausible alternate states of nature\*
- Special comments (if needed)

\*indicates new or expanded topics



# **New or Expanded Topics**

## **Executive Summary**

## **Significant Assessment Modifications:**

- Compares to previous benchmark
- Lists major changes

## **Key Sources of Uncertainty**

## **Plausible Alternate States of Nature:**

- Allows for discussion of multiple recommended model configurations

# Significant Assessment Modifications

The following provides a summary of the major data and model changes incorporated in SEDAR 24:

- Three additional years of data included, for a terminal year of 2009.
- Historic (pre-1981) recreational landings were modified. The new approach used a ratio of commercial to recreational catch during early years of overlap, resulting in a considerable decrease in recreational catch values.
- Headboat discard observations provided by headboat discard survey (2005-2009)
- Headboat discard survey incorporated as a measure of abundance
- Life history characteristics and vital rates were compared between SEDAR 15 and the Atlantic Stock and SEDAR 7 and the Gulf Stock.
- Age and growth relationships were updated using additional age samples
- Discard mortality estimates were based upon extensive review of published literature and examination of discard mortality by depth. Release mortality was estimated as: 48%, commercial sector; 41%, for-hire sector; and 39%, private sector.
- Recreational fishery selectivity modeled with a dome pattern (implies older fish are less susceptible to harvest by recreational fisheries).
- Catchability changes only through 2003.
- Steepness estimated through a prior distribution



# Tables and Figures

## Tables:

- **Summary of Stock Status determination criteria**
  - Values may need to be presented as ranges

## Figures:

- Landings and discards
- Fishing mortality and biomass trajectories
- Indices of abundance
- Stock status and control rule
- Stock recruitment
- Summary status phase plot
  - Some figures may represent multiple states of nature

# Summary of Stock Status determination criteria

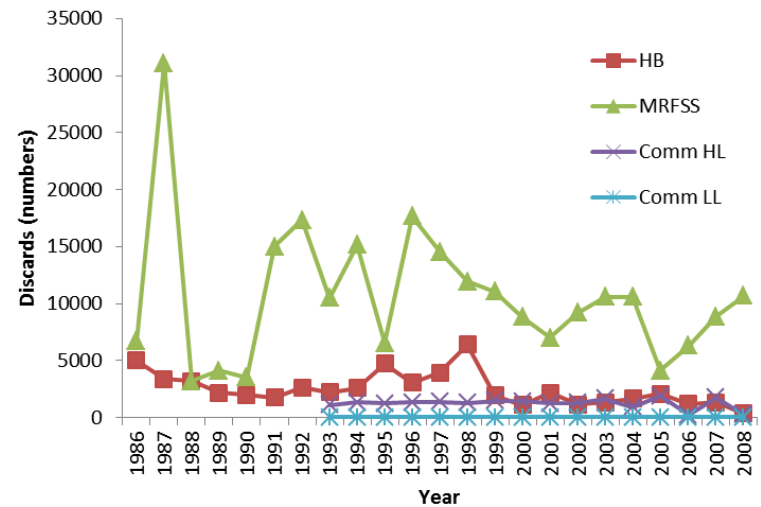
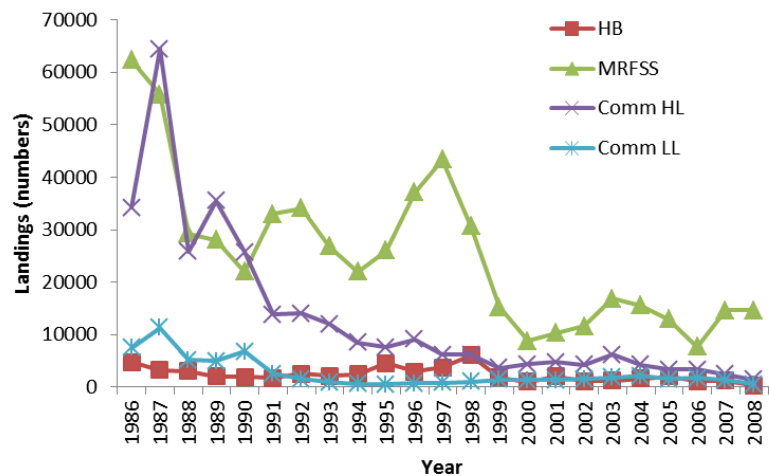
Criteria	Definition	SEDAR 15 Value	SEDAR 24 Value
M (Instantaneous natural mortality; per year)	Average of Lorenzen M (if used)	0.078	0.08
$F_{2009}$ (per year)	Apical Fishing mortality in 2009		0.9076
$F_{\text{current}}$ (per year)	Geometric mean of the fishing mortality rates in 2007 - 2009		0.73*
$F_{\text{MSY}}$ (per year)	$F_{\text{MSY}}$	0.112	0.178
$B_{\text{MSY}}$ (metric tons)	Biomass at MSY	17347 ( $B_{40\%}$ )	13632
$\text{SSB}_{2009}$ (metric tons)	Spawning stock biomass in 2009		13
$\text{SSB}_{\text{MSY}}$ (metric tons)	$\text{SSB}_{\text{MSY}}$	7891 ( $F_{40\%}$ )	156
MSST (metric tons)	$(1-M)*\text{SSB}_{\text{MSY}}$	7275 ( $F_{40\%}$ )	144
MFMT (per year)	$F_{\text{MSY}}$	0.07 ( $F_{40\%}$ )	0.178
MSY (1000 pounds)	Yield at MSY	2314 ( $F_{40\%}$ )	1842
Biomass Status	$\text{SSB}_{2009}/\text{MSST}$		0.09
Exploitation Status	$F_{\text{current}}/F_{\text{MSY}}$	12.021 ( $F_{2006}/F_{40\%}$ )	4.12

# Summary of Stock Status determination criteria

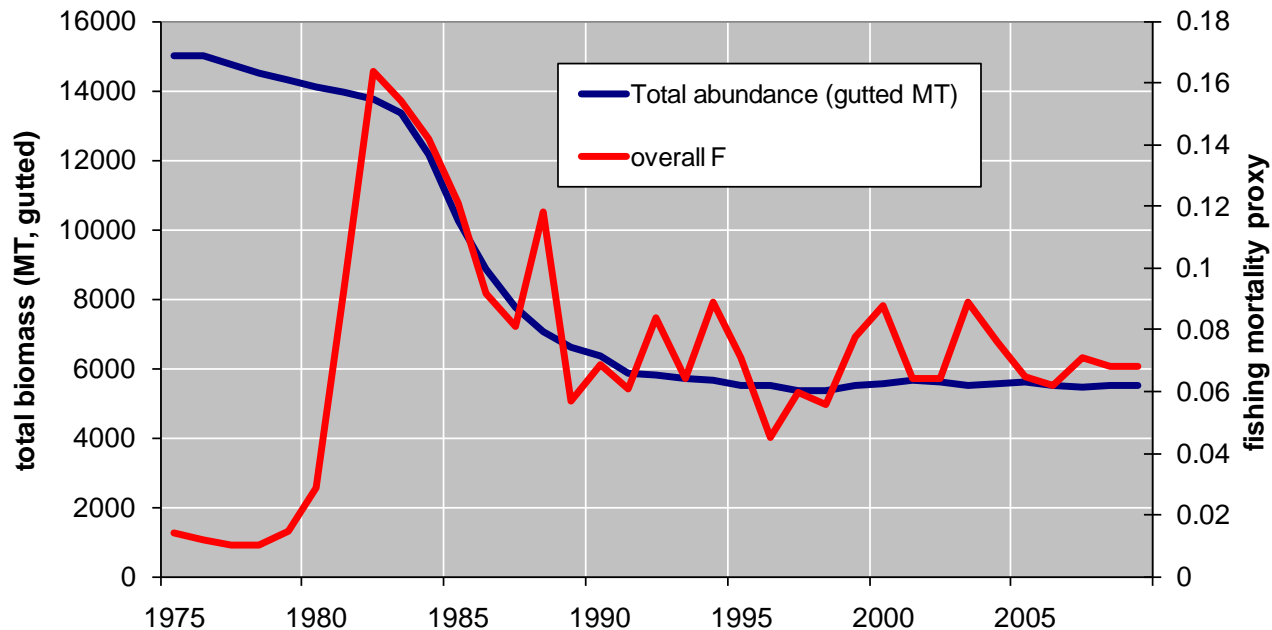
Criteria	Recommended Values from SEDAR 22			
	Definition	Run 1 (Base)	Run 11 (LowM)	Run 15 (Fit Indices)
<b>M (Instantaneous natural mortality; per year)</b>	Mean of M values from DW	0.073	0.055	0.073
<b>F<sub>current</sub> (per year)</b>	Average F 2007 - 2009	1.0	1.0	1.0
<b>F<sub>MSY</sub> (per year)</b>	F <sub>SPR30%</sub>	1.06	0.778	1.301
<b>SSB<sub>current</sub> (mil. lbs)</b>	Spawning stock biomass in 2009	9.533	7.711	11.222
<b>SSB<sub>SPR30%</sub> (mil.lbs)</b>	Equilibrium SSB @ F <sub>SPR30%</sub>	8.621	8.70	8.92
<b>MSST (mil.lbs)</b>	(1-M)*SSB <sub>SPR30%</sub>	7.992	8.065	8.269
<b>MFMT (per year)</b>	F <sub>SPR30%</sub>	1.06	0.778	1.301
<b>MSY (1000 pounds)</b>	Equilibrium Yield at F <sub>SPR30%</sub>	0.788	0.724	0.854
<b>OY (1000 pounds)</b>	Equilibrium Yield at F <sub>OY</sub>	NA	NA	NA
<b>F<sub>OY</sub> (per year)</b>	75% of F <sub>SPR30%</sub>	0.795	0.584	0.976
<b>Biomass Status</b>	SSB <sub>current</sub> /MSST	1.193	0.956	1.357
<b>Exploitation Status</b>	F <sub>current</sub> /MFMT	0.949	1.292	0.774



# Landings and Discards



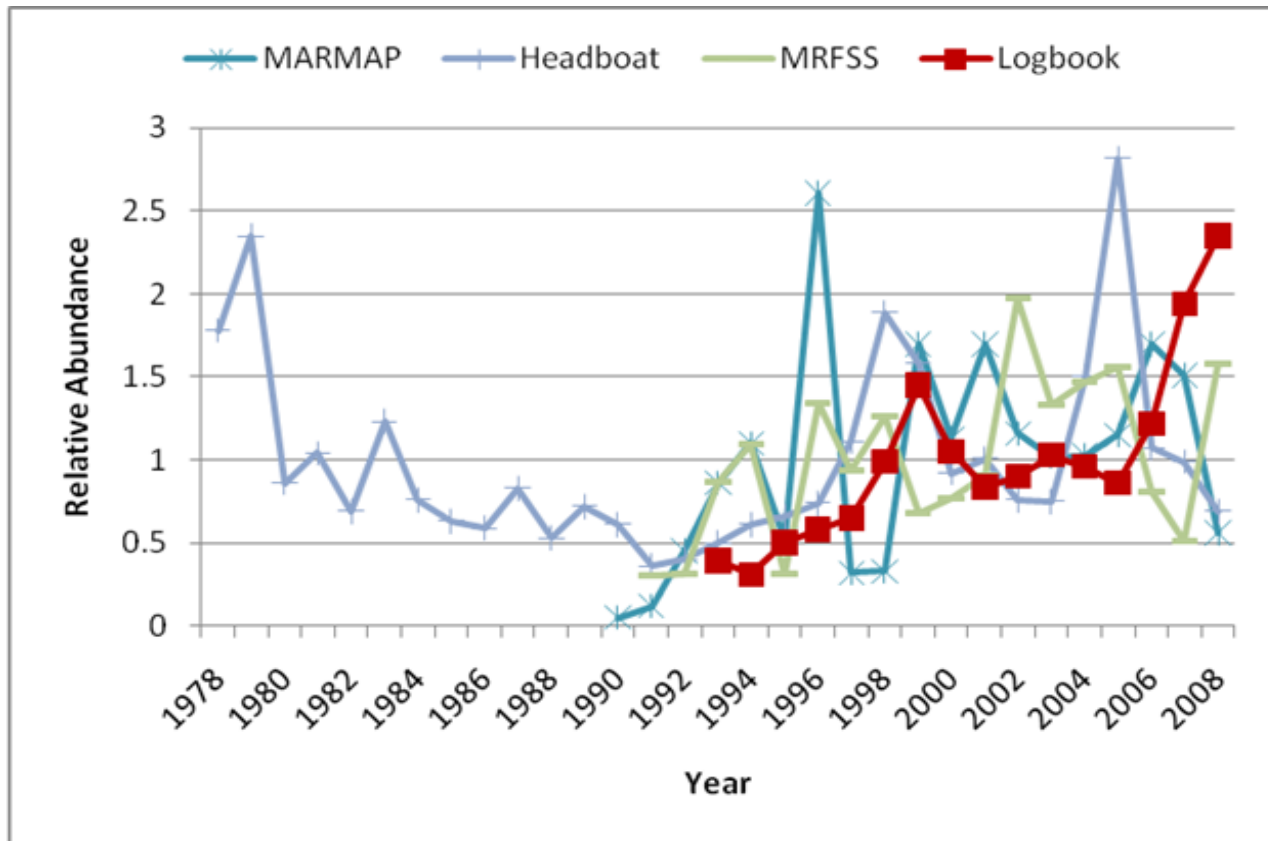
# Fishing Mortality and Biomass Trajectories



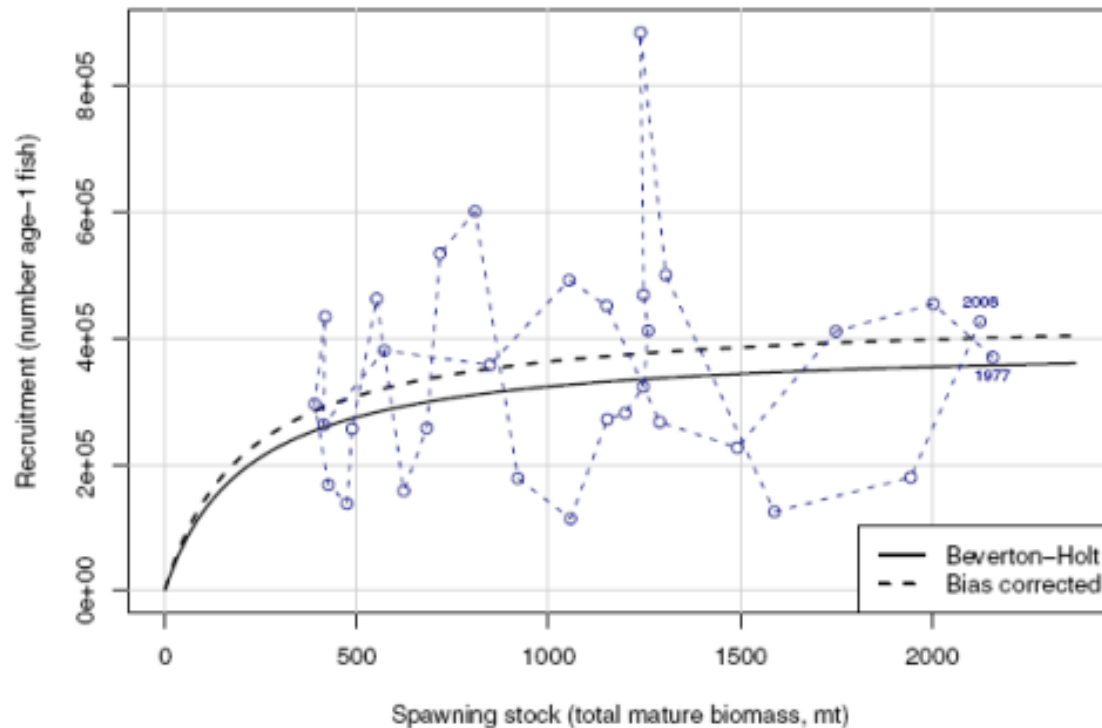
May require several graphs (or multiple trajectories) if several plausible states of nature are accepted



# Abundance Indices

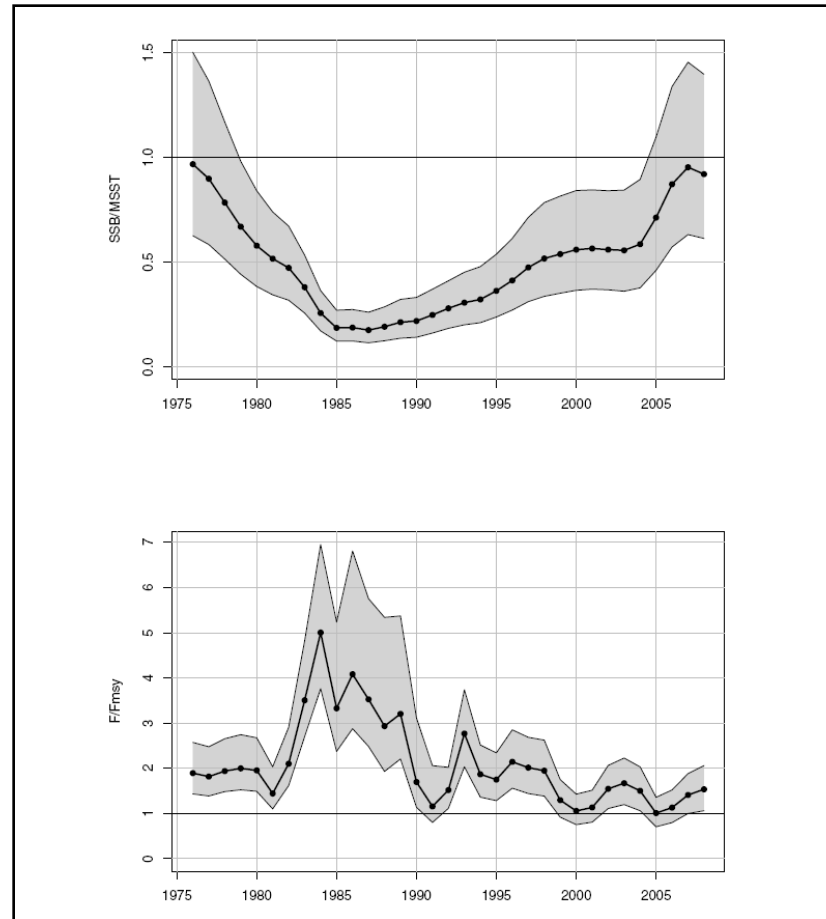


# Stock Recruitment



May require several graphs (or multiple curves) if several plausible states of nature are accepted

# Stock Status and Control Rule



May require several graphs (or multiple trajectories) if several plausible states of nature are accepted

# Summary Status Phase Plot

