

# Georges Bank Yellowtail Flounder

## 2010 TRAC Assessment 2011 ABC

New England Fishery Management Council  
Science and Statistical Committee  
August 24 – 26, 2010

# What happened last year?

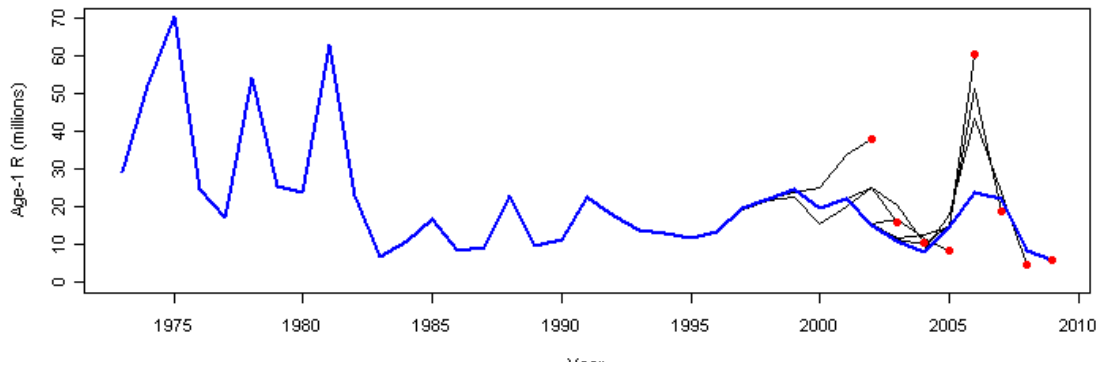
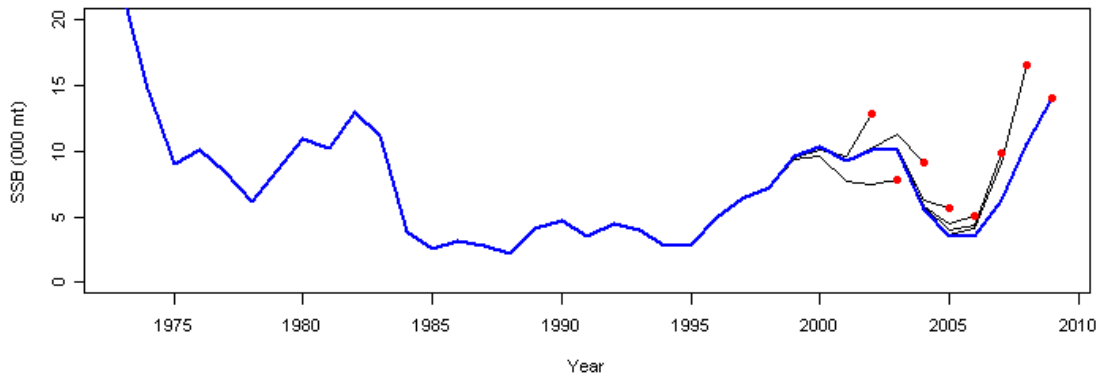
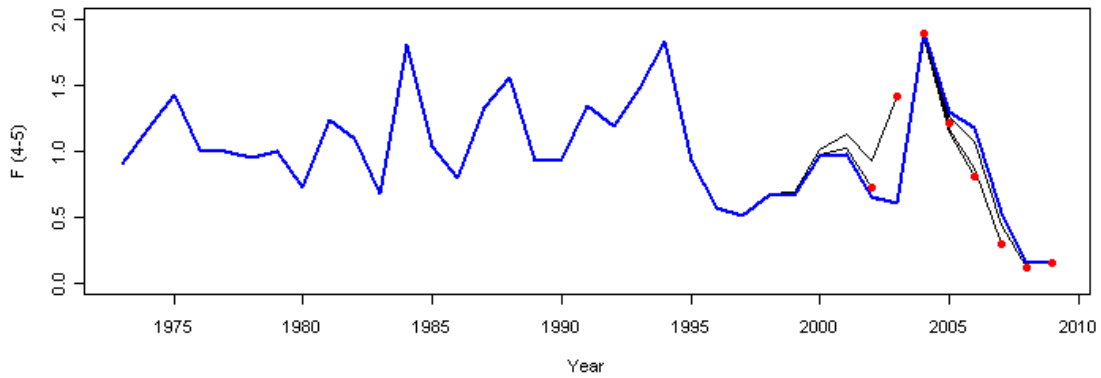
- Two VPA formulations
  - Including (treated DFO 2008 and 2009 same as all other survey observations)
  - Excluding (did not include DFO 2008 and 2009 survey data due to influence of single large tows)
  - Recommended downweighting DFO 08-09
- Strong 2005 year class causing large increases in recent biomass
- $F$  below  $F_{ref}$
- Management difficulties (quota  $F_{ref}$  vs  $F_{rebuild}$ )

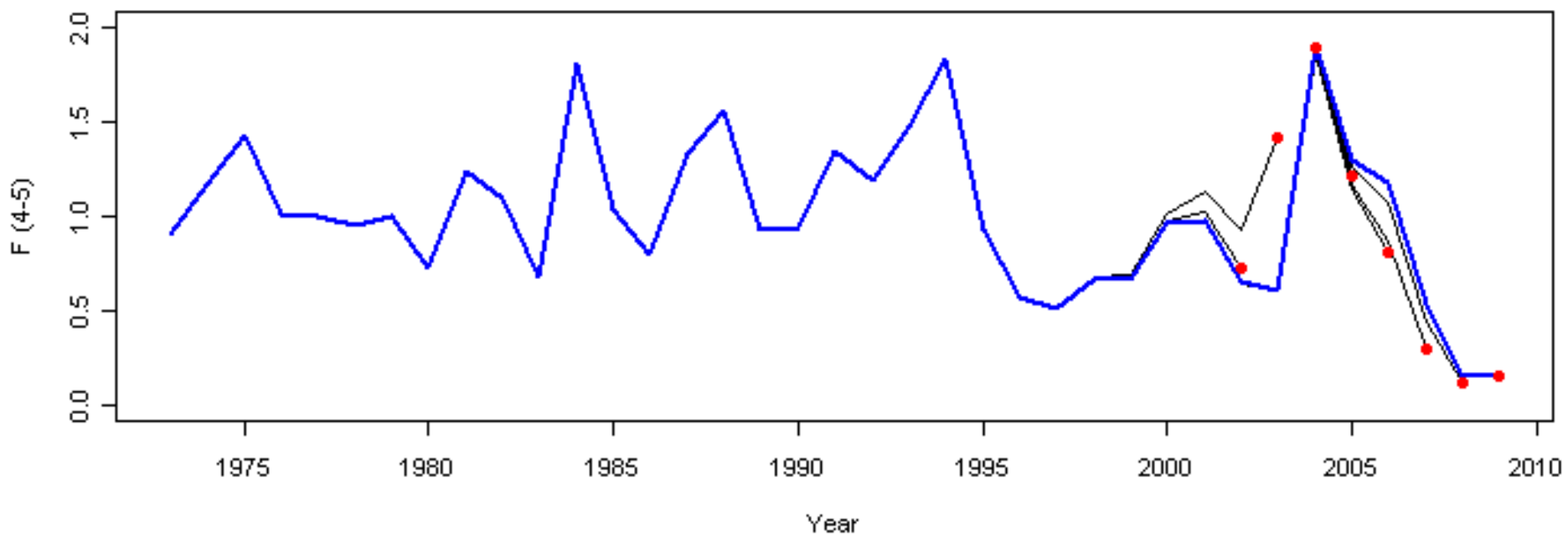
# Thumbnail 2010 Overview

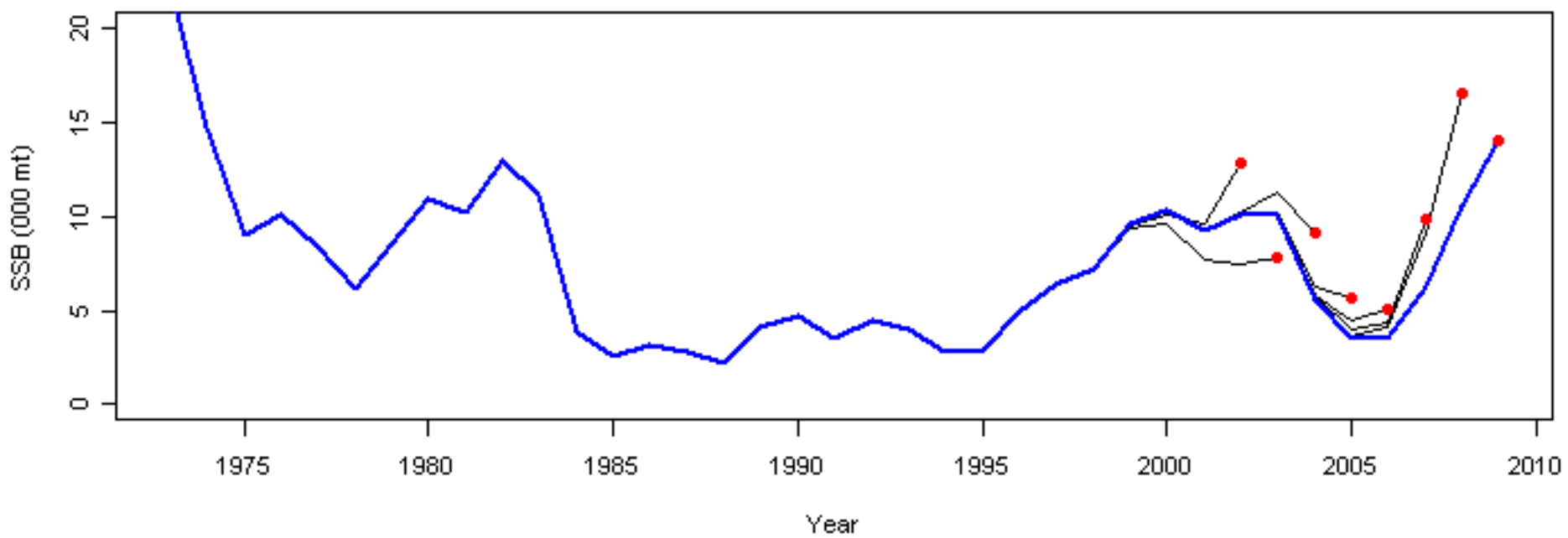
- Resolved two model formulations by downweighting survey
- Model now estimates 2005 year class as average
- Assessment has developed a retrospective pattern of overestimating biomass\*
- SSB estimates are lower than in last assessment, but still show increasing trend
- $F_{2008} = F_{2009} = 0.15$

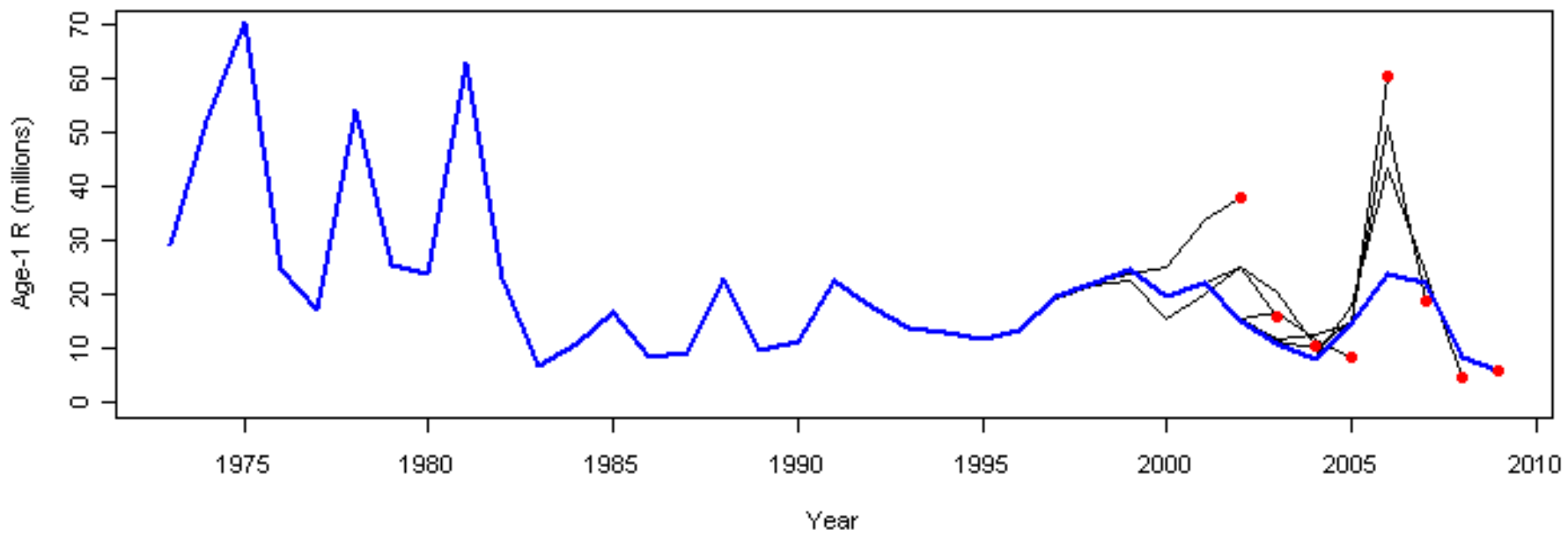
# “Split Series VPA”

- Model formulation slightly different than 2009
- Lower relative error and bias at older ages
- Survey q's continue to show unexplained increase since 1995
- No strong residual patterns
- Moderate tendency to overestimate biomass; no strong tendency for mortality

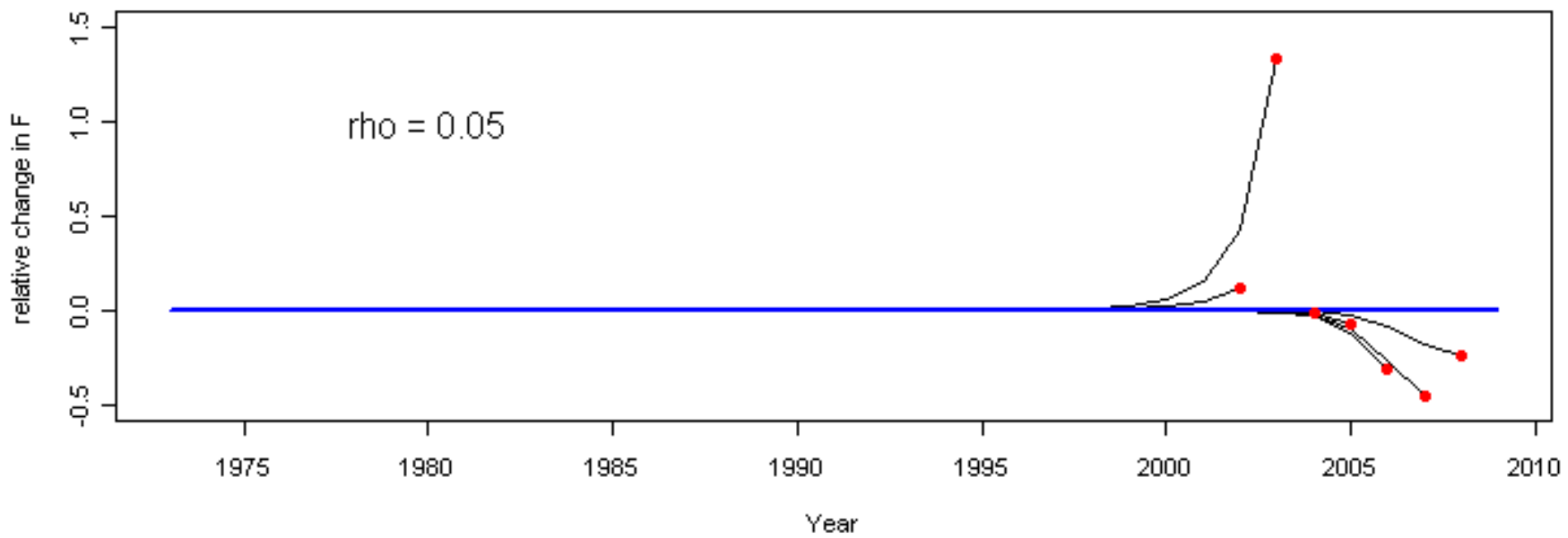


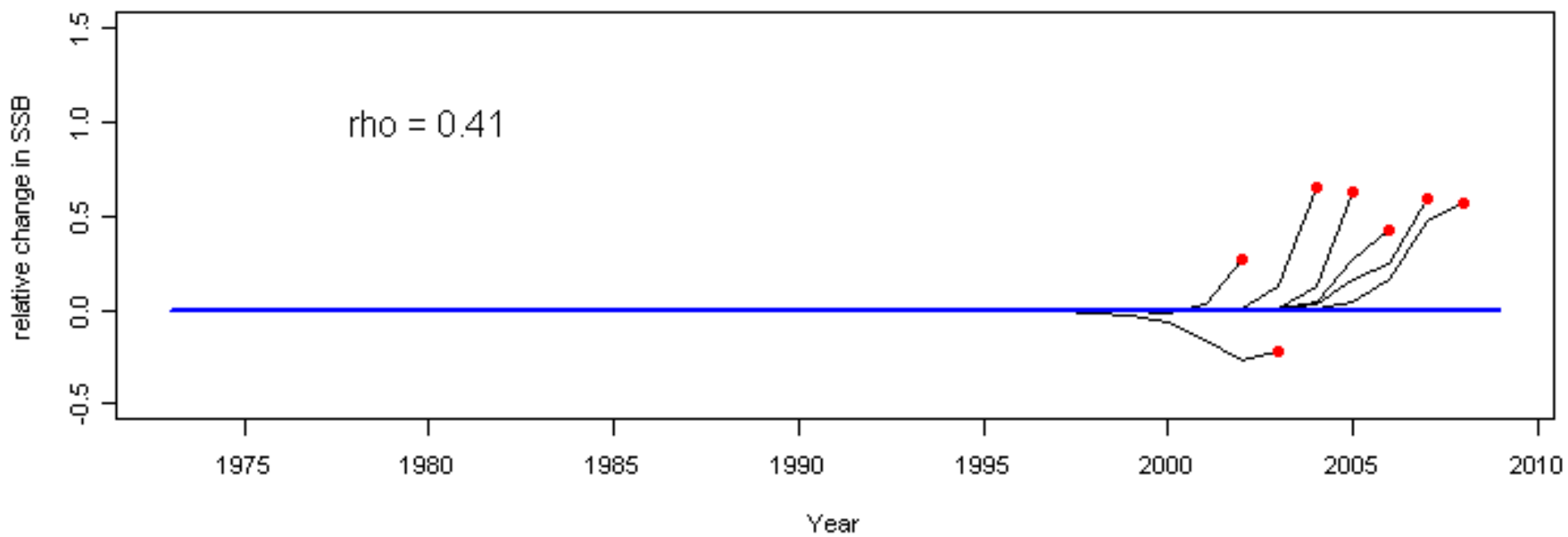


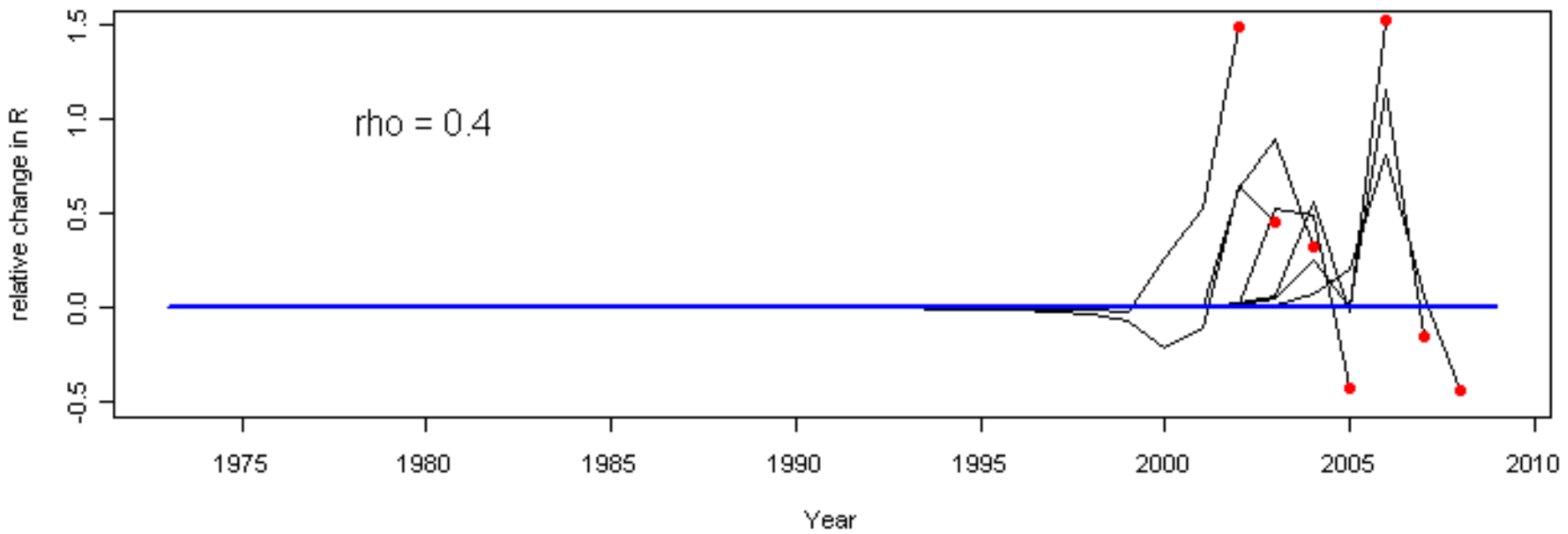






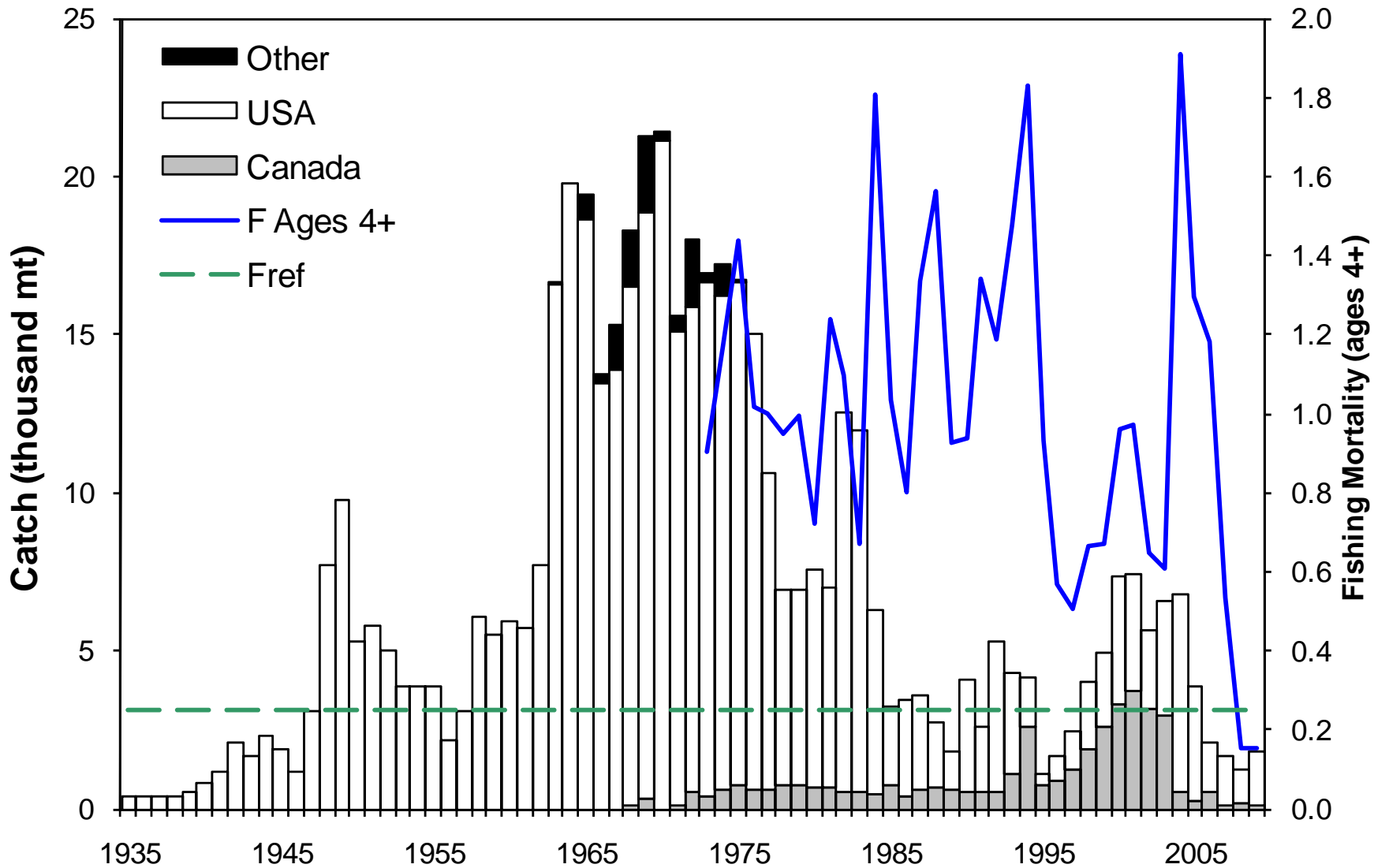


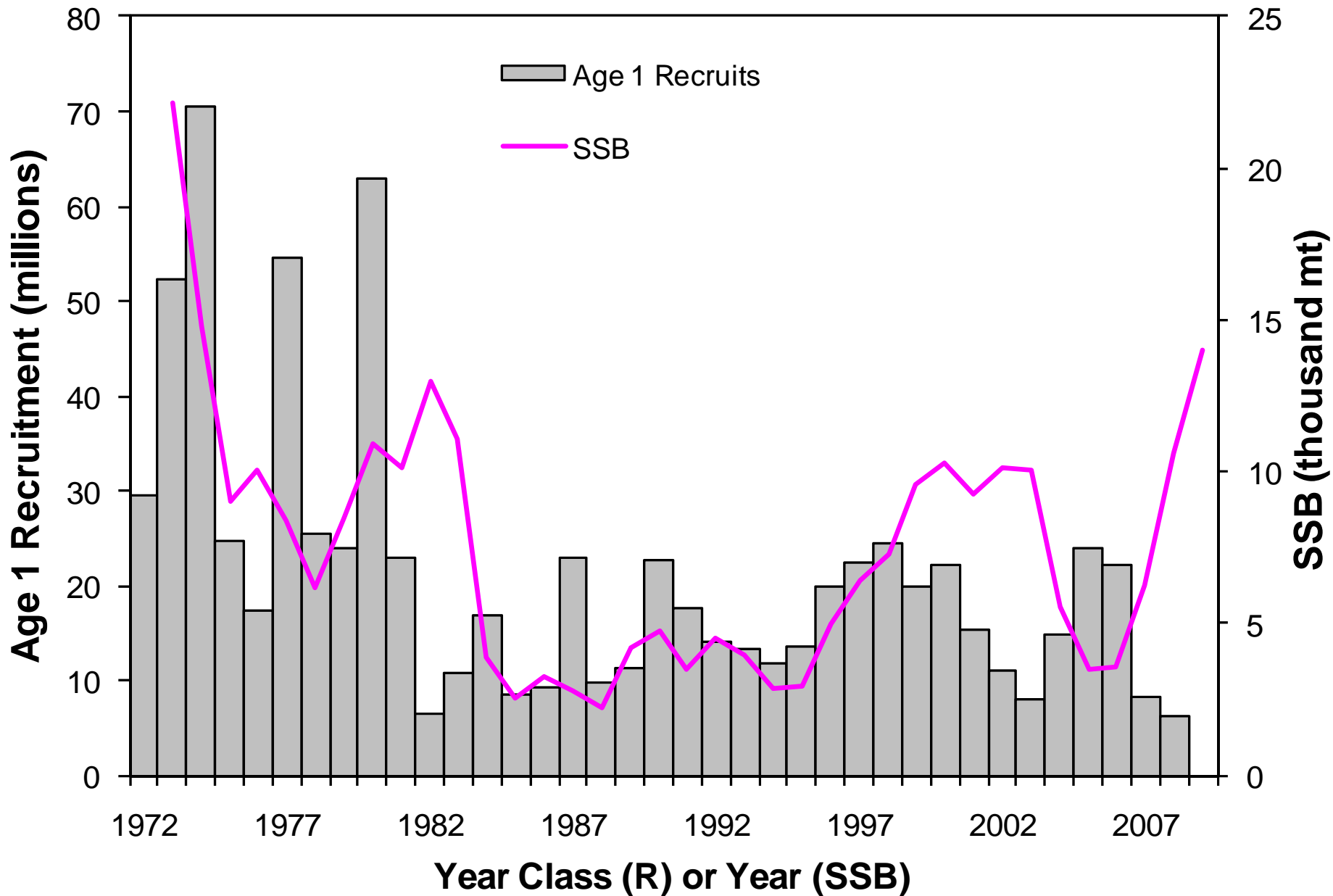




# Stock Status

- Overfished, but overfishing not occurring
  - 2009 SSB: 14,000 mt (32 pct of SSBMSY)
  - 2009  $F(4+)$ : 0.15
- Recruitment (Age 1):
  - 2005 and 2006 year class near recent average
  - 2007 year class well below average
  - 2008 year class lowest in time series
  - Current estimate of 2005 year class reflects a change; previously believed well above average





# Rebuilding Projections

- Partial recruitment, survey and fishery weights at age: average of 2007-2009
- Recruits sampled from two-stage empirical distribution (median of 24.6 million age 1; break point at 5,000 mt)
- 2010 catch assumed equal to combined U.S. and CA quotas
- “ABC should be determined as the catch associated with the fishing mortality that meets rebuilding requirements (Frebuild).”

# Projection Results

- Cannot rebuild by 2014 in absence of fishing mortality (only 36 percent probability)
- Can rebuild by 2016 under all alternative strategies but...
  - Recruitment assumption is critical
  - Retrospective pattern a cause for concern



**Median catch/ABC for four GB YTF  
rebuilding strategies ('000 mt)**

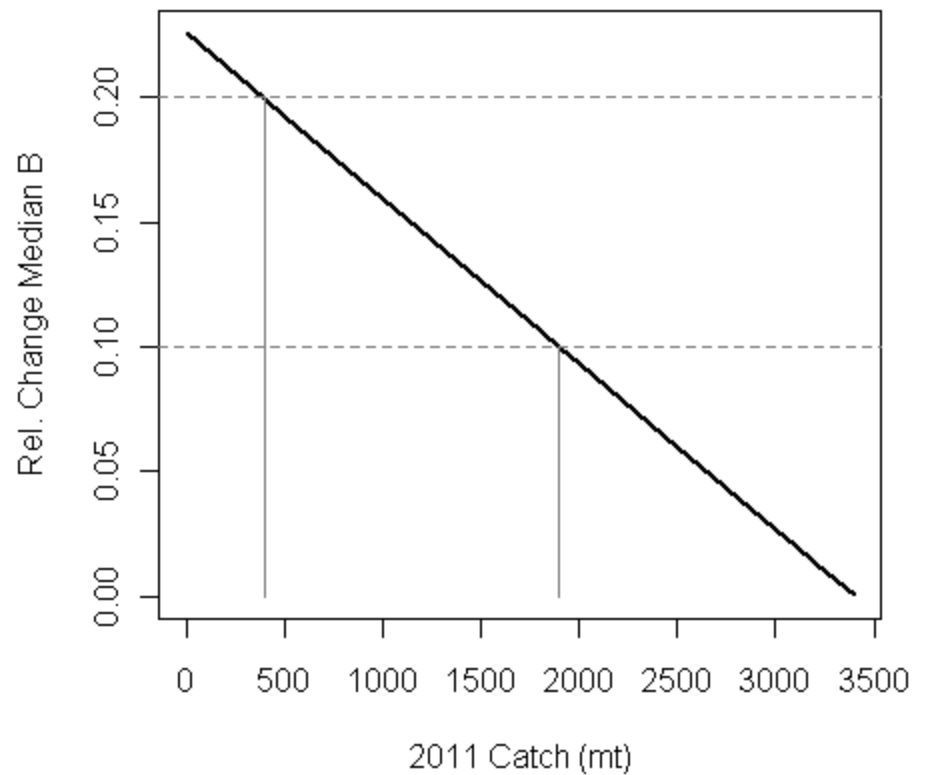
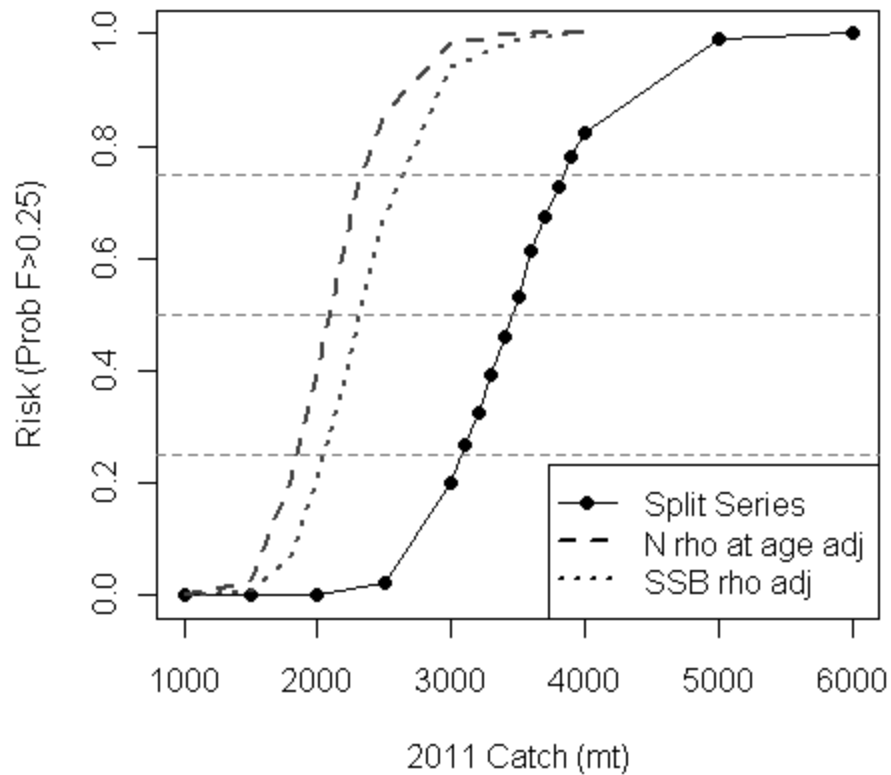
*Does not consider retro pattern  
or other sources of uncertainty*

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		<b>50%</b>	<b>60%</b>	<b>75%</b>
	<b>F=0</b>			
<b>year</b>	<b>2014</b>	<b>2016</b>	<b>2016</b>	<b>2016</b>
<b>2011</b>	<b>0</b>	<b>1.998</b>	<b>1.486</b>	<b>0.59</b>
<b>2012</b>	<b>0</b>	<b>2.222</b>	<b>1.699</b>	<b>0.706</b>
<b>2013</b>	<b>0</b>	<b>2.658</b>	<b>2.065</b>	<b>0.884</b>

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# TMGC Risk Plots



# Alternative Projection Assumptions

- Adjust initial numbers using Mohn's rho:
  - Can rebuild by 2016 at low F's (Table 19 of reference document)
- Sample recruitment from 1983-2009 (14.1 million median)
  - Cannot rebuild by 2016 at  $F=0$
  - Do not achieve SSBMSY by 2020 (SSBMSY assumes median recruitment of 41 million)

	Year									
	Fishing Mortality (age 4+)					SSB <sub>MSY</sub> (K mt)				
Assess Year	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
2006	1.37	-	-	-	-	5.4	-	-	-	-
2007	1.22	0.89	-	-	-	4.4	5.0	-	-	-
2008	1.16	0.89	0.29	-	-	4.2	4.4	9.5	-	-
2009 – Excl.	1.25	1.06	0.41	0.09	-	3.7	4.4	10.0	17.8	-
2009 – Incl.	1.23	1.01	0.38	0.08		3.8	4.7	11.7	22.9	
2010	1.30	1.18	0.53	0.15	0.15	3.5	3.5	6.2	10.6	14.0

### Historical Retro

