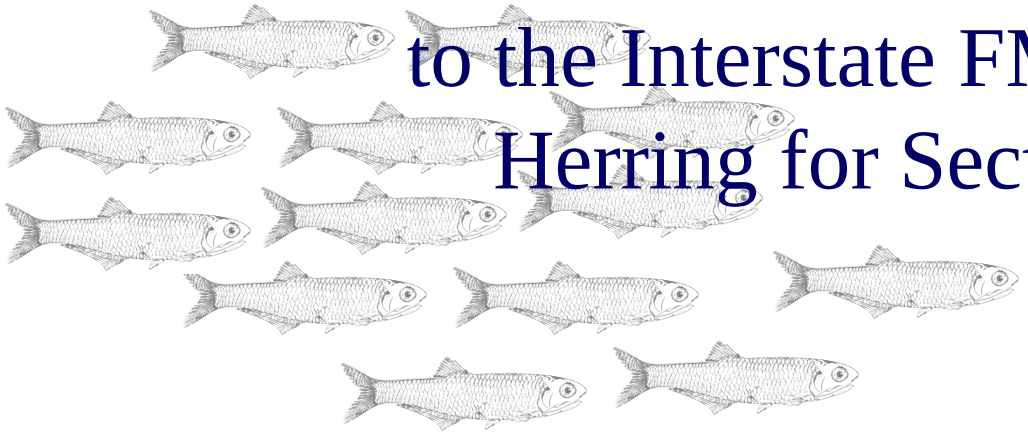
Working towards healthy, self-sustaining populations for all Atlantic coast fish species or successful restoration well in progress by 2015

Draft Amendment V to Amendment 2 to the Interstate FMP for Atlantic Herring for Section Review.



Statement of Problem

- Current regulations scattered in 3 different documents.
- Lack of clear guidance to states.
- Slight inconsistencies as result.
- Have worked b/c of cooperation btw. State fisheries agencies. Not guaranteed in future.

Replace Spawning Regulations

When final, will replace all spawning regulations in FMP to provide a single, clear document for states to use to comply with ASMFC spawning regulations.

1. Section vote on final measures
2. ASMFC staff and TC Chair draft spawning regulations carryover language including selected options.
3. TC review of draft spawning regulation language.
4. Section review and approval of language.
5. Addendum V published.

3.1 Spawning Area Boundaries

- Option A: Status Quo: Boundaries are modified through an Addendum

- Option B: Boundaries can be changed though section action based on TC advice
  - TC recommends this option

3.2 Size Bins that Trigger a Spawning Closure Start

- "Closures begin based on the % of stage III – V spawn herring that are greater than 24 cm."
- TC considered 'typo'. Should be "or equal to"
- Recent samples have found herring maturing at smaller size, especially in 23-24 size bin.

3.2 Size Bins that Trigger a Spawning Closure Start

- *Closures …will begin seven days after the determination that female herring in ICNAF gonadal stages III – V…have reached the following spawning conditions: …female herring **[insert option]** and less than 28 cm in length have reached a mean GSI of 15%.*

OPTION A. STATUS QUO: >24 CM

OPTION B. ≥24 CM

OPTION C. ≥23 CM (TC RECOMMENDED OPTION)

OPTION D. ≥22 CM

3.3 Number of Fish Per Sample

OPTION A. STATUS QUO (50 FISH PER SAMPLE)

OPTION B. 100 FISH PER SAMPLE

Sufficient sample information shall mean at least two (2) samples of 100 fish or more, in either length category, taken from commercial catches during a period not to exceed seven days apart.

- TC recommends increasing to 100 fish per sample, NH, ME, and MA already collect 100 fish per sample.

Public Comment:
2 Comments Received

- Support changes to spawning area boundaries through addenda
- Support TC recommendation to change sampling protocol for all sizes of spawning herring
- Support size bin to trigger a closure ≥ 22 cm
- Support increasing the sample size to 100 fish
- Encourage action to alter boundaries consistent with stages and aggregations of spawn herring

Public Comment

- Set a spawning area for Nantucket Shoals (2 favor)
- Set spawning area for Georges Bank
- Overall concern for the herring stock
  - Fish maturing at a smaller size (what are the implications?)
  - Ecosystem level importance of spawning herring

Working towards healthy, self-sustaining populations for all Atlantic coast fish species or successful restoration well in progress by 2015

NEFMC Management Measures for Amendment 5 to the Atlantic Herring Fishery Management Plan

August 7, 2012

FMP Adjustments

- Expands possession restriction
- Eliminates VMS “power down” provision for limited access herring vessels.
- Establishes a new at-sea herring dealer permit for carrier vessels.

FMP Adjustments

- **Pre-trip notification required for all LA herring vessels and Category D vessels fishing in 1A, 1B, and 3**
- **Pre-landing notification requirement would apply to all vessels**

FMP Adjustments

- **Federally-permitted dealers required to accurately weigh all fish and document how composition of mixed catch is estimated**
- **A 20,000 pound possession limit in Areas 2/3 for vessels that also possess a federal LA mackerel permit**

Catch Monitoring

- **100% at-sea observer coverage on Category A and B vessels supported by funding from federal/industry and the use of state service providers.**
- **Improves catch sampling by observers**

Catch Monitoring

- **Trip termination after 10 slippage events for limited access vessels,** exception for slippage because of spiny dogfish.

River Herring Bycatch

- Two Phase bycatch avoidance approach
- Bycatch limits or catch cap approved for consideration in a subsequent herring action.

Section 3.4 Midwater Trawl Access to Groundfish Closed Areas

- **Apply Closed Area 1 Provisions**
- **100% observer coverage on all trips in groundfish year-round closed areas**

Federal Court Decision

- **Lawsuit filed April 2011.**
- **Court ruling orders that Amendment 4 is vacated (null) effective one year from now.**
- **Court will retain oversight of the Agency's actions in this matter until NMFS fully complies**

- **Requires NMFS and NEFMC to review the most recent science and consider a full suite of protections for SRH.**
- **Gives NMFS one year to take action to minimize the bycatch of SRH**
- **Orders NMFS to consider new approaches for setting the allowable catch for sea herring that accounts for its role as food**
- **Requires reports to Court at 1, 6, 12 months**

54th SAW Assessment Summary Report for Atlantic Herring

Matt Cieri

TC Chair

Aug. 7th 2012

New Approaches

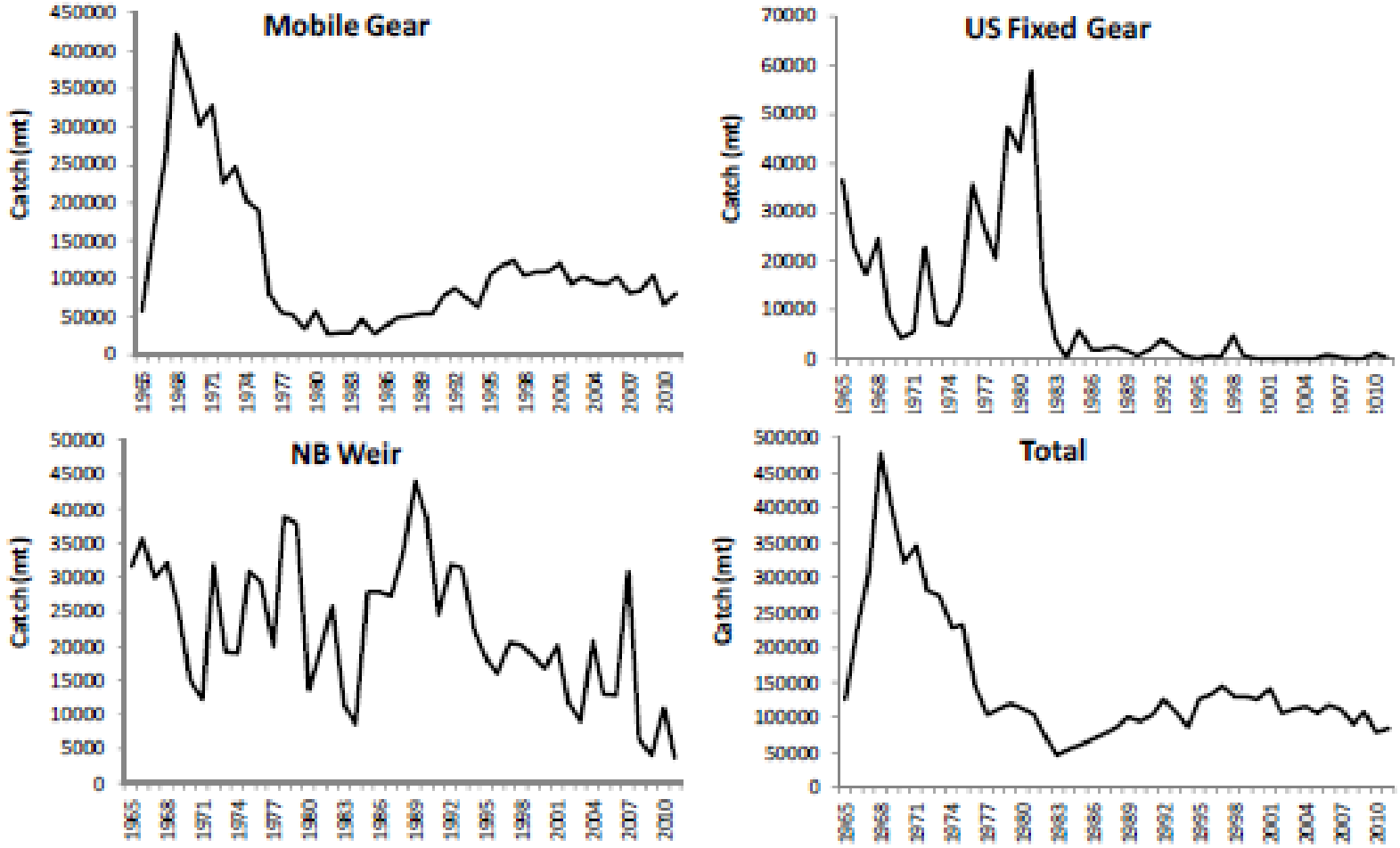
- Took a look at new Models
  - SS3 : a popular length/age based model from the West Coast
  - Length based model Developed by Yong Chen
    - Similar to the Lobster Model
- New and Old Surveys
  - Winter, Spring, Fall NMFS bottom trawl
  - Shrimp, ME/NH, MA DMF, Larval, Acoustic
- Reformulation of natural Mortality
- Catch-at-Age
- More

Same model but entirely changed

- Last time: ASAP
  - Statistical catch at age approach
  - 0.2 Natural mortality
  - HUGE retrospective error
  - Over estimated biomass and under estimated F in terminal year
- This time: ASAP
  - New formulation of CAA
  - New Fleets
  - Age & Year varying natural mortality

Data

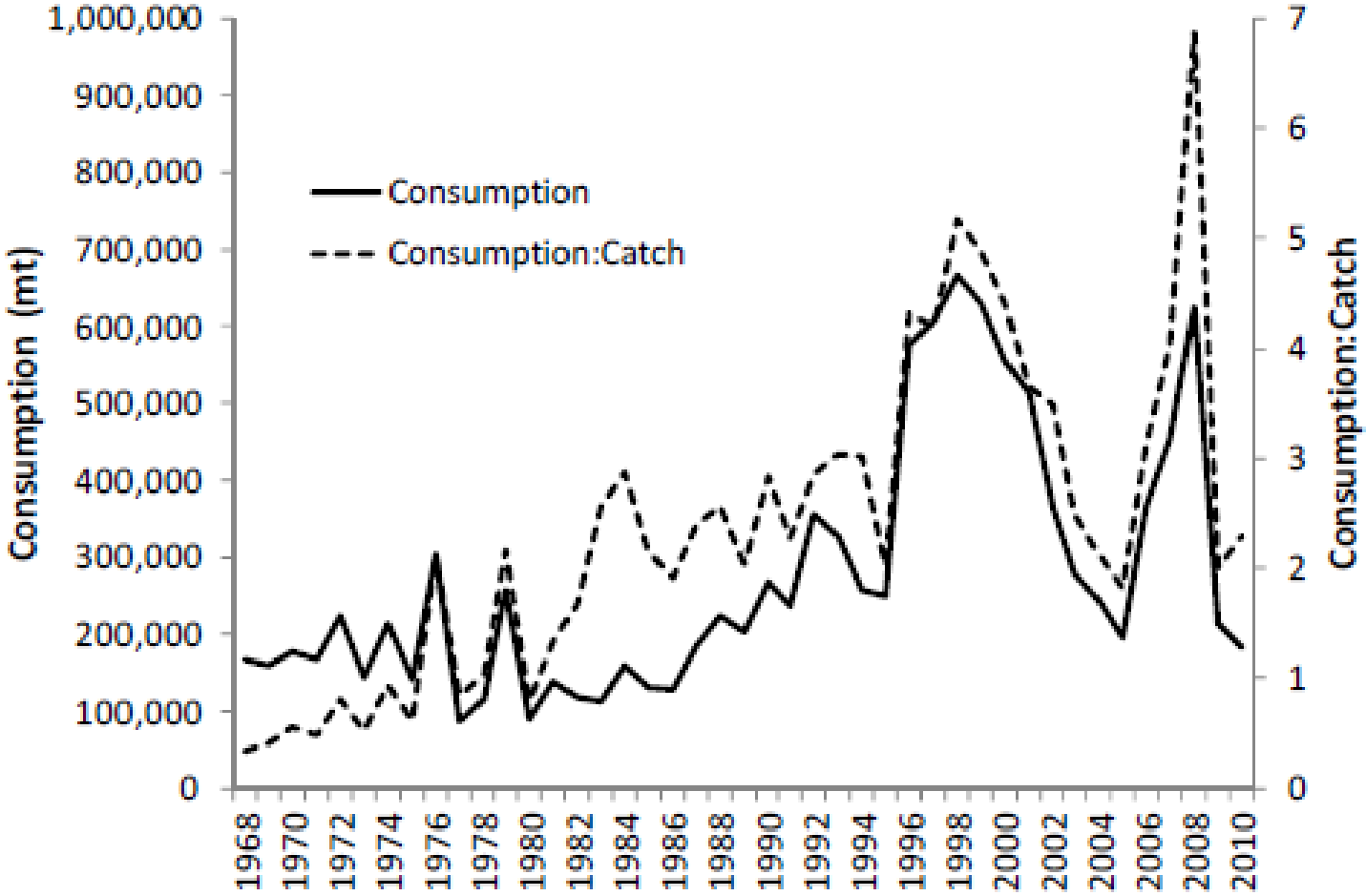
- Catch and Catch at age 1965 to present
  - New Approach
  - Discards minimal
  - Fix and mobile gear: ME and NB together
  - Not resolved Spatially: no borrowing of samples
- Surveys
  - NMFS Spring: Calibration for Bigelow
  - NMFS Fall: Calibration for Bigelow
  - Shrimp: New Survey (Age 5+)
- Considered but rejected Surveys
  - NMFS Winter
  - Acoustic & Larval
  - MA DMF and ME/NH bottom trawl



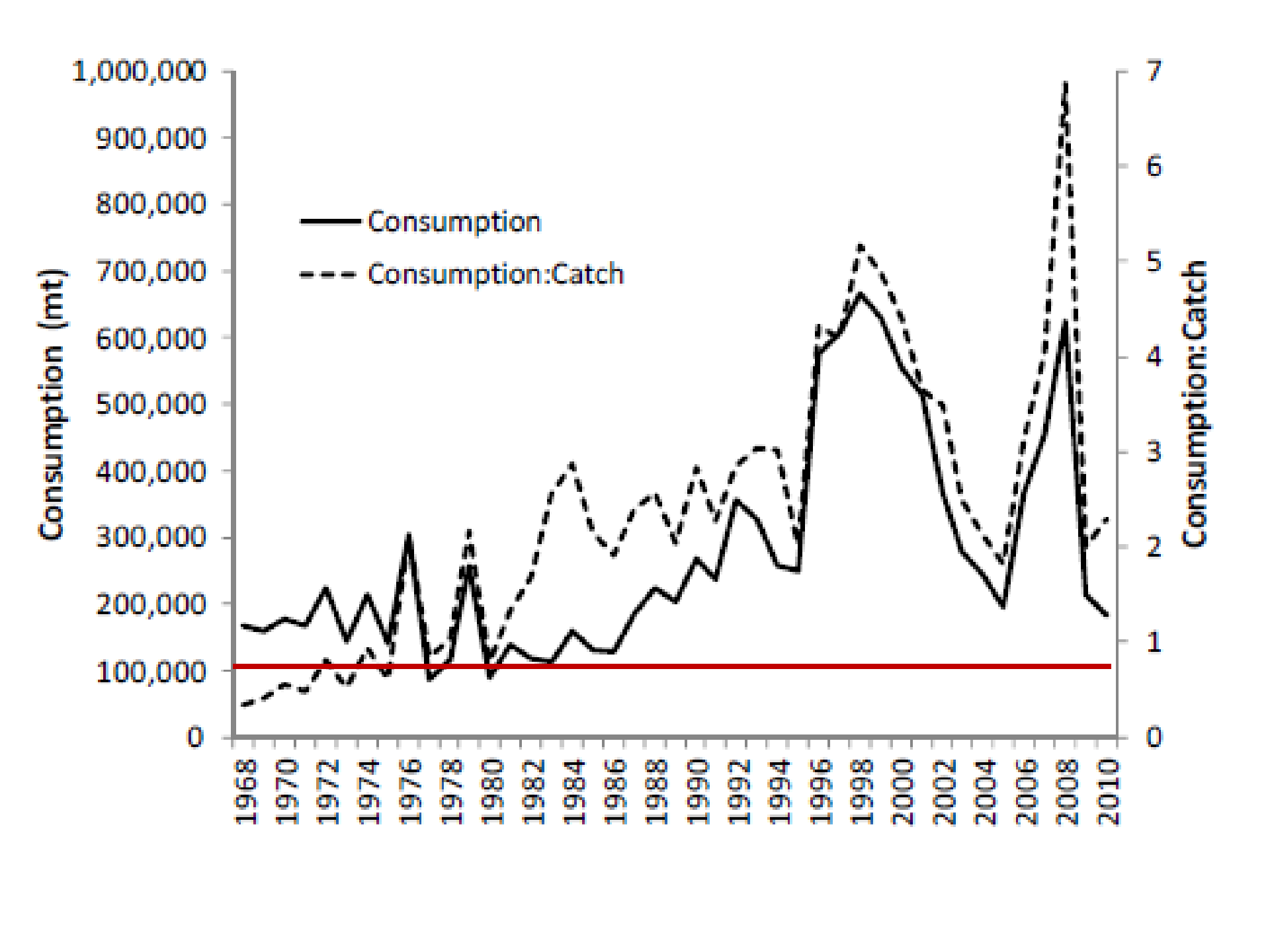
A2. Atlantic herring catch (mt) during 1965-2011 for US mobile gears, US fixed gears, NB weir fishery, and total catch. Discards estimates were only available since 1996.

Natural Mortality

- Hoenig approach
  - Uses life history to give a scale
- Lorenzen approach: looks at body size
  - M by age
- Increase in 1996-present block by 50%
  - Indicated by a change in the consumption data
    - Includes birds, mammals, HM, and fish predators
    - From the Food Habits database
  - Reduces retrospective pattern



A6. Consumption of Atlantic herring by groundfish species, marine mammals, highly migratory species and seabirds (solid line). Also shown, the ratio of consumption to fishery catch (dashed line), 1968-2010.


1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
Consumption (mt)
7
6
5
4
3
2
1
0
Consumption:Catch
Consumption
Consumption:Catch
1968
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010

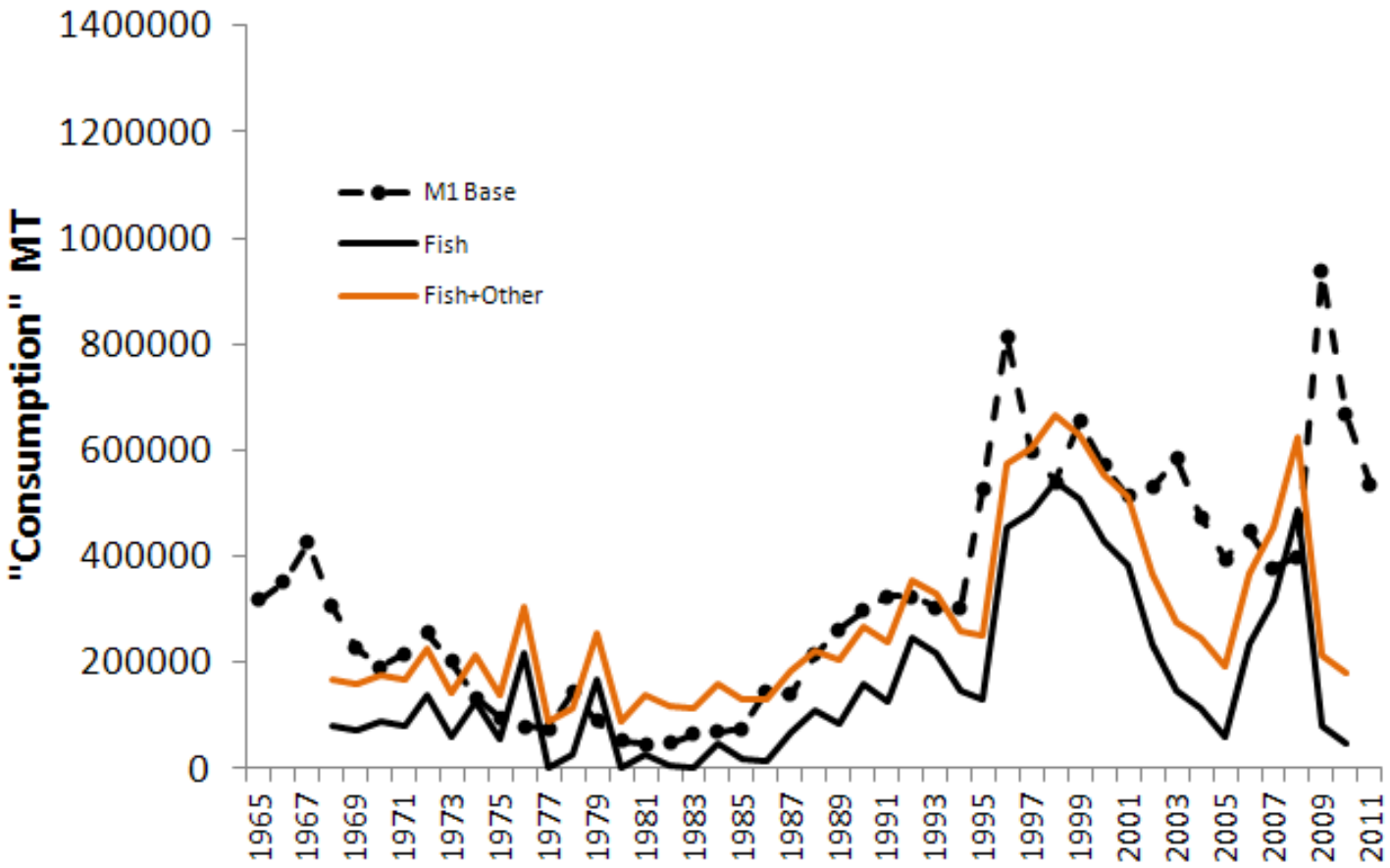


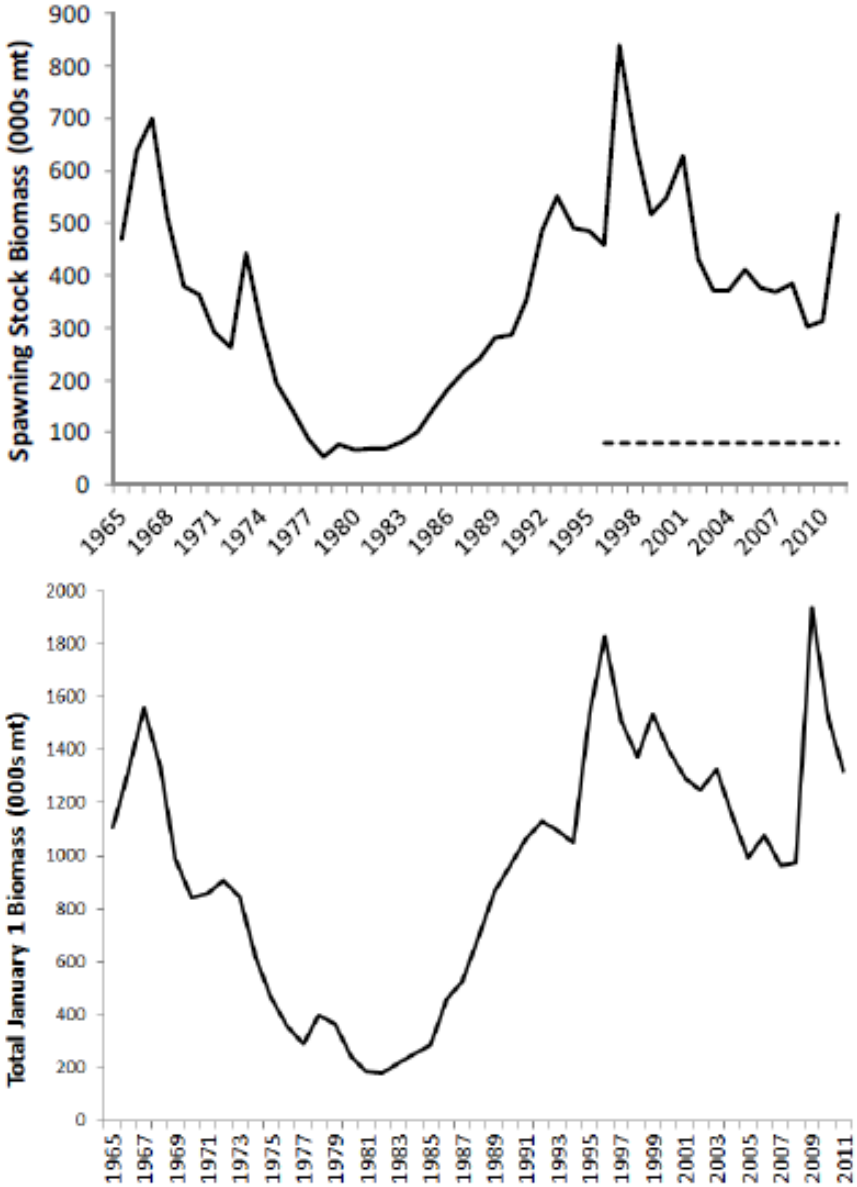
Figure A5-31. The deaths, considered largely attributable to consumption, implied by the natural mortality rates used in the ASAP base run (M1 Base; black dashes with circles), estimates of consumption of herring by fish predators (Fish; black line), and estimates of consumption of herring by "all" predators (fish, birds, migratory species, and marine mammals) (Fish+Other; orange line).

Reference Points & Status

- FMSY = 0.27
- **Current F = 0.14**
- SSBMSY = 157,000 mt
- ½ SSBMSY = 78,500 mt
- **Current SSB = 518,000 mt**
- MSY = 53,000 mt.
- **2011 Catch = ~ 88,000 mt**

Status: Not Overfished, Overfishing is not occurring

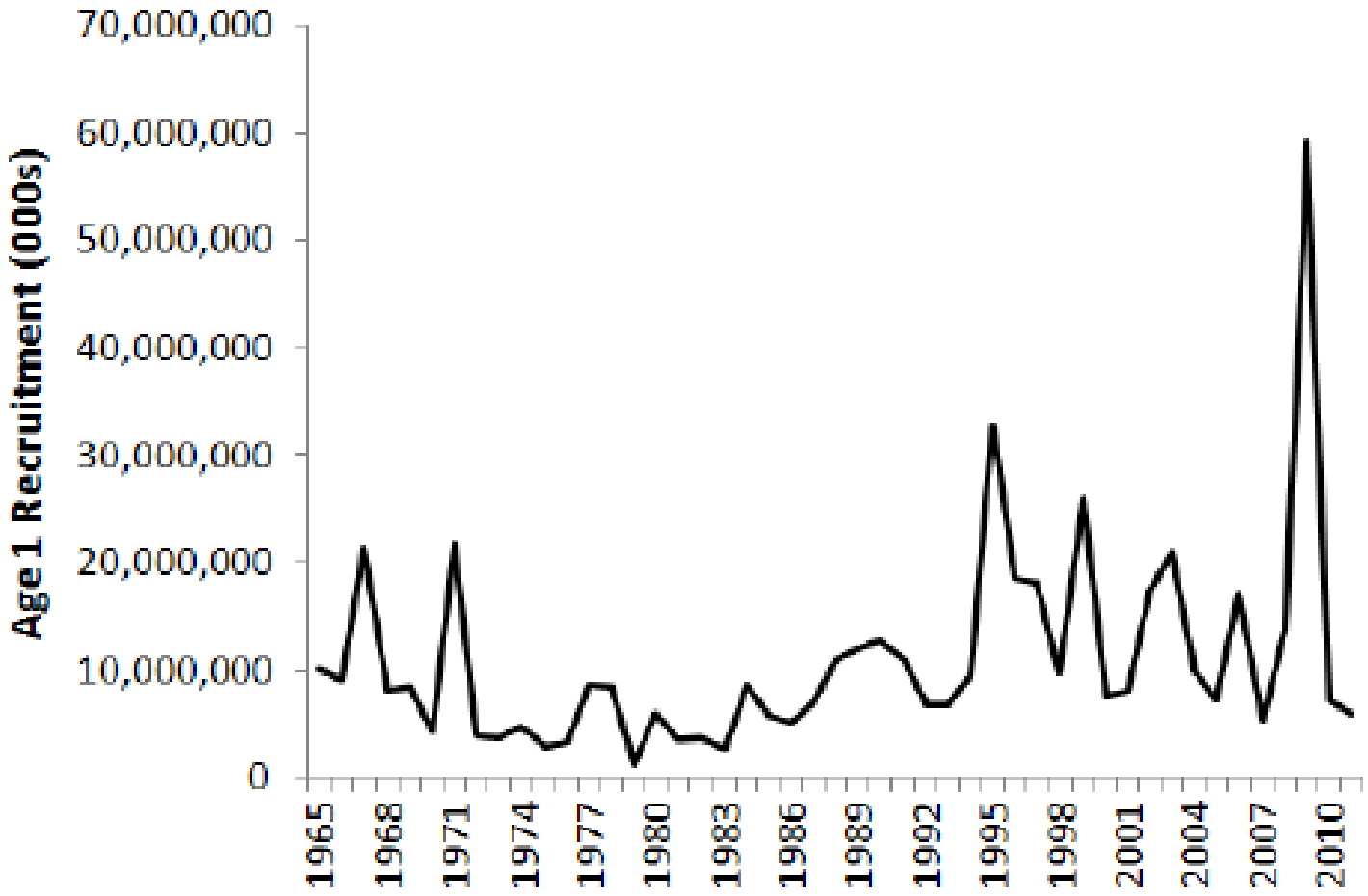
A3. Atlantic herring age-5 fishing mortality (solid line) and F_{MSY} (dashed line) estimated from the ASAP model base run. The F_{MSY} reference line is only provided during 1996-2011 because the reference point from this assessment is only for this time period.



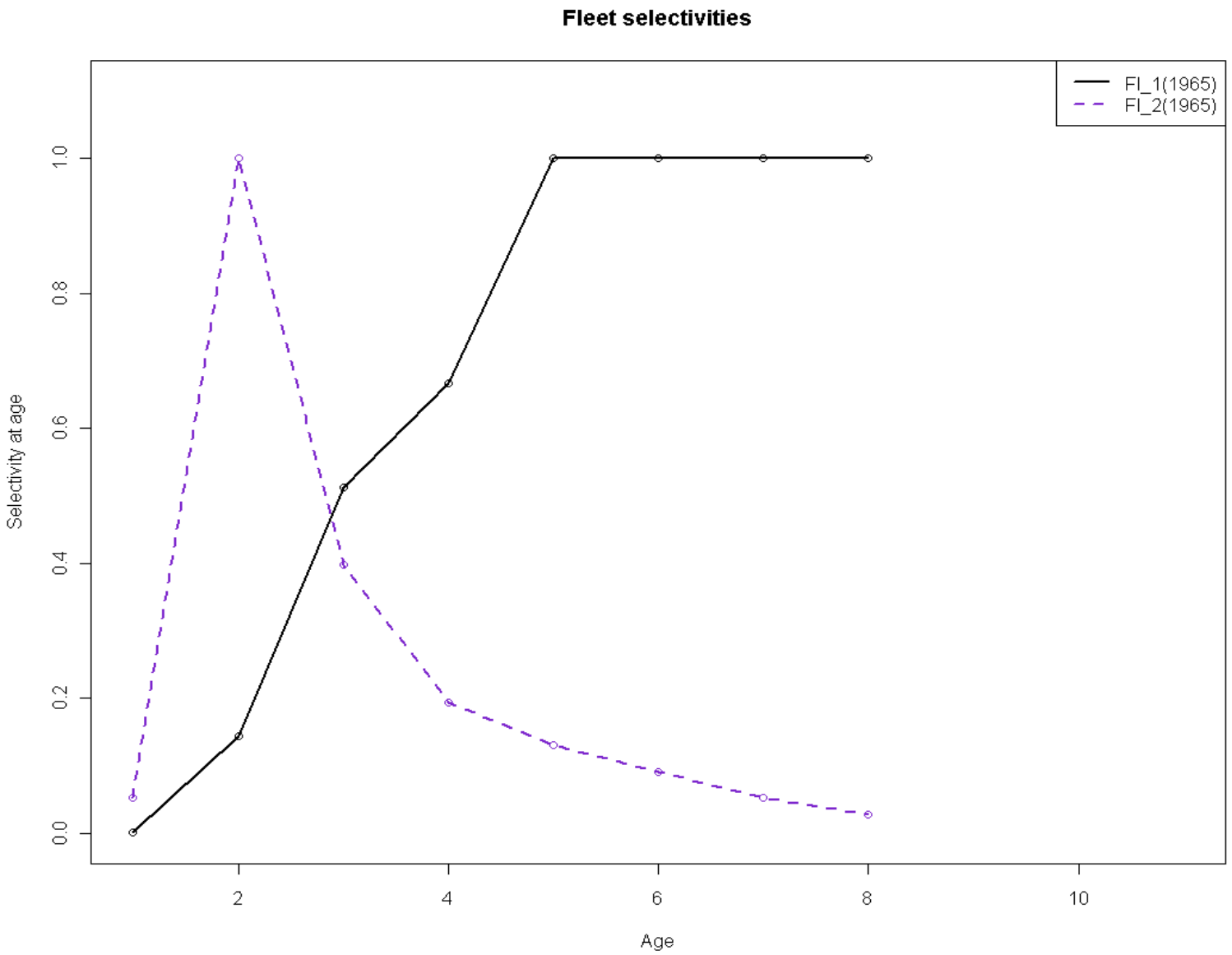
A4. Atlantic herring spawning stock biomass (000s MT; solid line; top panel), ½ SSB_{MSY} (dashed line; top panel), and total biomass (000s MT; bottom panel) time series estimated from the ASAP base run. The ½ SSB_{MSY} reference line is shown for 1996-2011 because the reference point from this assessment is only for this time period.

Major Uncertainties

- Retrospective pattern has been for the most part resolved
- Different issues
- Size and Strength of the 2008 Year Class
  - Is it really DOUBLE the next biggest year class in 1994
  - Did it literally DOUBLE the biomass in one year?
  - Note: It's in the surveys and catch, but is not fully selected; not fully in the fishery
- However, even if it is the same size, stock is still not overfished, still not overfishing



A5. Atlantic herring age-1 recruitment (000s) over time, estimated from the ASAP model base run.


Fleet selectivities
Fl_1(1965)
Fl_2(1965)
Selectivity at age
0.0
0.2
0.4
0.6
0.8
1.0
2
4
6
8
10
Age

"In the short-term, the 2009 age-1 cohort (2008 year class) may reduce the vulnerability of this stock to overfishing. The strength of large cohorts, however, is often overestimated in the short-term. Consequently, the strength of this cohort should be interpreted cautiously and decisions based on this assessment should consider this uncertainty."

Other uncertainties

- Scale of Natural mortality in recent years
  - And Reference points as they are based on it
- Stock unit
  - Some suggestions of mixing with 4 WX
  - Not only in Area 1 but in the winter fishery
  - Extent of which is unknown
  - As an aggregate of many sub components
  - Inshore/off-shore

Table A1. Results of three-year Atlantic herring projections for the base ASAP mo

Fmsy = 0.267	SSBmsy = 157,000 mt	steepness = 0.53	MSY = 53,000 mt
2011 F (age 5)	SSB 2011		2011 catch
0.14	518,000 mt		85,000 mt
2012 catch = 87,683 mt (quota)			
	2013	**2014**	**2015**
	F_{msy}		
F	0.267	0.267	0.267
SSB	496,064 mt	368,501 mt	308,949 mt
80% CI	362,965 - 688,585 mt	275,695 - 517-815 mt	237,755 - 411,808 mt
Prob < SSBmsy/2	0	0	0
catch	168,775 mt	126,589 mt	104,430 mt
80% CI	124,868 - 230,764 mt	95,835 - 171,145 mt	79,505 - 139,925 mt
	$F_{75\% msy}$		
F	0.2	0.2	0.2
SSB	523,243 mt	409,309 mt	354,559 mt
80% CI	382,573 - 723,975 mt	306,011 - 574,128 mt	272,751 - 473,021 mt
Prob < SSBmsy/2	0	0	0
catch	130,025 mt	102,470 mt	87,574 mt
80% CI	96,216 - 177,894 mt	77,476 - 138,665 mt	66,739 - 117,318 mt
	$F_{status\ quo}$		
F	0.14	0.14	0.14
SSB	548,788 mt	450,496 mt	402,551 mt
80% CI	401,571 - 760,028 mt	336,594 - 631,502 mt	309,334 - 537,414 mt
Prob < SSBmsy/2	0	0	0
catch	93,159 mt	76,823 mt	67,912 mt
80% CI	68,954 - 127,518 mt	58,022 - 104,055 mt	51,752 - 91,001 mt
	MSY		
F	0.08	0.09	0.1
80% CI	0.06 - 0.11	0.07 - 0.12	0.07 - 0.14
Prob > Fmsy	0	0	0
SSB	576,092 mt	492,162 mt	448,725 mt
80% CI	413,046 - 813,298 mt	351,530 - 716,931 mt	321,209 - 633,132 mt
Prob < SSBmsy/2	0	0	0
catch	53,000 mt	53,000 mt	53,000 mt
	Status quo catch		
F	0.13	0.16	0.19
80% CI	0.1 - 0.18	0.11 - 0.23	0.13 - 0.27
Prob > Fmsy	1%	4%	10%
SSB	551,686 mt	446,496 mt	385,995 mt
80% CI	388,989 - 789,568 mt	306,349 - 669,721 mt	259,178 - 569,560 mt
Prob < SSBmsy/2	0	0	0
2012 quota	87,683 mt	87,683 mt	87,683 mt

Fishing a FMSY 104 kMT landings and drop to 308 kMT SSB by 2016

Fishing a F 75%MSY 87 kMT landings and drop to 354 kMT SSB by 2016

Fishing a Fcurrent 68 kMT landings and drop to 402 kMT SSB by 2016

Fishing a MSY 53 kMT landings and drop to 448 kMT SSB by 2016

Fishing a 2011 catch 88 kMT landings and drop to 386 kMT SSB by 2016

What's Next?

- Joint Herring PDT/TC meeting on the 14th of Aug.
- SSC meeting the 4th of Sept
  - OFL and ABC
- Committee/Section meeting on the 20th Sept.
- Specifications process
- Area allocation
- Very Little guidance on Inshore/Off-shore split