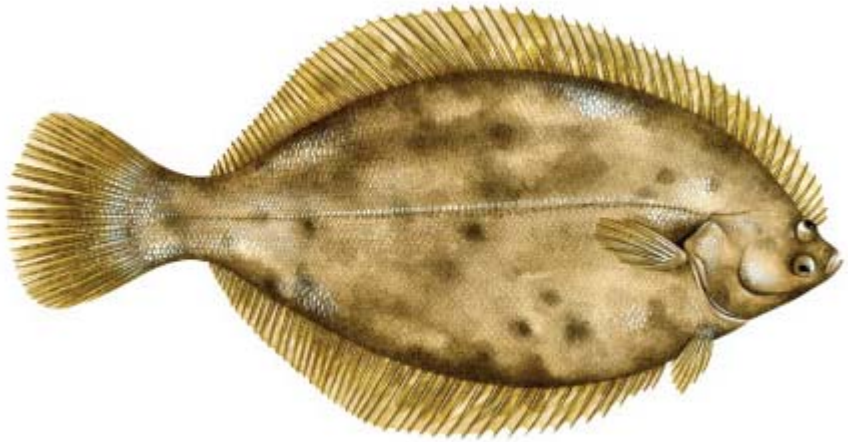
2018 Winter Flounder Specifications



February 6, 2018

2018 ACLs

In Dec. 2017, NEFMC approved Framework 57 with ACLs for GOM and SNE/MA winter flounder

- **GOM Stock**
  - FY18 total ACL is 428mt (↓ 348mt from FY17)
  - State waters sub-component is 67mt (↓ 55mt from FY17)
  - FY16 state waters total catch was 100.9mt
- **SNE/MA Stock**
  - FY18 total ACL is 700mt (↓ 49mt from FY17)
  - State waters sub-component is 73mt (↑ 3mt from FY17)
  - FY16 state waters total catch was 64.7mt

Measures Board Can Adjust

Under Addendum III, the Board can adjust the following measures through Board action

Commercial Measures

- Size Limit
- Season
- Area Closures
- Trip Limit
- Trigger Trip Limit

Recreational Measures

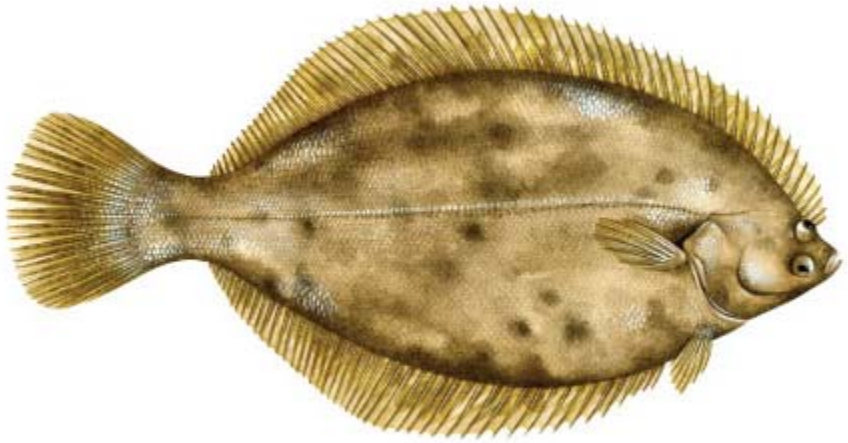
- Size Limit
- Bag Limit
- Season

Current Mgmt. Measures

Stock	Sector	Trip Limit	Size Limit	Season	Gear
GOM	**Com**	500 lbs	12”	Maintain closures	Min 6.5” square or diamond mesh
	Rec	8 fish	12"	NA	
SNE/MA	**Com**	50 lbs	12”	Maintain closures	Min 6.5” square or diamond mesh; 100-lb mesh trigger
	Rec	2 fish	12”	March 1 – December 31	

Questions

Winter Flounder
2017 FMP Review



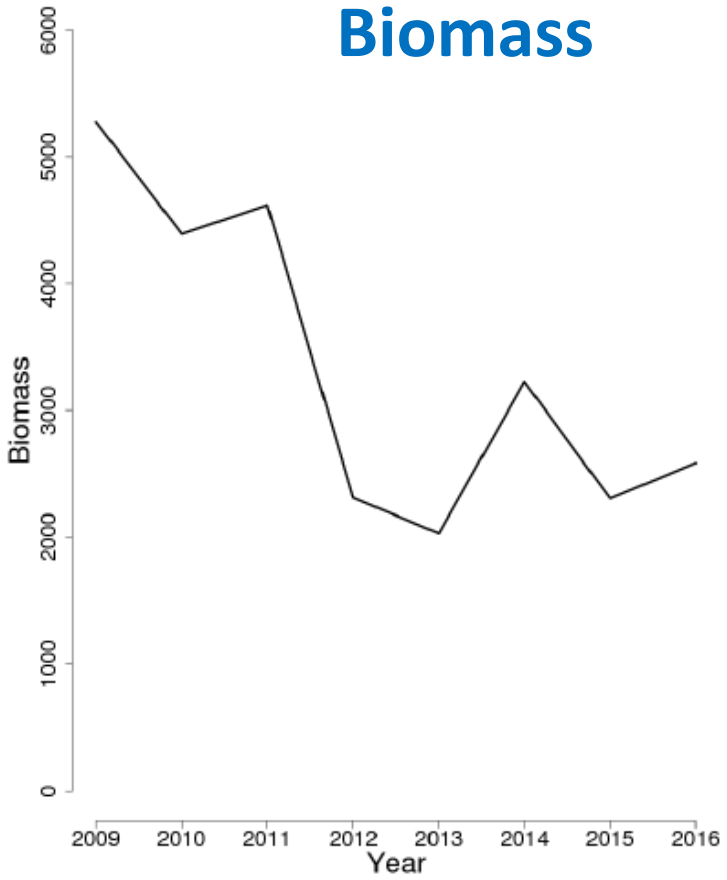
February 6, 2018

Status of Stocks - GOM

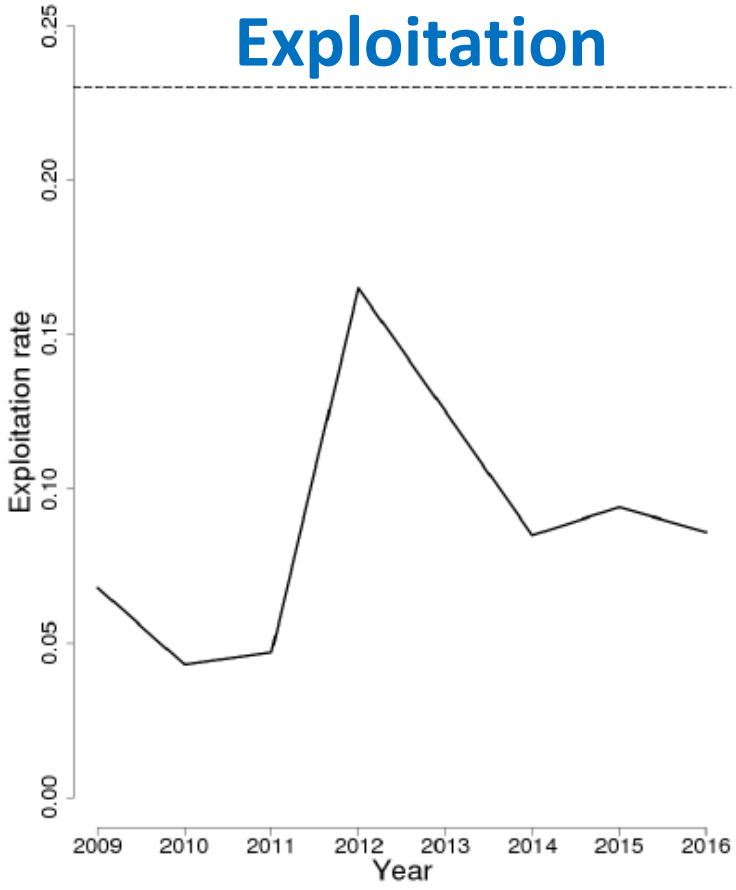
2017 Operational Stock Assessments

- Stock biomass status unknown
- Overfishing is not occurring

Biomass



Exploitation

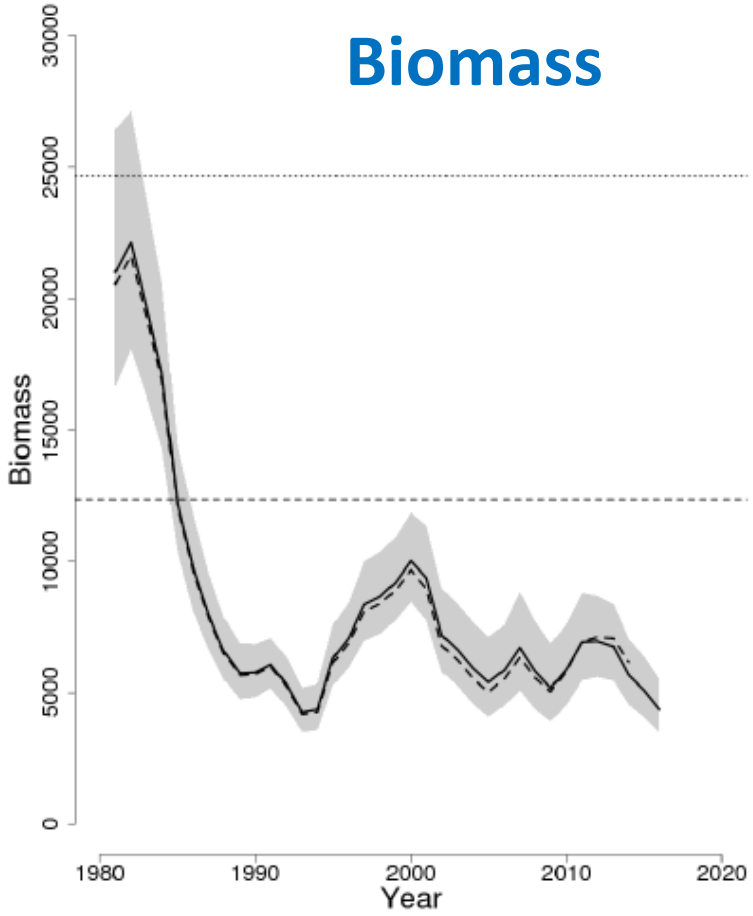


Status of Stocks – SNE/MA

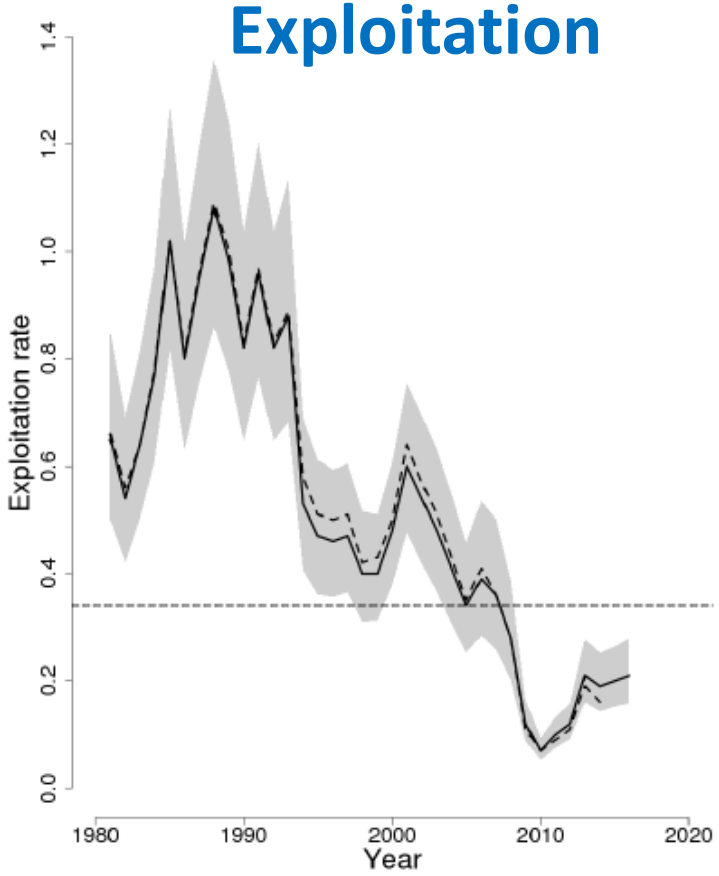
2017 Operational Stock Assessments

- Stock is overfished
- Overfishing is not occurring

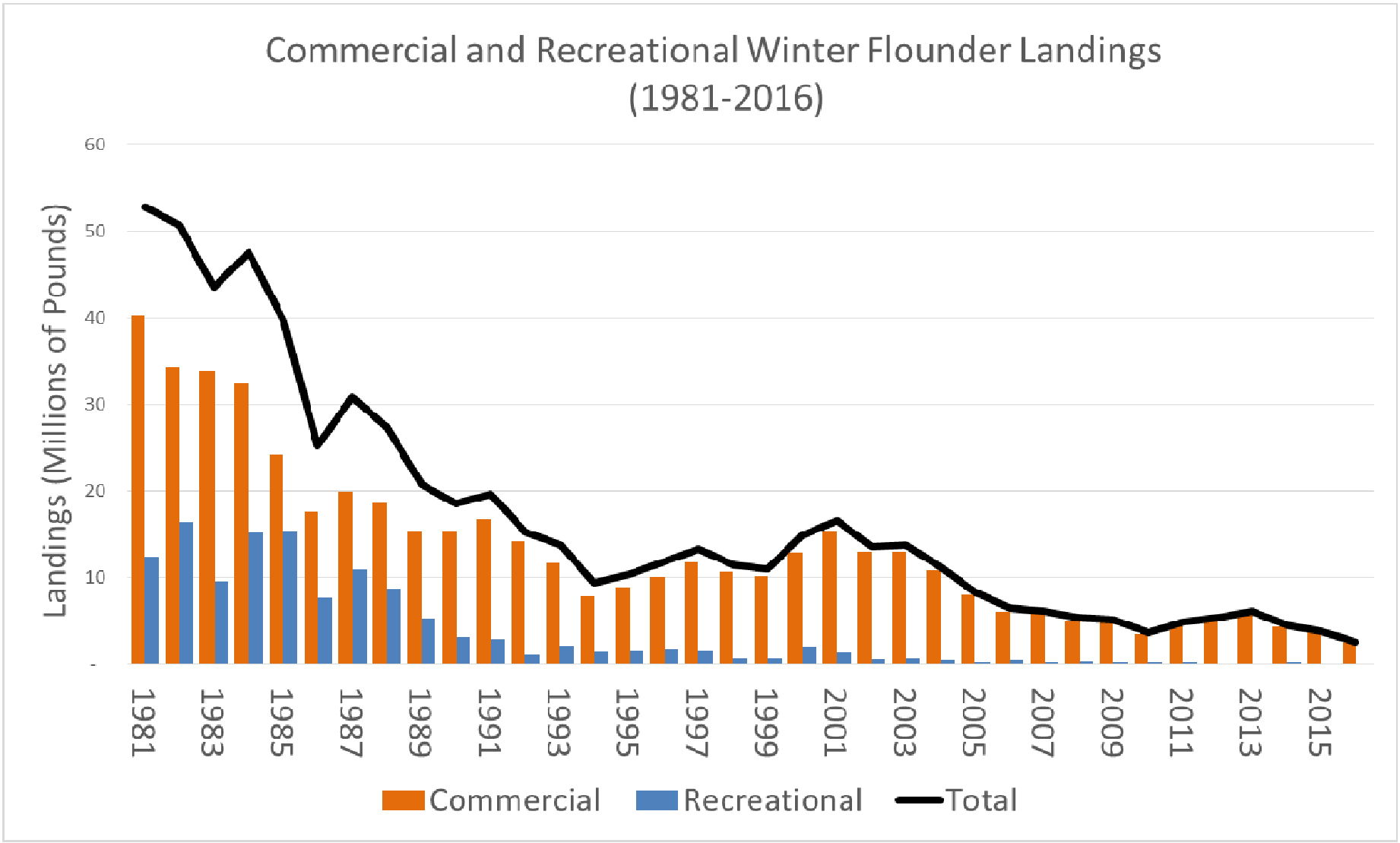
Biomass



Exploitation



Status of Fishery



Status of Management

Stock	Sector	Trip Limit	Size Limit	Season
GOM	**Com**	500 lbs	12”	Maintain closures
	Rec	8 fish	12"	NA
SNE/MA	**Com**	50 lbs	12”	Maintain closures
	Rec	2 fish	12”	March 1 – December 31

Amendment 1

Addendum I

Addendum II

Board Action on February 2014

Monitoring & Research

Plan-specific requirements:

- Annual juvenile recruitment survey
  - ✓MA, NY, and RI
- Annual Spawning stock biomass survey
  - ✓MA, RI, CT, and NJ

© UMass

State Compliance

- ✓ States' management programs are consistent with the FMP
- ✓ There were no requests for *de minimis* status
- ✓ PRT recommends the Board "Approve the 2017 FMP Review and state compliance reports"

NOAA FISHERIES

NEFSC

Gulf of Maine and Southern New England Winter Flounder

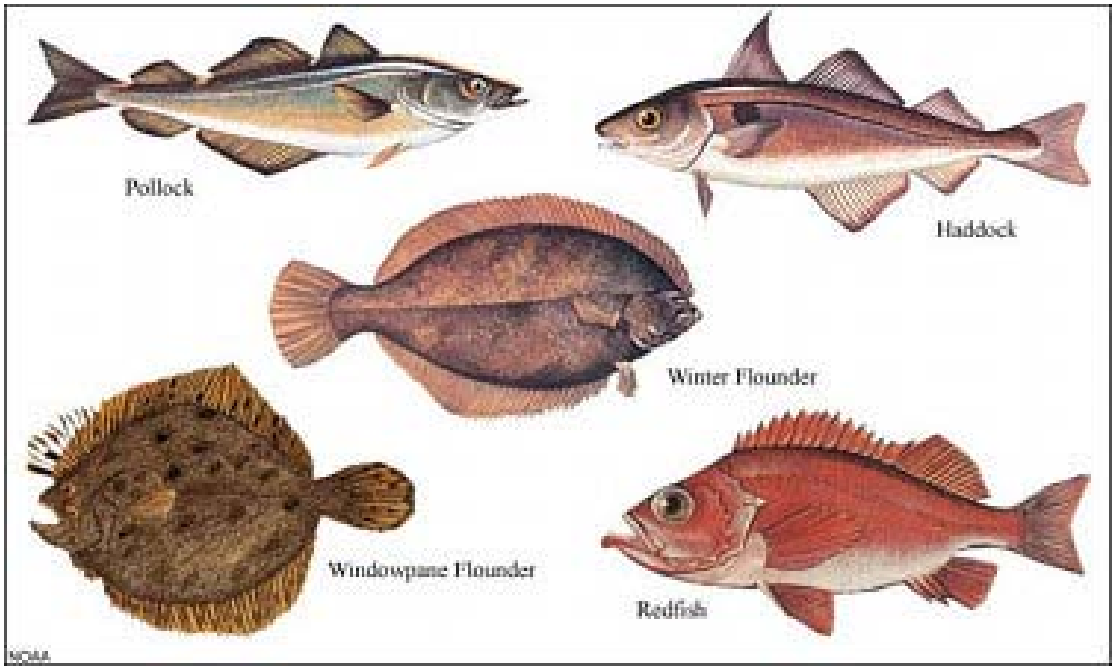
2017 Groundfish Operational Assessments

Paul Nitschke

19 Groundfish Operational Assessments 2017

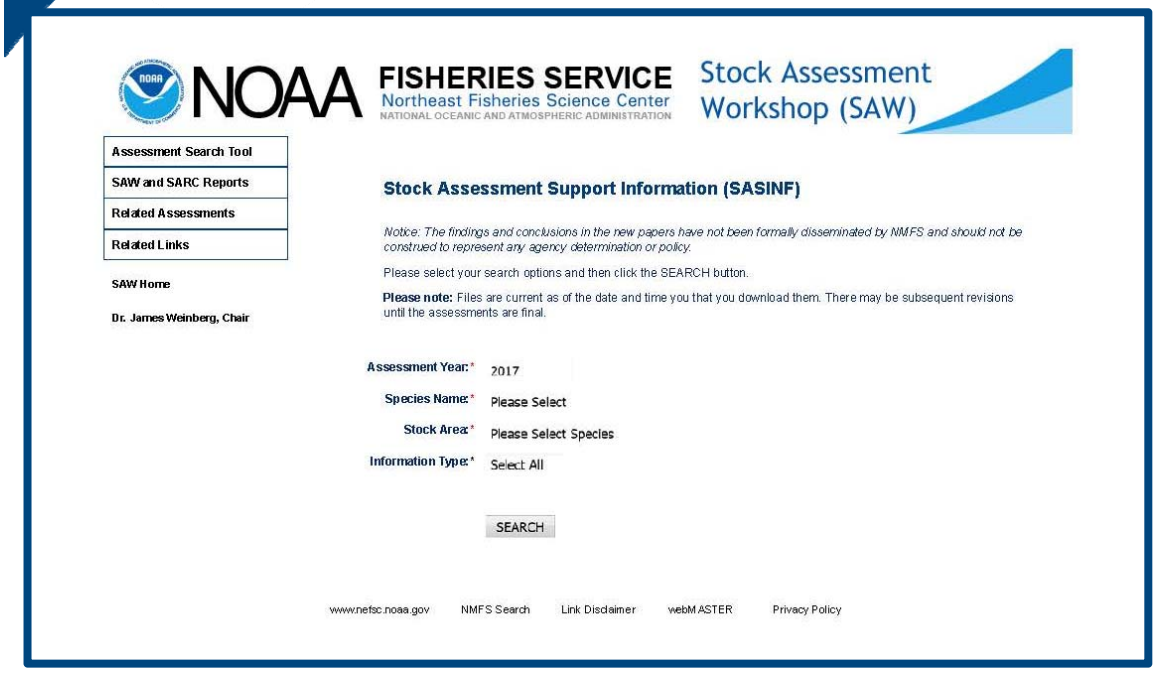
NOAA FISHERIES

- Northeast Fisheries Science Center



http://www.nefsc.noaa.gov/groundfish/operational-assessments-2017/

Data Portal



Efficiency Initiative

http://www.nefsc.noaa.gov/groundfish/operational-assessments-2017/

Data Portal Output

Search Criteria
- Assessment Year
- Species
- Stock
- Information Type

OUTPUTS
- Zip File=Everything
- Assessment Report
- Figures
- Tables
- Model info: inputs, outputs, diagnostics
- Maps—Survey
- Maps –Commercial
- Background Reports

Generic TORs - few changes allowed

- Update the data
- Run the models to estimate stock size and fishing mortality
- Update the values of Biological Reference Points
- Evaluate Stock Status
- Estimate Overfishing Limit or other Catch Advice
- Sources of Uncertainty and Research Needs
- Plan B if model fails
- Consider catchability estimates, incorporate directly into relevant empirical assessments

19 Groundfish Stocks
Rules for Engagement

- Update model runs and BRP estimates with limited changes to model configuration (m, selectivity, weighting, etc).
- Apply a retrospective adjustment to the t+1 abundance if the Mohn's Rho (7 year peel) estimate are outside of the model's 90% CI.

Gulf of Maine Winter Flounder

NOAA FISHERIES

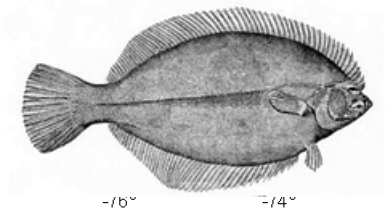
NEFSC

Lead Scientist: Paul Nitschke

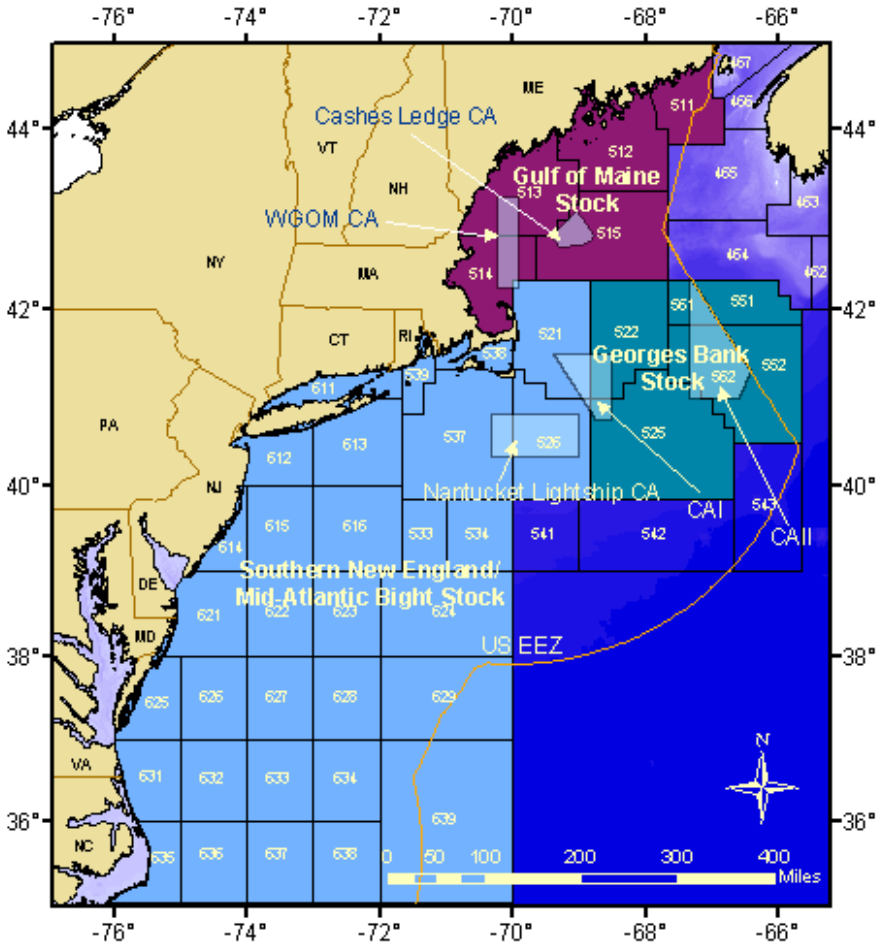
Last Assessed: 2015 Operational Assessments
2011 Benchmark SARC 52

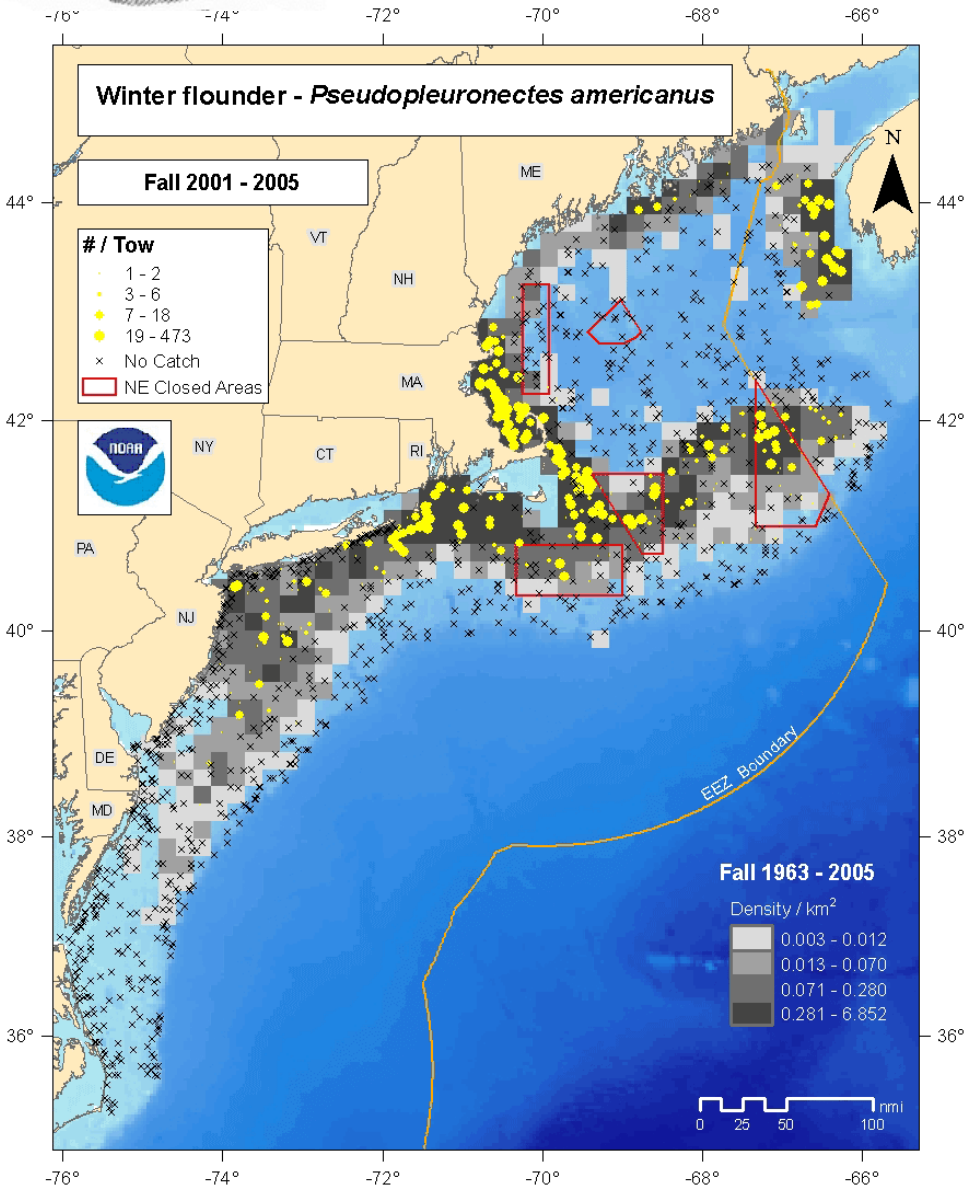
30+ Survey Area-Swept

GOM Winter Flounder Current Status



- Overfished status is Unknown
- Overfishing not occurring

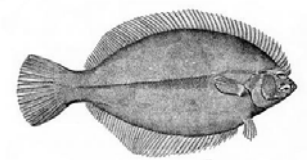




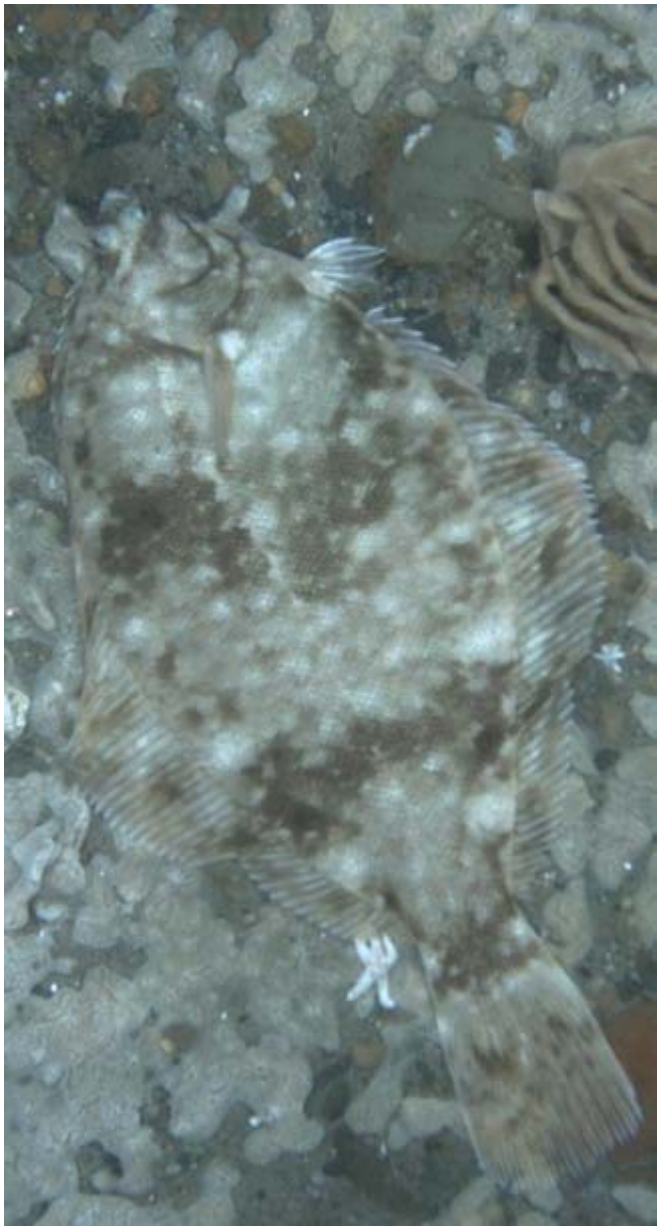
Assessment History

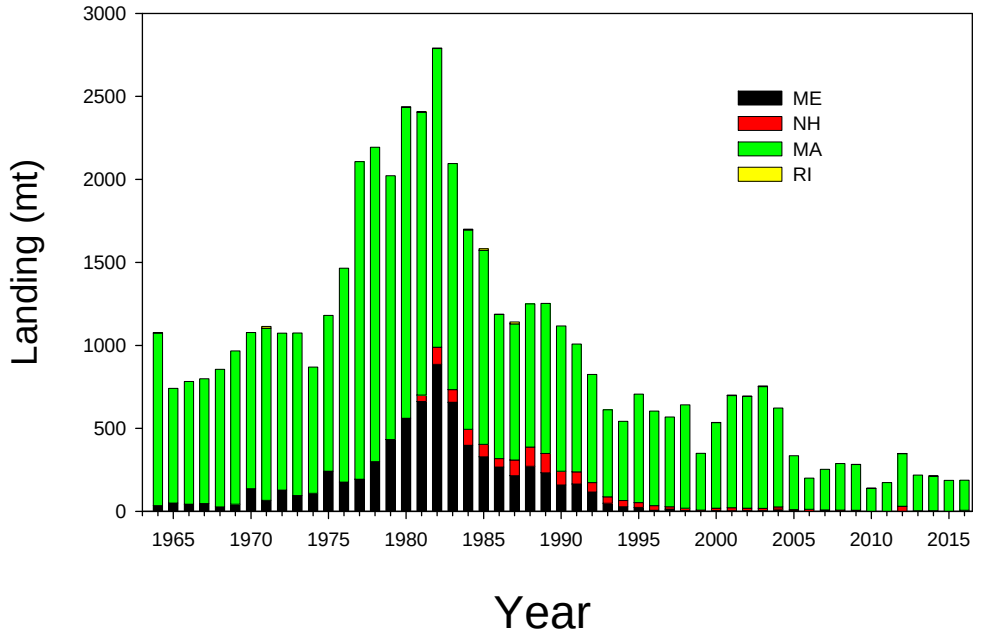
- Analytical model died at GARM III (2008) & again at the SARC 52 Benchmark (2011) due to concerns with a large retrospective pattern. Models (VPA, SCALE, ASAP, SCAA) have difficulty with the apparent lack of a relationship between a large decrease in the catch with little change in the indices and age and/or size structure over time.
- Assessment is now based on 30+ cm area-swept biomass estimated directly from the surveys.

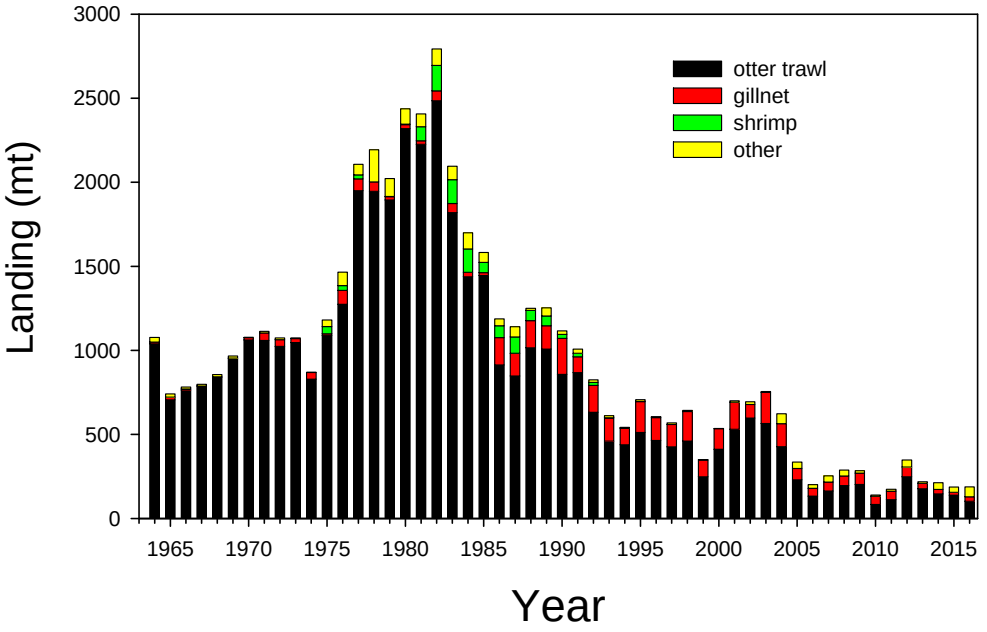
Assessment

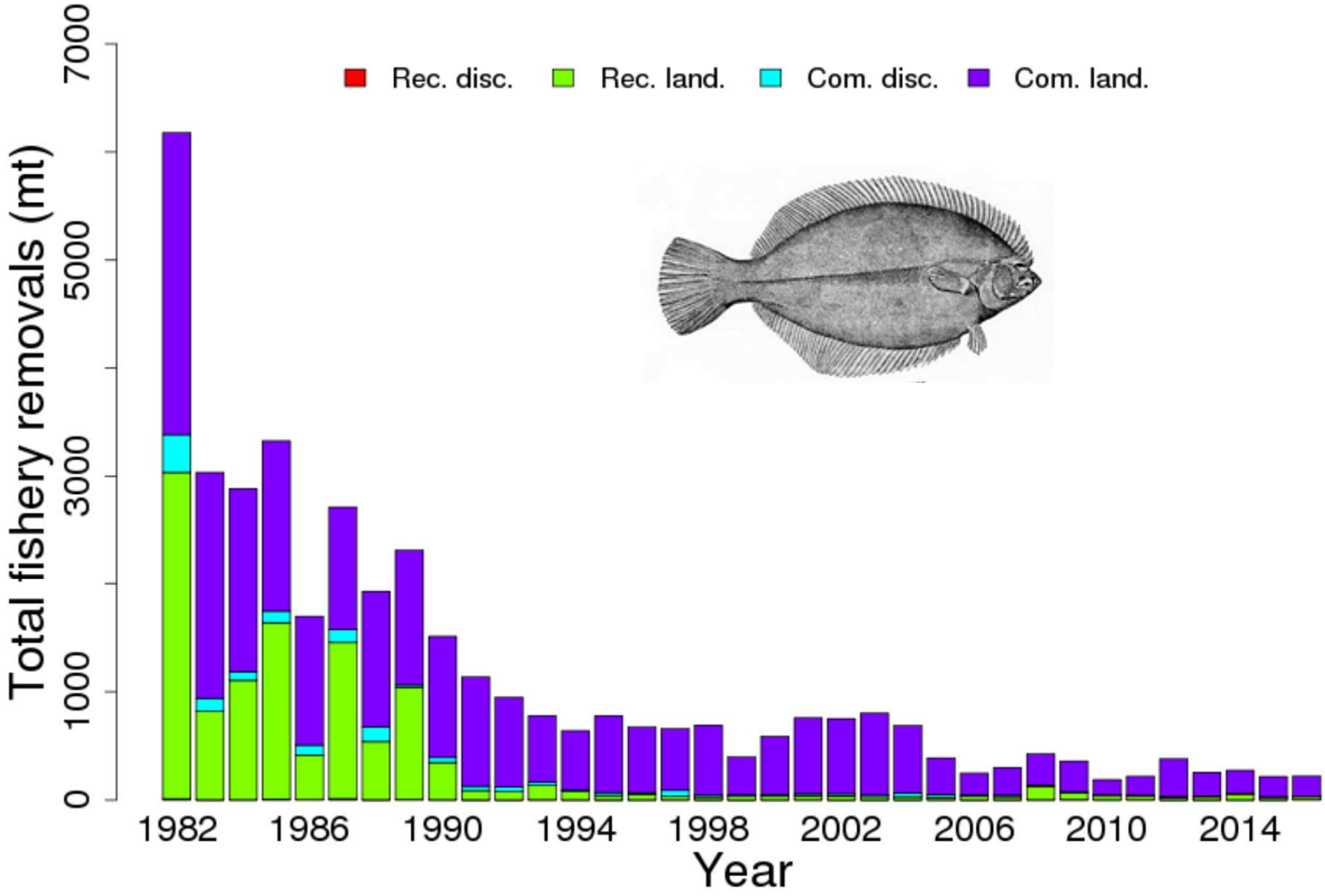


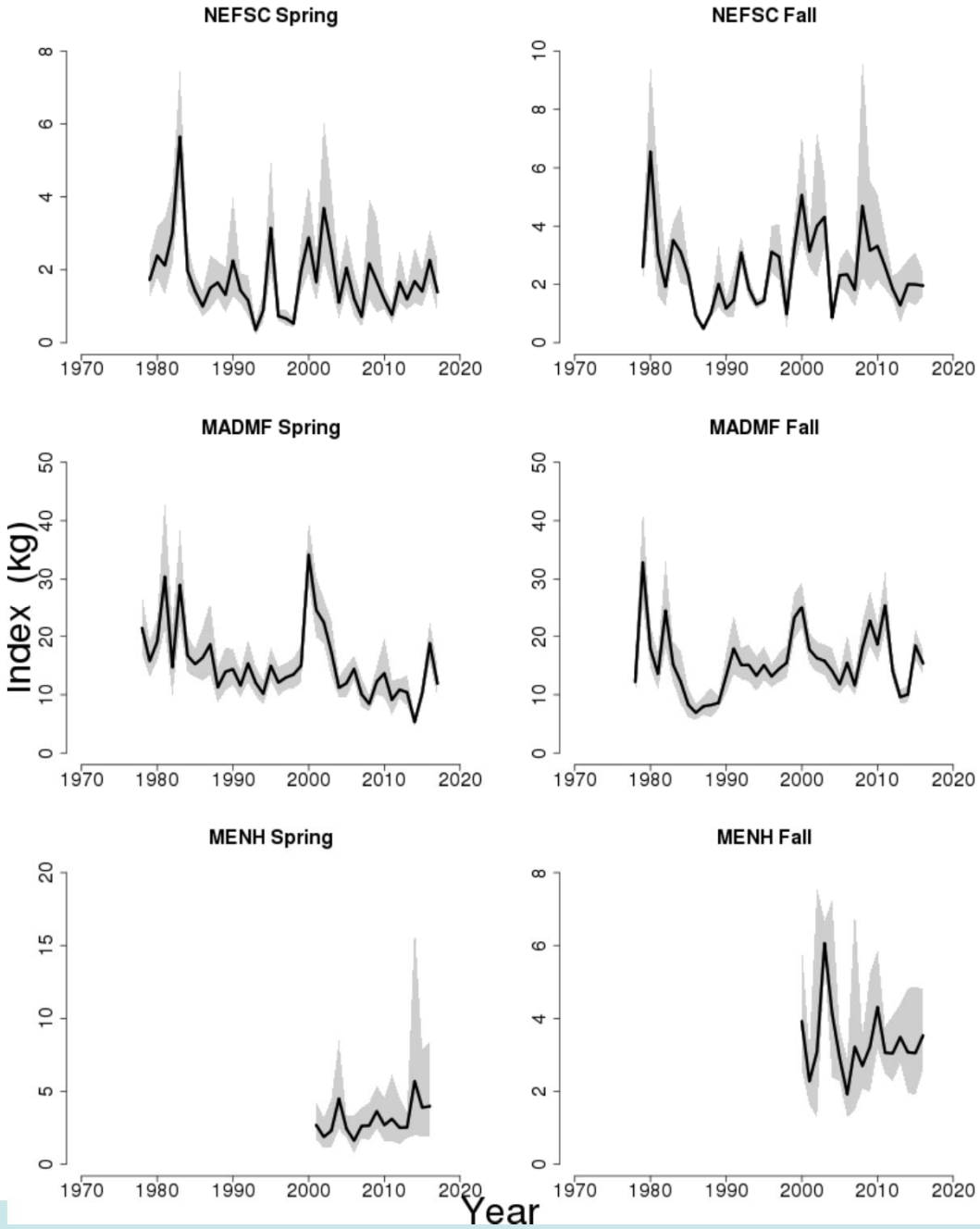
- Update trends in the NEFSC, MDMF, and MENH surveys.
- Estimate 2015 and 2016 catch (commercial & recreational landing, recreational discards, lg mesh trawl discards and gillnet discards).




Landing (mt)
3000
2500
2000
1500
1000
500
0
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
ME
NH
MA
RI
Year

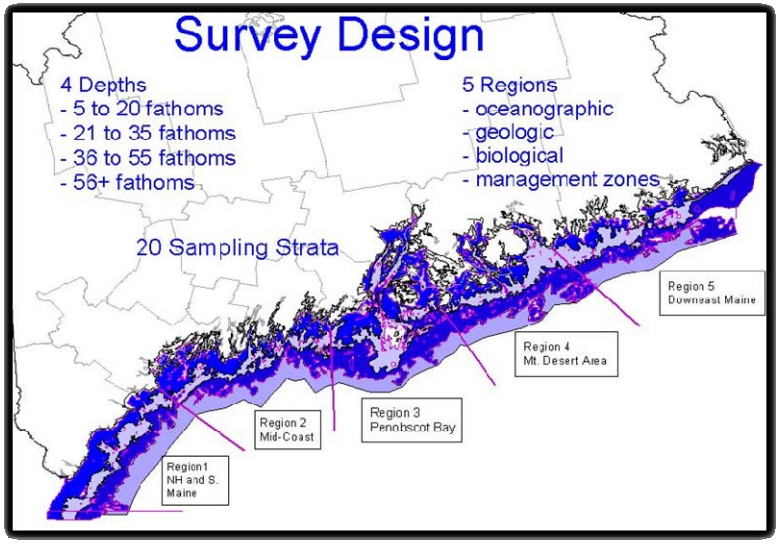

Landing (mt)
3000
2500
2000
1500
1000
500
0
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
otter trawl
gillnet
shrimp
other
Year


Rec. disc.
Rec. land.
Com. disc.
Com. land.
Total fishery removals (mt)
0
1000
3000
5000
7000
1982
1986
1990
1994
1998
2002
2006
2010
2014
Year


NEFSC Spring
NEFSC Fall
MADMF Spring
MADMF Fall
MENH Spring
MENH Fall
Index (kg)
Year
1970
1980
1990
2000
2010
2020

Combined Surveys 30+ cm Biomass Estimate

Estimate Fall 2015 - 2016 and Spring 2016 30+ cm biomass from the NEFSC, MDMF and MENH surveys.



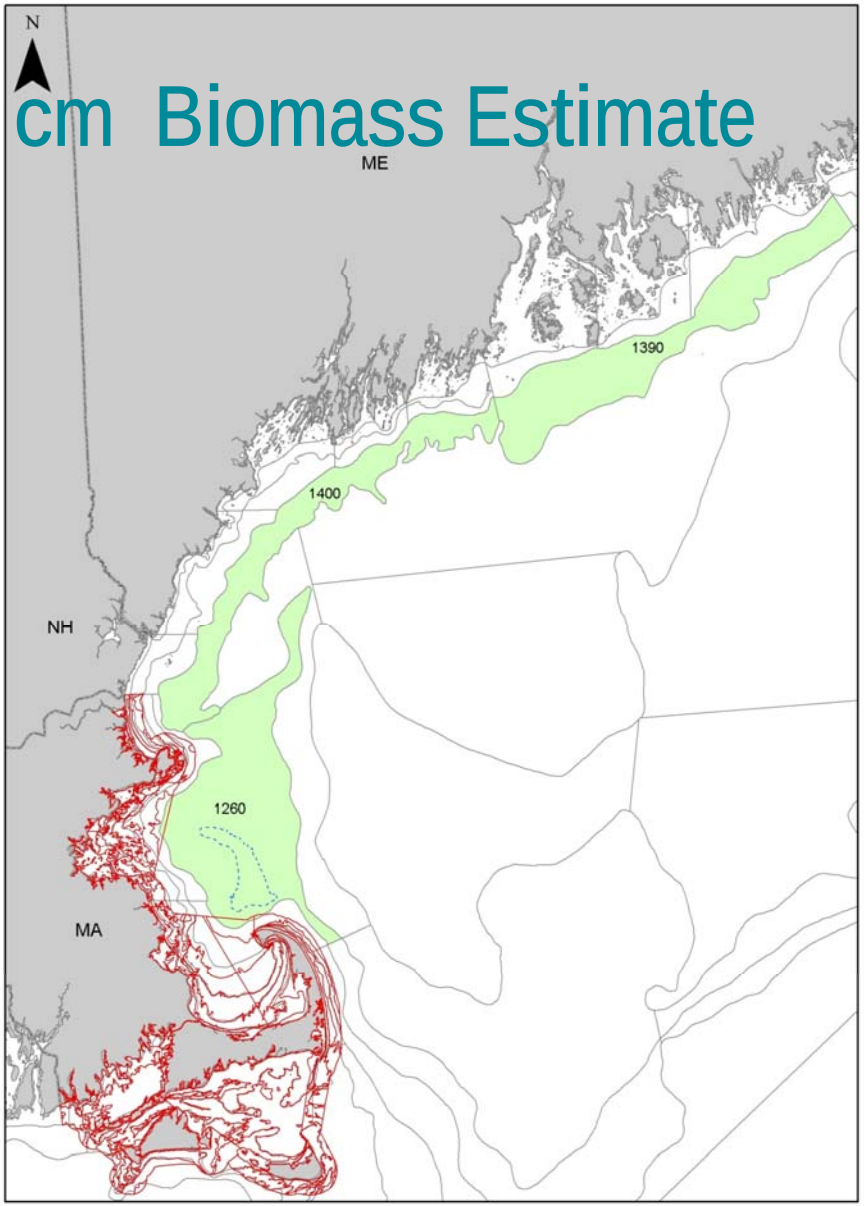
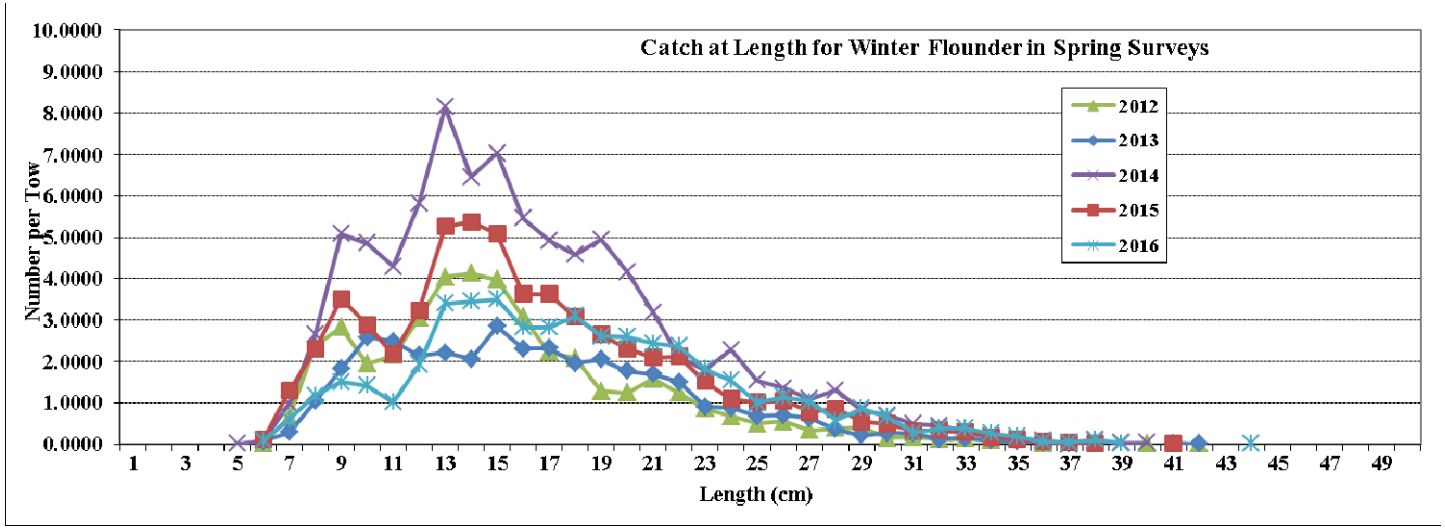
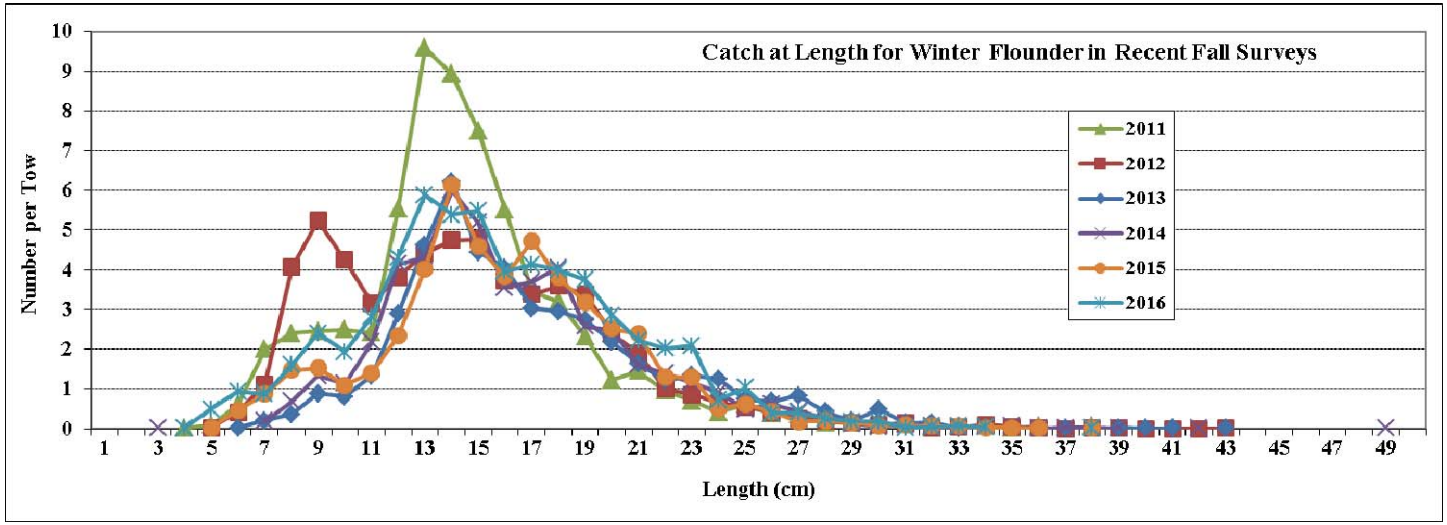


Table 7

	Combined Survey Estimate		
	NEFSC	MDMF	MENH
survey area (nm2)	2,990	309	3,475
Avg tow (wing area swept)	0.00700	0.00385	0.00462
Total area/tow footprint	427,143	80,343	752,154
Tow duration	20 min	20 min	20 min
Numbers per tow	34-65	80	35

MENH Survey Length Distribution



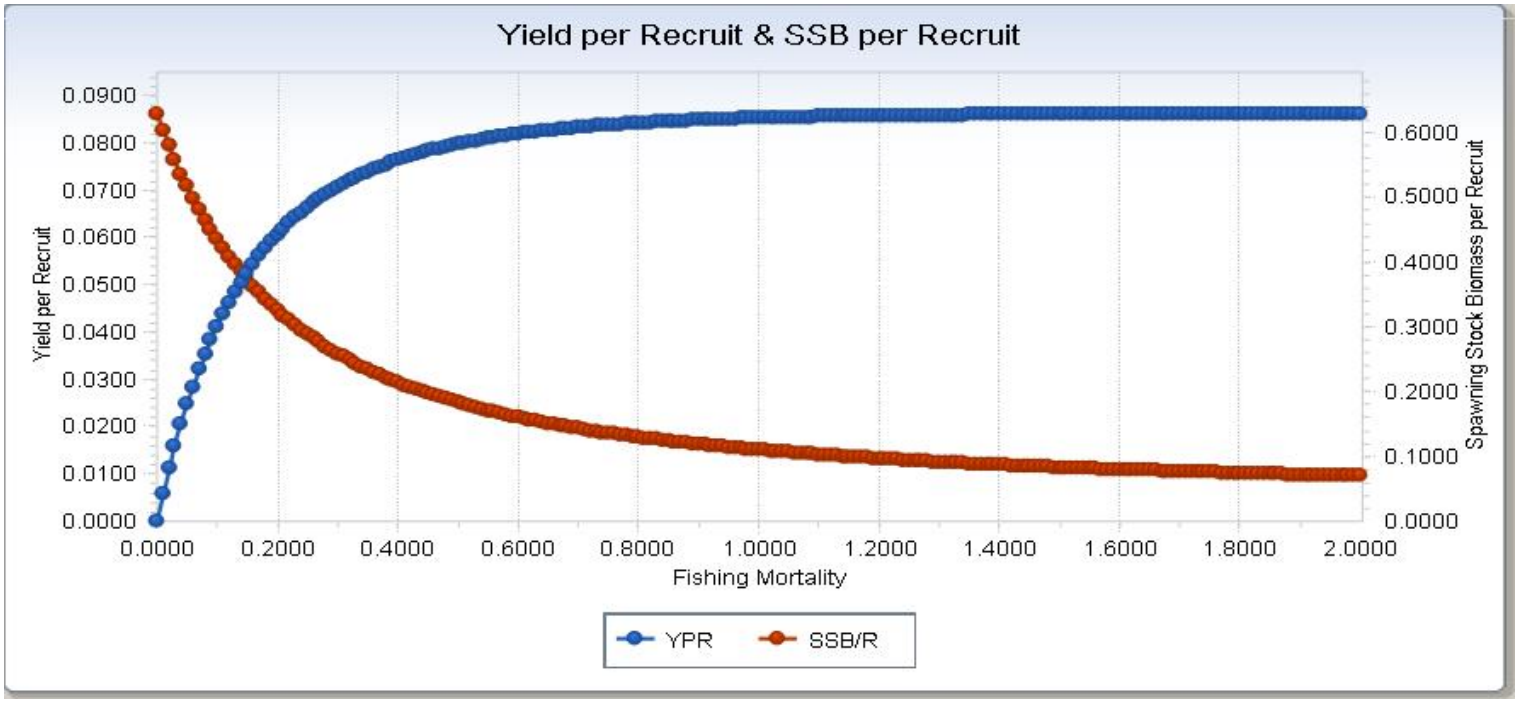


Assessment

30+ cm Survey Area-Swept Biomass Estimate

Used in SARC 52 (2011) & 2014-2015 Operational Updates

- Exploitable Biomass = 30+ cm biomass index per tow x total survey area / tow footprint x q
- Exploitation rate = catch / 30+ cm biomass
- Overfishing BRPs based on F40% from Length based YPR (SARC 52, Not updated).



Length based YPR from SARC 52
m=0.3
FMSY = F40% = 0.31
Exploitation rate, EMSY = 0.23
75%FMSY = 0.24
Exploitation rate, 75%EMSY = 0.17
Knife edge selectivity at 30 cm

Q (Wing Spread Efficiency)

Plan-B in SARC 52 provided a sensitivity of Q for the 30+ biomass estimates (0.6, 0.8, & 1.0). The SARC 52 review panel used the Q=0.6 option informed by the average applied q from the Georges Bank winter flounder VPA assessment.

The sweep experiment estimated an average Q of 0.866 from 2009-2016 for the GOM winter Flounder NEFSC fall survey.

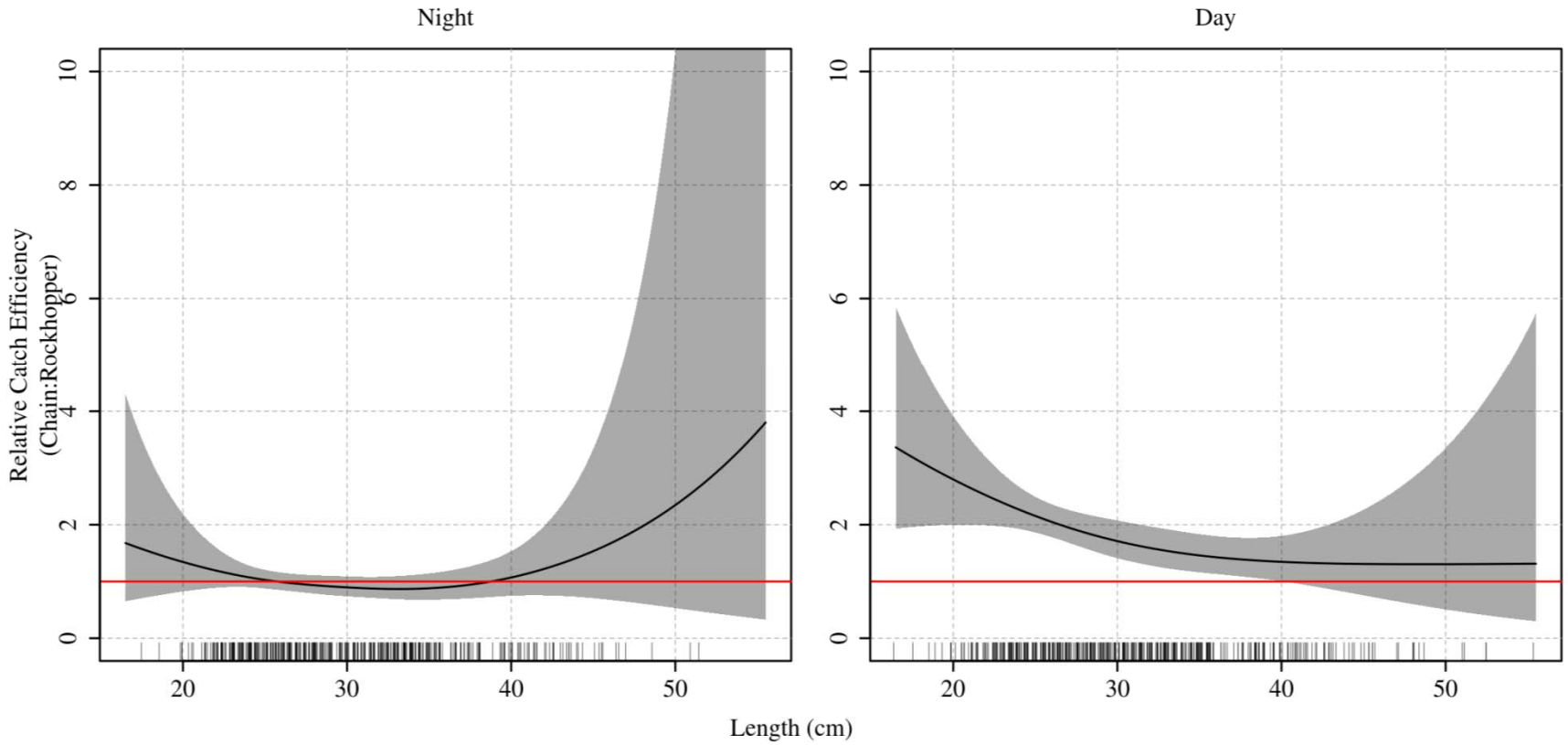
Columbia Pictures/MGM

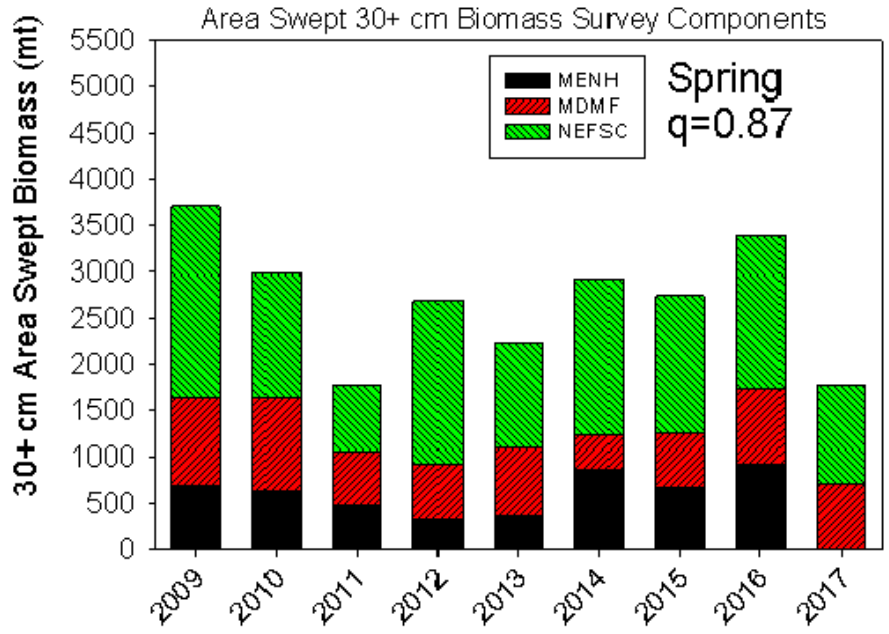
Table 17. Implied GOM 30+cm winter flounder efficiency

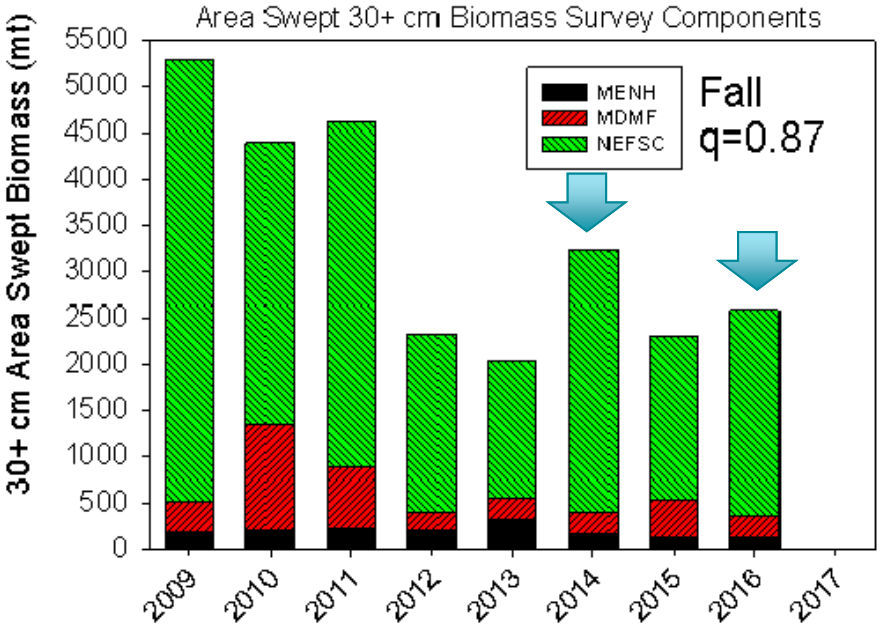
Year	Fall (y-1)	Spring
2010	1.01	0.77
2011	0.73	0.72
2012	0.81	0.84
2013	0.91	0.73
2014	0.97	0.70
2015	0.81	0.81
2016	0.86	0.76
2017	0.83	0.82

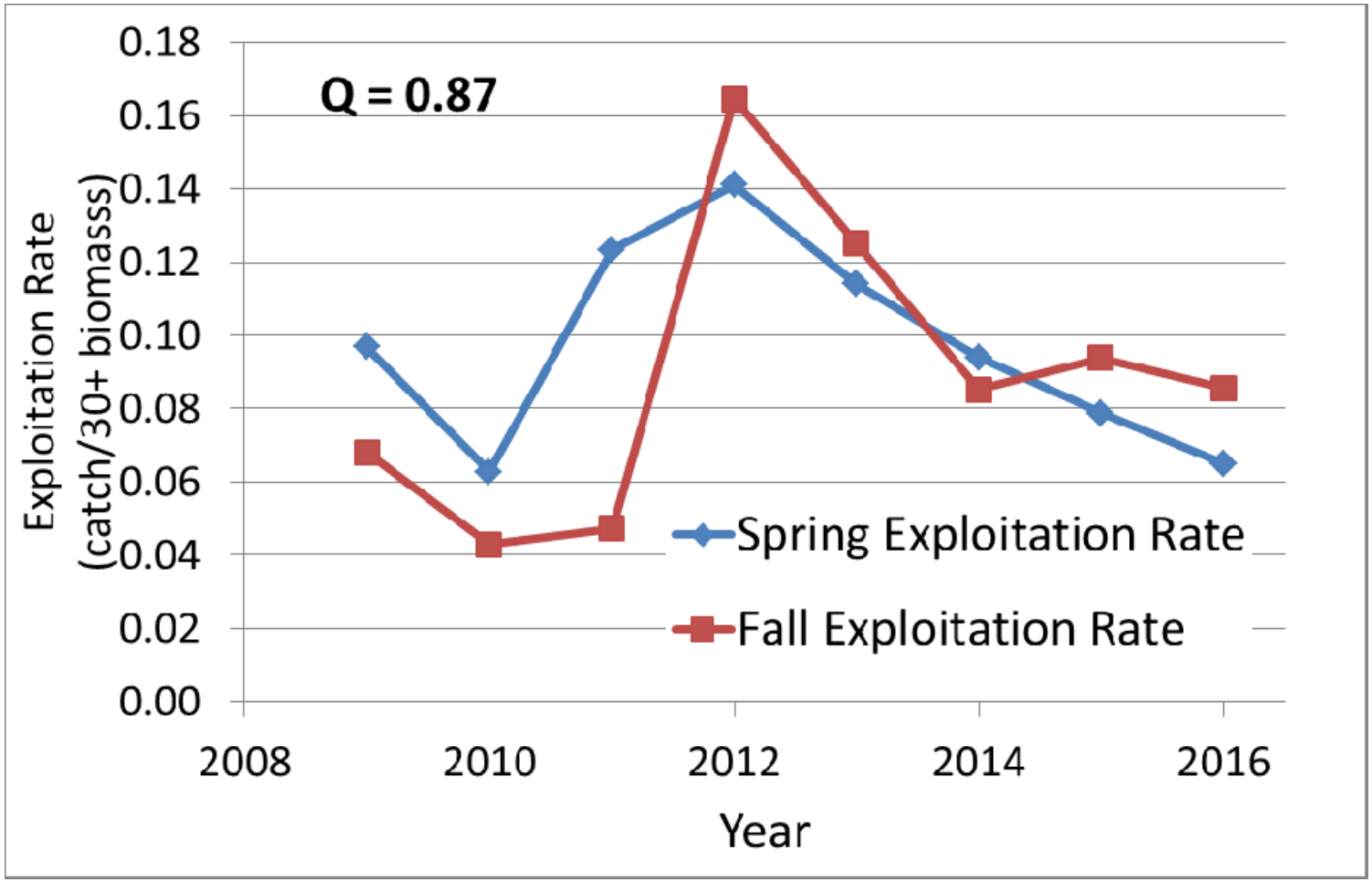
Average Fall 2009-2016 = 0.866

72 twin trawl stations with winter flounder by size observed.

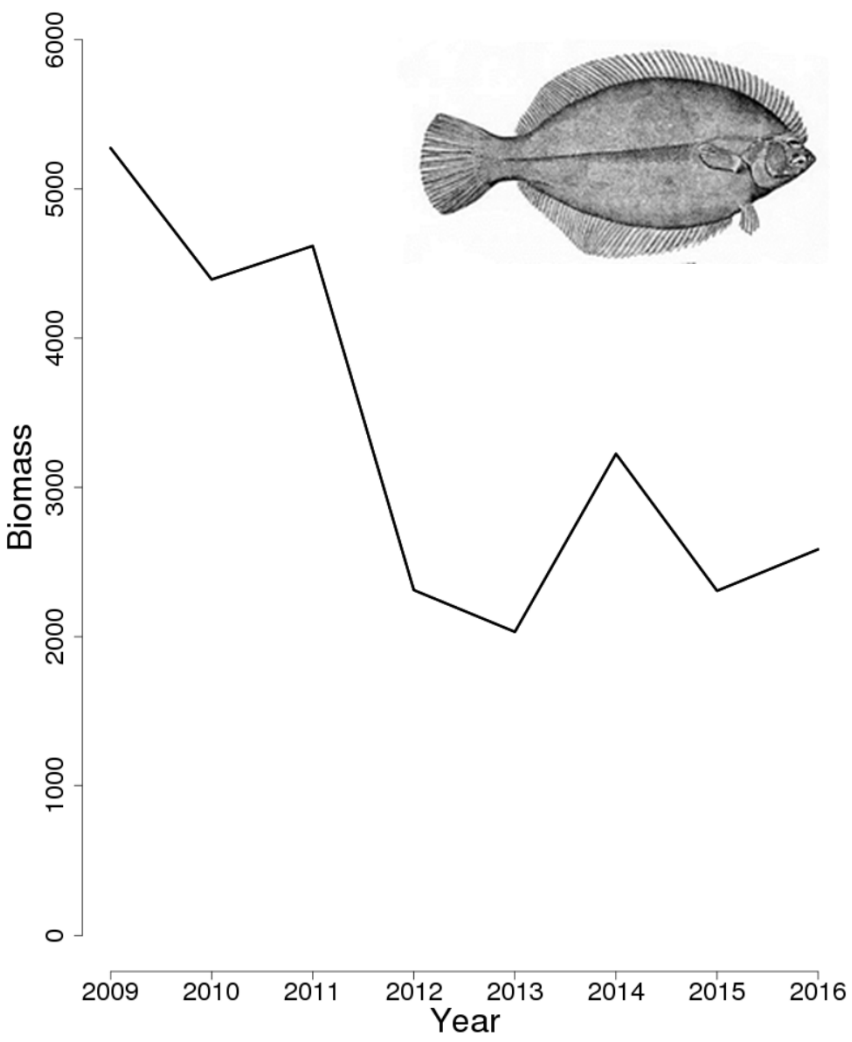


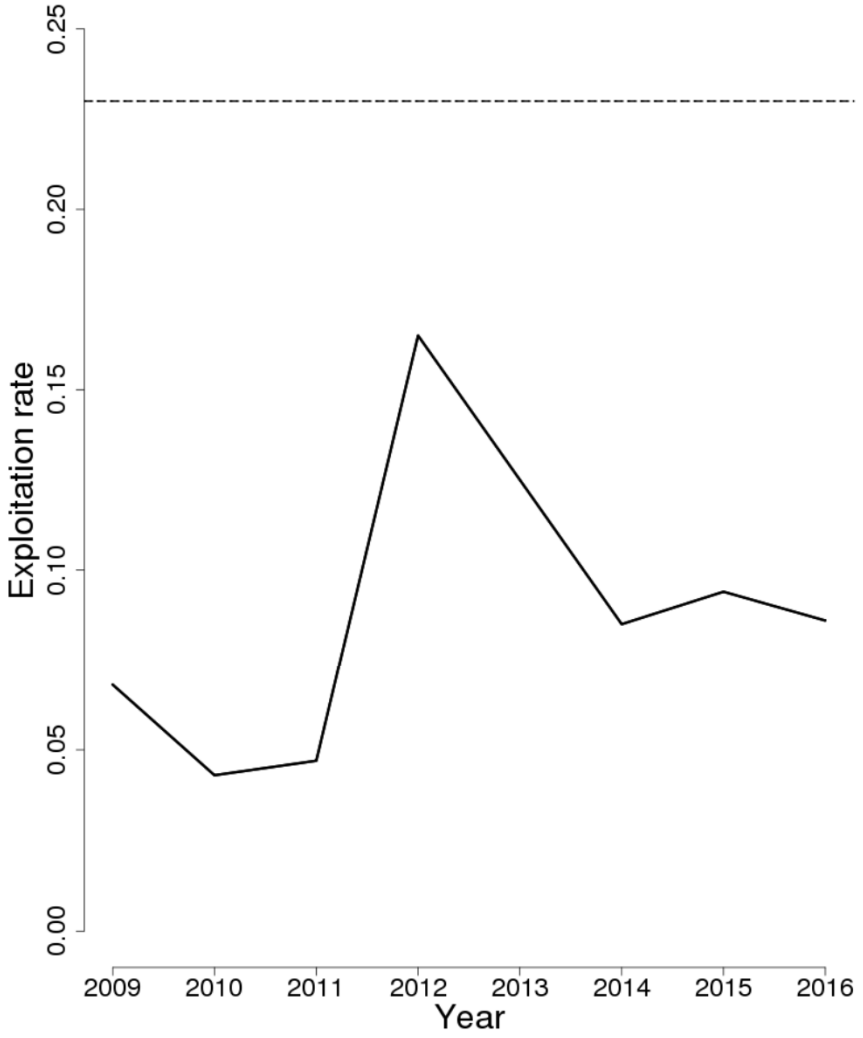

Area Swept 30+ cm Biomass Survey Components
30+ cm Area Swept Biomass (mt)
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
MENH
MDMF
NEFSC
Spring
q=0.87
2009
2010
2011
2012
2013
2014
2015
2016
2017

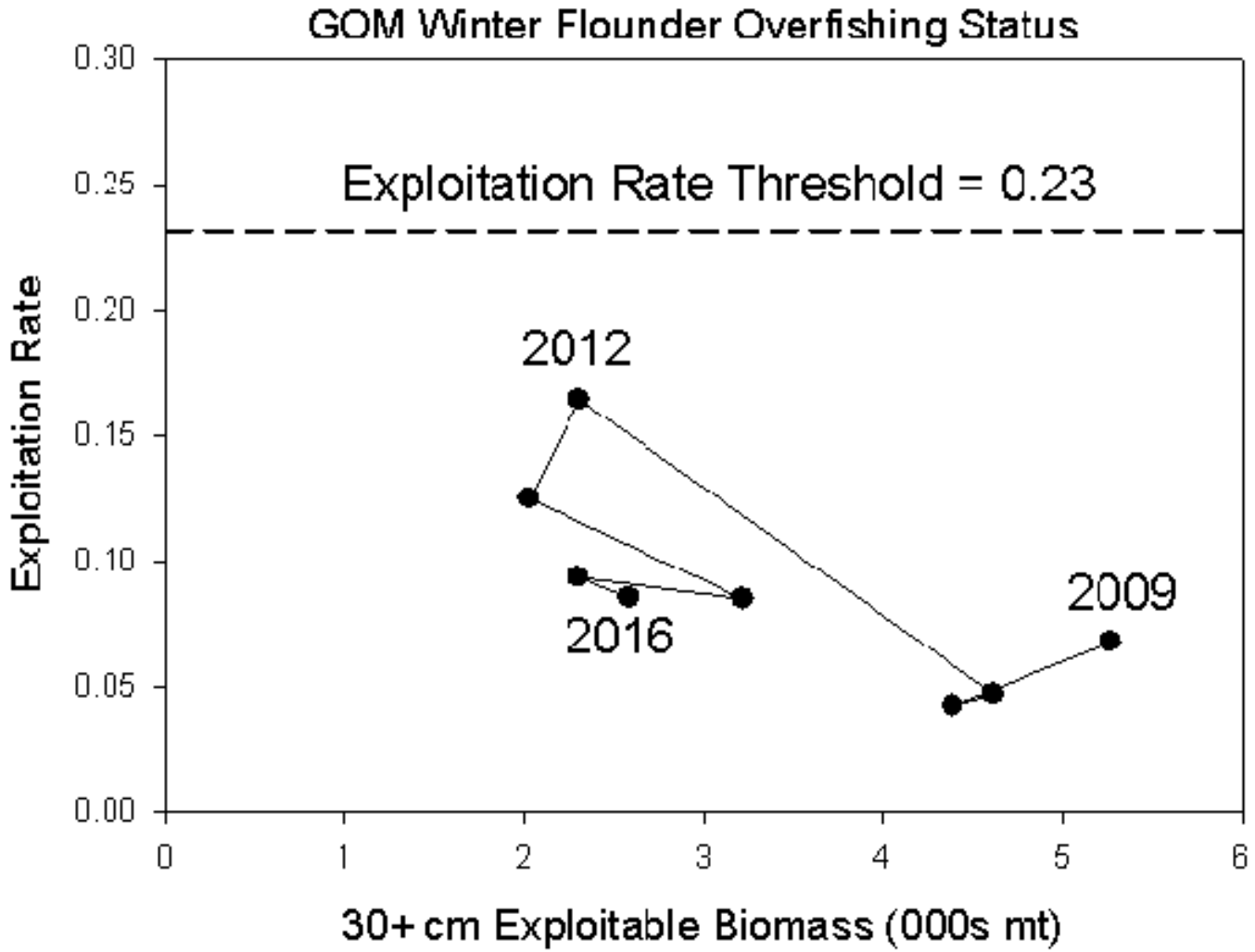

Area Swept 30+ cm Biomass Survey Components
30+ cm Area Swept Biomass (mt)
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
MENH
MDMF
NEFSC
Fall
q=0.87
2009
2010
2011
2012
2013
2014
2015
2016
2017


Q = 0.87
Exploitation Rate (catch/30+ biomass)
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
2008
2010
2012
2014
2016
Year
Spring Exploitation Rate
Fall Exploitation Rate

Gulf of Maine Winter Flounder






GOM Winter Flounder Overfishing Status
Exploitation Rate Threshold = 0.23
2012
2016
2009
Exploitation Rate
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0
1
2
3
4
5
6
30+ cm Exploitable Biomass (000s mt)

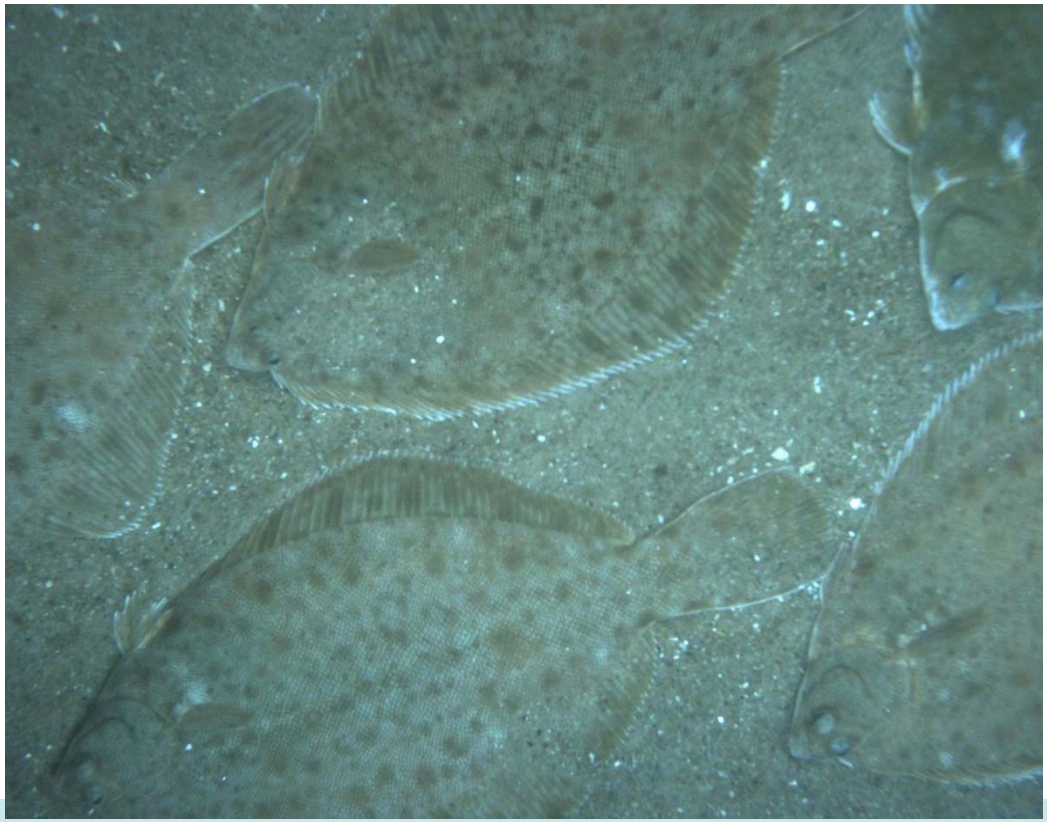
Sources of Uncertainty

- **Biomass and exploitation rate estimates are sensitive to the survey q assumption. This 2017 update does incorporate the use of an estimated average q from 2009-2016 (q=0.87) from the sweep study NEFSC fall survey. Additional efficiency studies on federal and state surveys should further reduce the uncertainty around q and the tow footprint.**

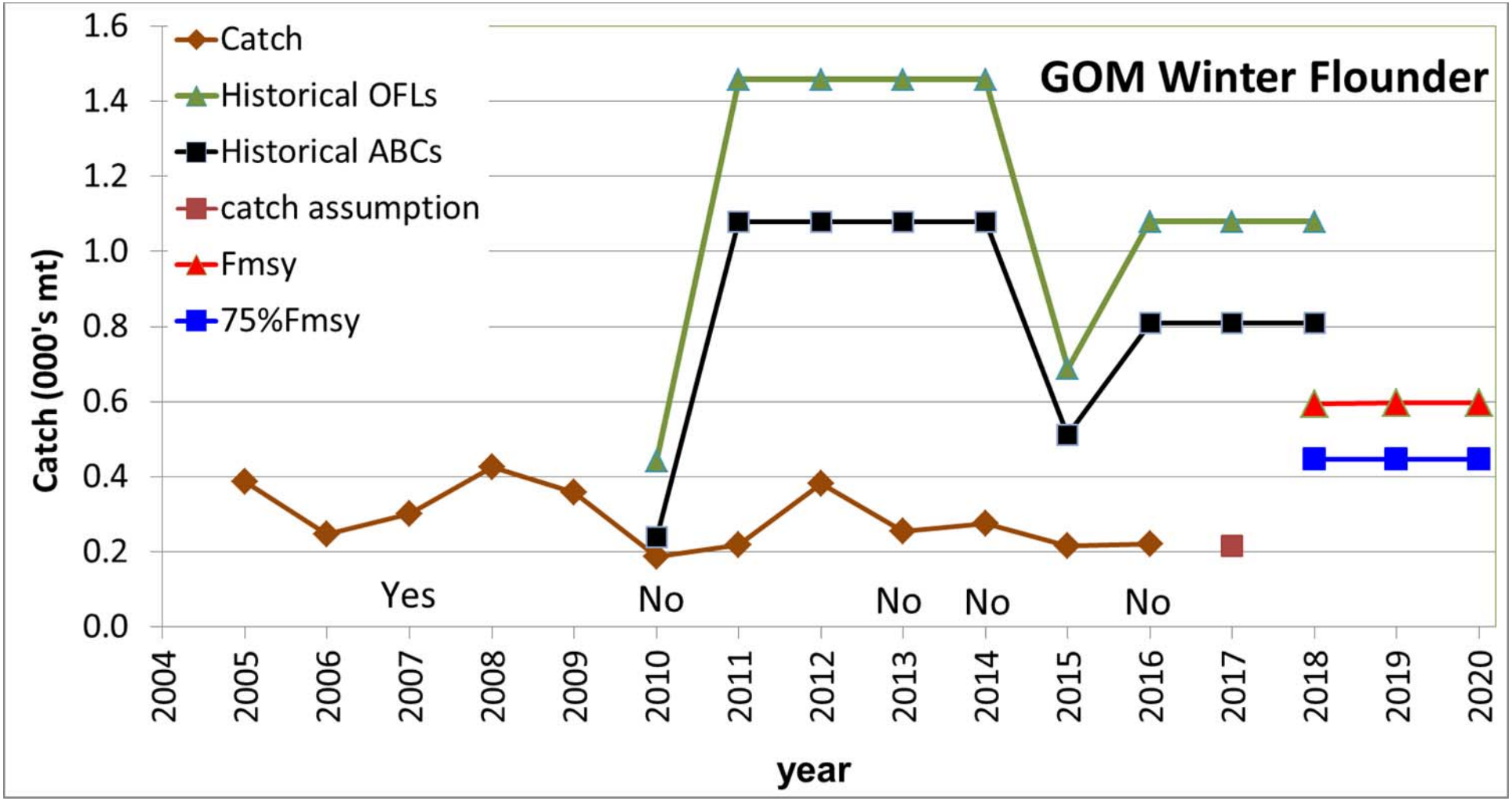
- **Stabilizing the catch advice may also be desired and could be obtained through the averaging of the area-swept fall and spring survey estimates or through the use of a moving average across years.**

Concerns

The general lack of a response in the survey 30+ cm biomass is a source of concern with catches remaining far below the overfishing limit. Unknown biomass status with this method.



Gulf of Maine Winter Flounder



Gulf of Maine Winter Flounder

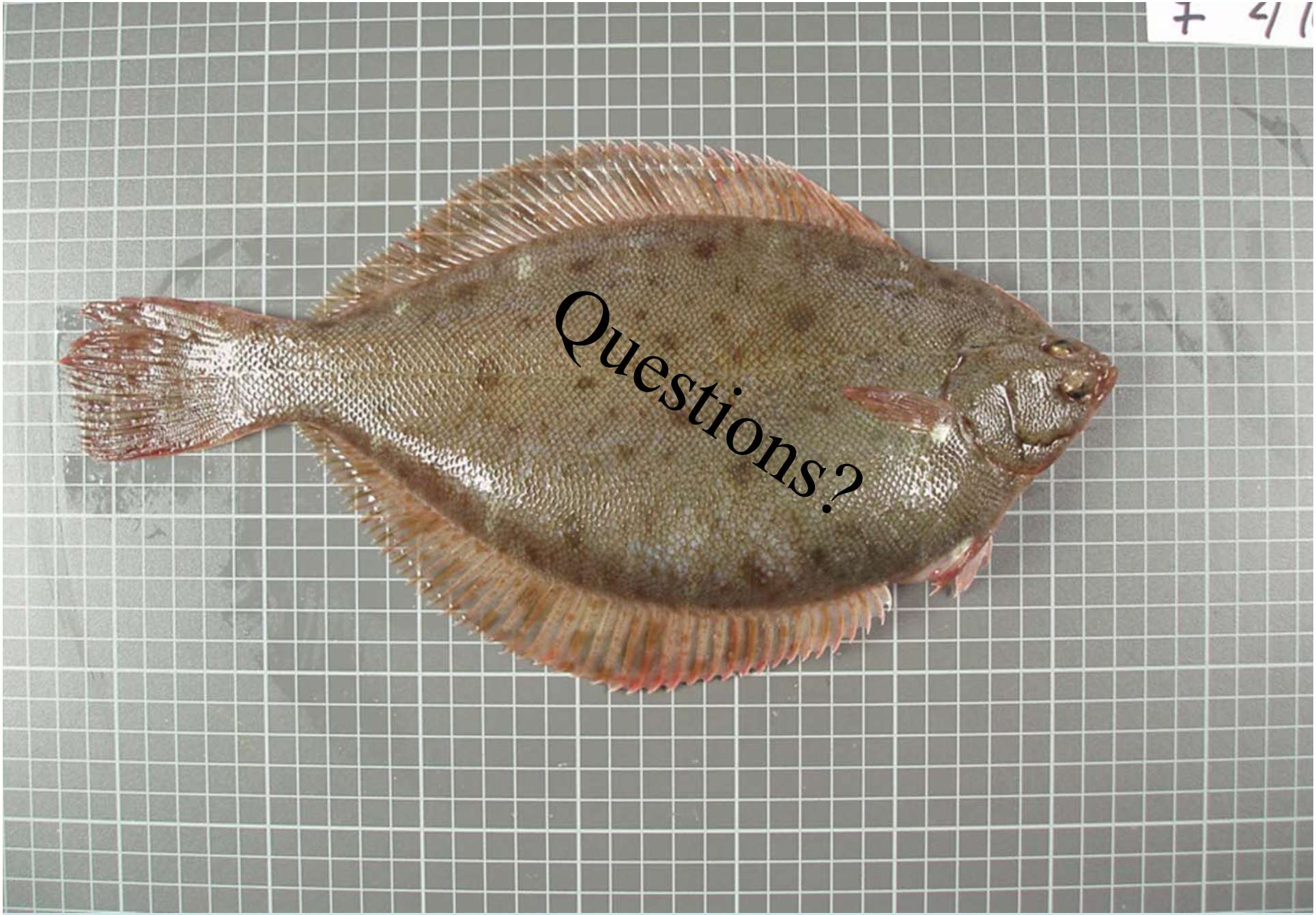
Year	Catch	Historical OFLs	Historical ABCs	Catch Assumption	F_{MSY}	$75\%F_{MSY}$
2010	187	441	238			
2011	219	1,458	1,078			
2012	381	1,458	1,078			
2013	254	1,458	1,078			
2014	275	1,458	1,078			
2015	217	688	510			
2016	221	1,080	810			
2017		1,080	810	217		
2018		1,080	810		596	447
2019					596	447
2020					596	447

Gulf of Maine Winter Flounder

OFL = F_{MSY} x 30+ cm Biomass Constant

ABC = 75%F_{MSY} x 30+ cm Biomass Constant

year	OFL	ABC
2018	596	447
2019	596	447
2020	596	447


Questions?

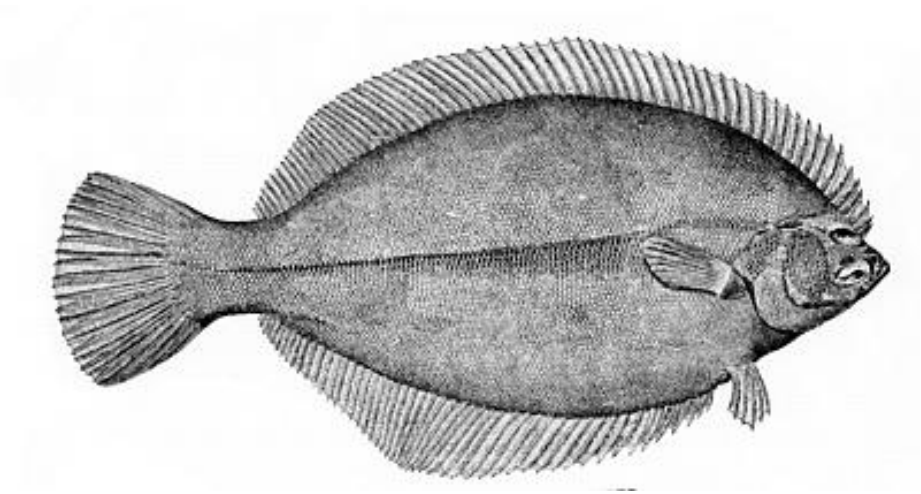
Southern New England Mid-Atlantic Winter Flounder

NOAA FISHERIES

NEFSC

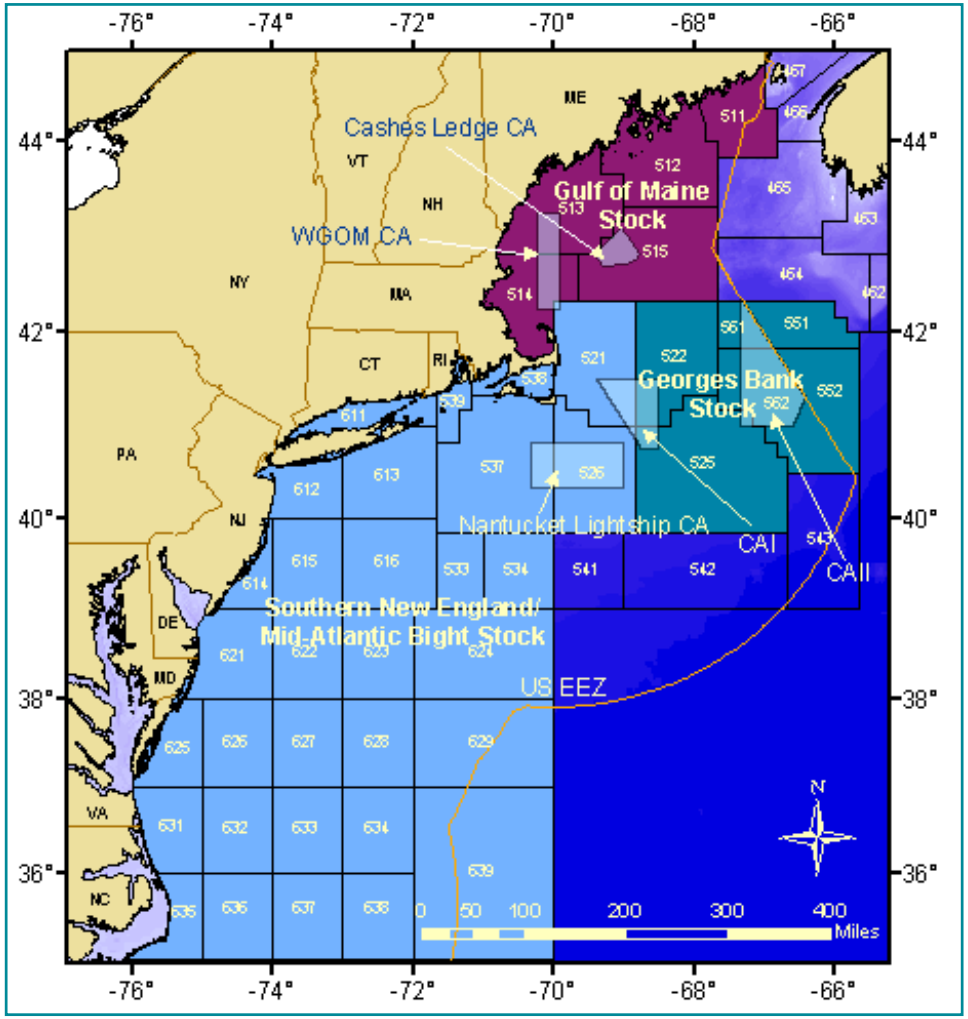
Lead Scientist: Tony Wood

Last Assessed: 2015 Operational Assessments
2011 Benchmark SARC 52



Southern New England Winter Flounder

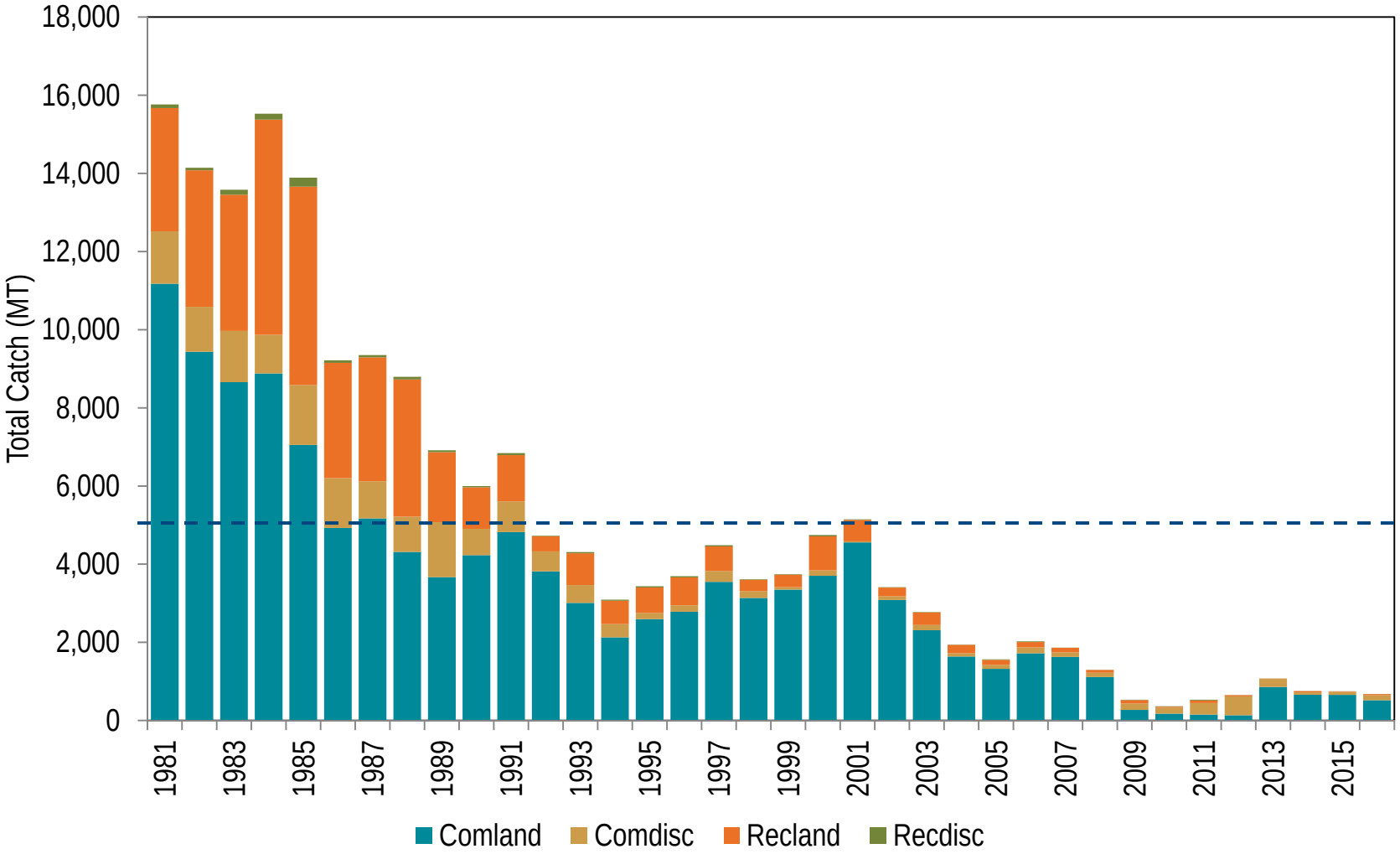
- Statistical catch-at-age model: ASAP ages 1-7+, years 1981-2016
- Reference points: F_{MSY} = 0.34, SSB_{MSY} = 24,687 MT
- Stock status: overfished, overfishing not occurring



Fishery Dependent: 1981-2016 ages 1-7+

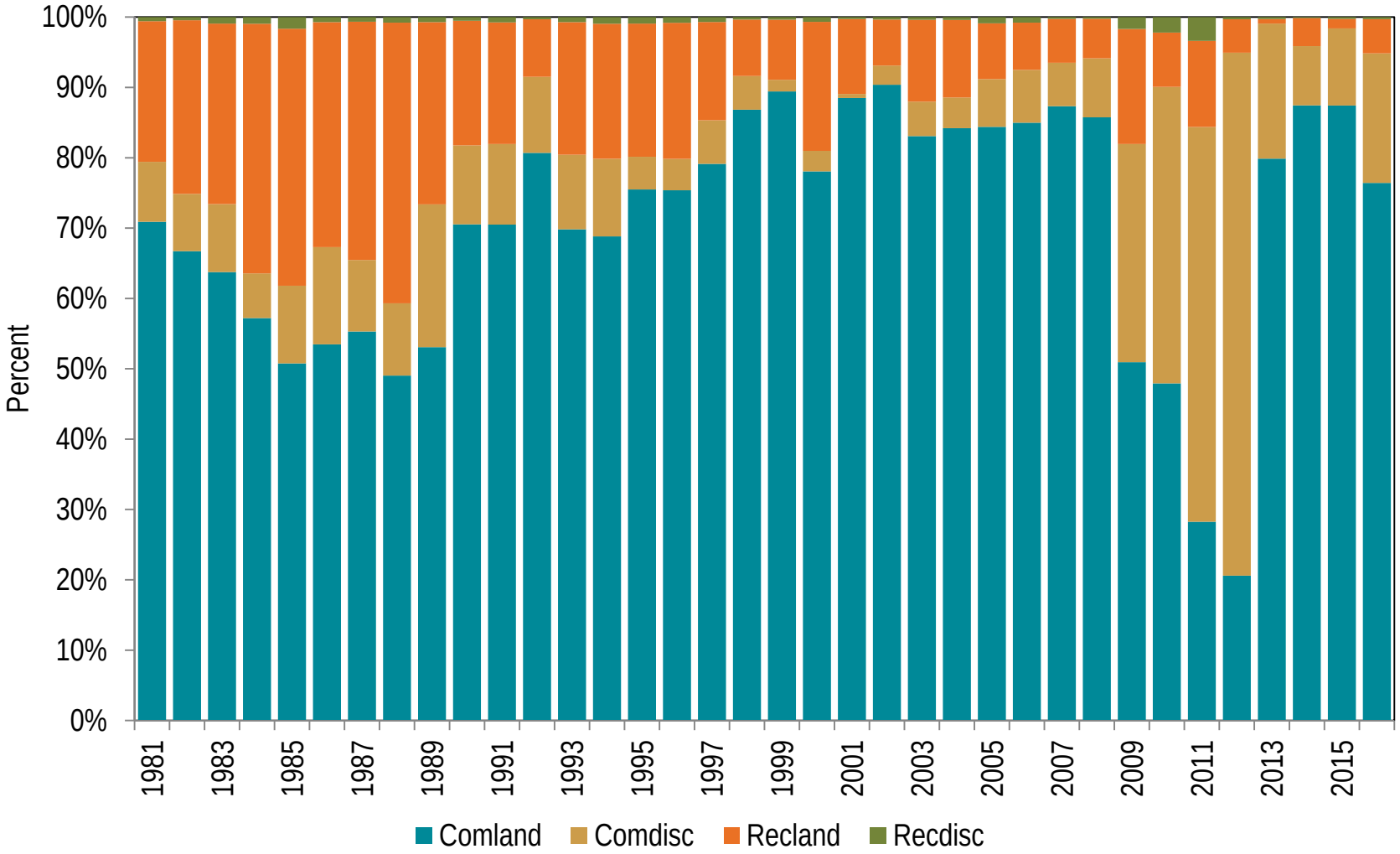
- Commercial Landings: AA Tables, market category by quarter or half year
- Commercial Discards: SBRM (50% mortality)
- Recreational Landings: MRIP (A+B1)
- Recreational Discards: MRIP (B2; 15% mortality)

SNEMA WFL Total catch components 1981-2016

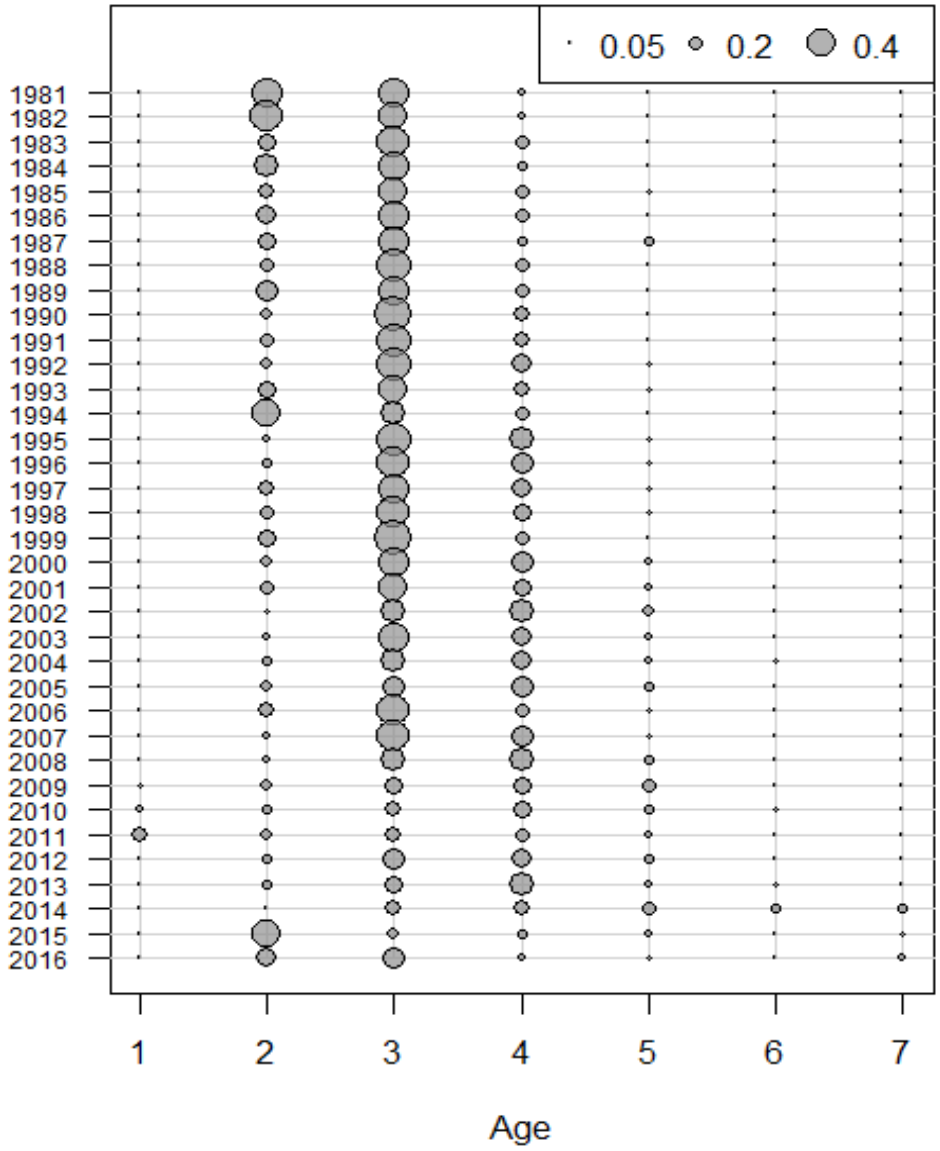


- 2016 total catch was 679 MT, time-series average = 5,034 MT

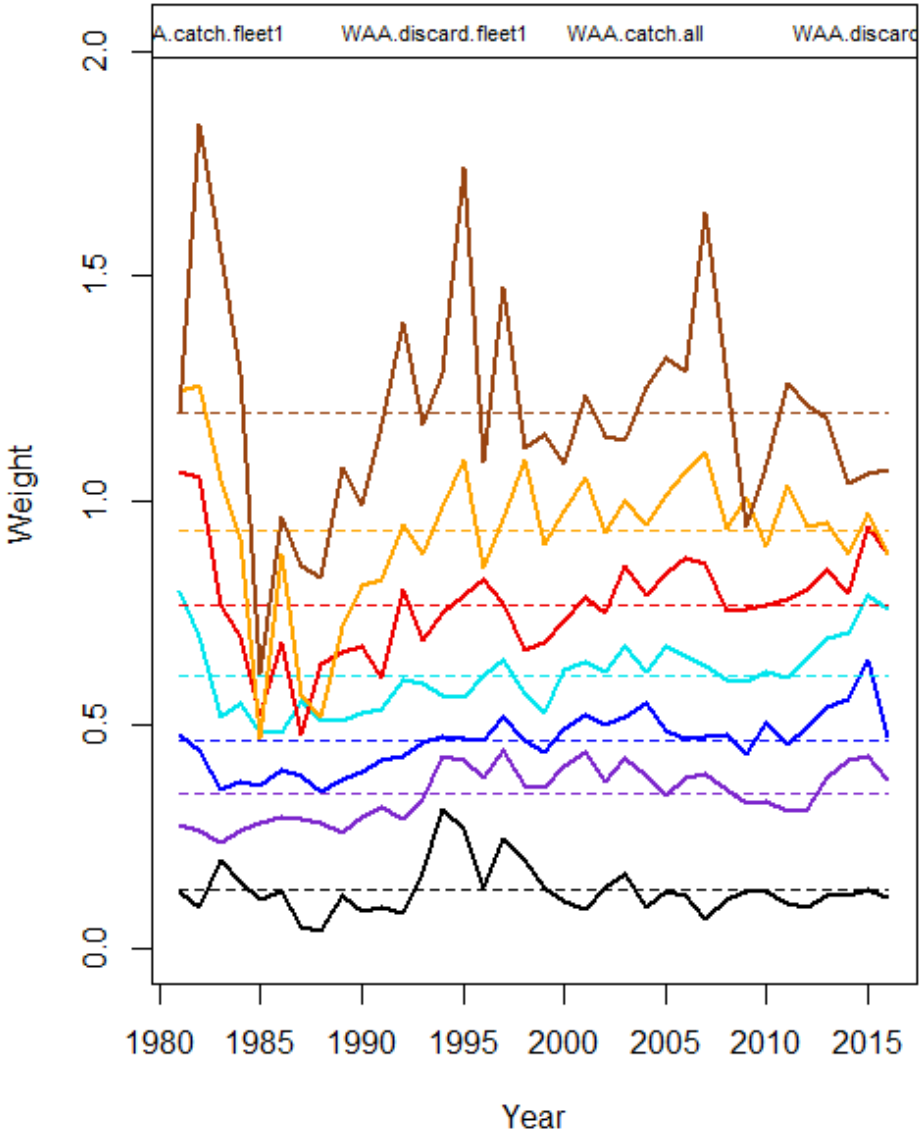
SNEMA WFL Total catch components 1981-2016



SNEMA WFL Total Catch at Age



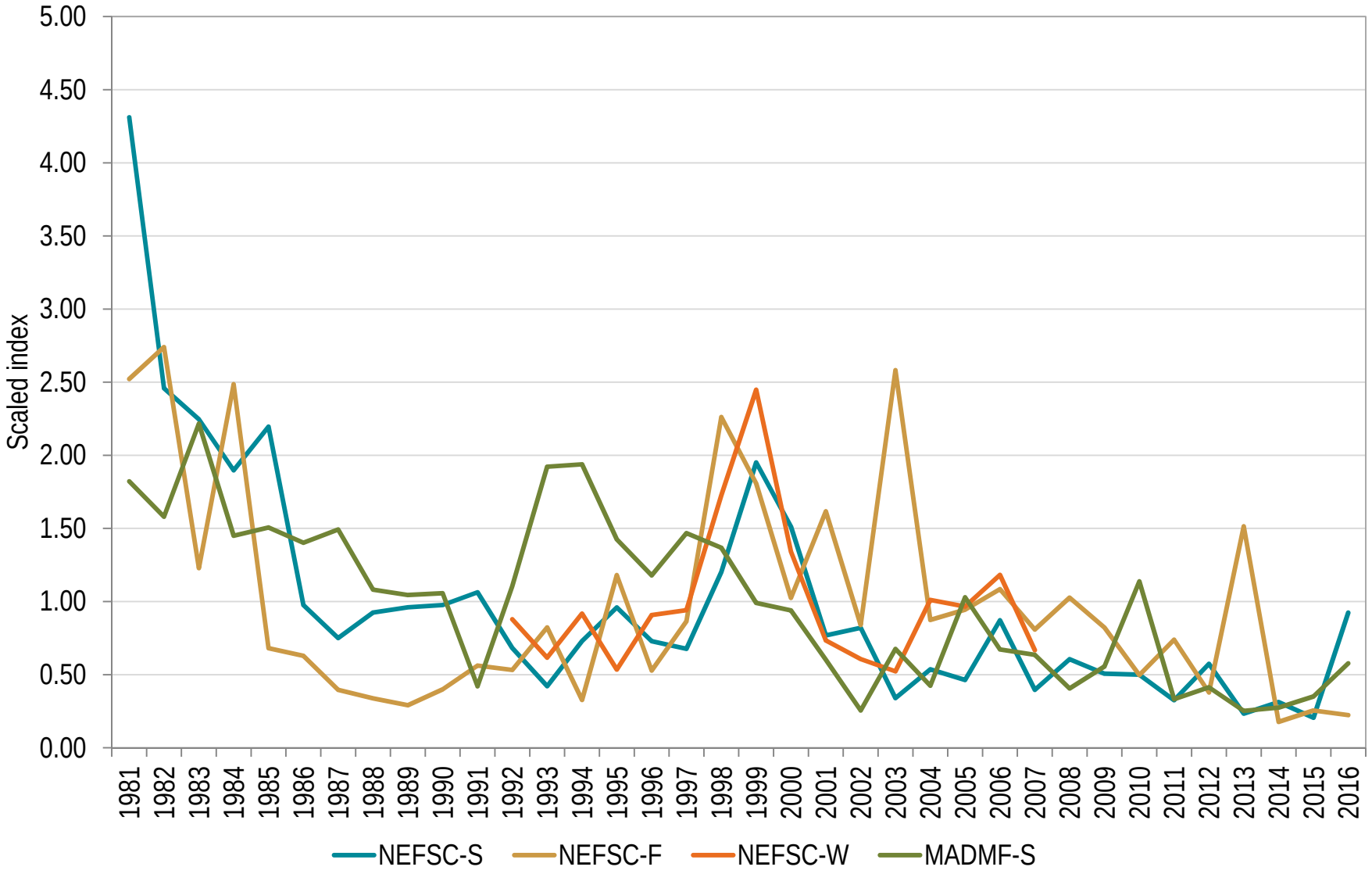
SNEMA WFL Average Weight at Age



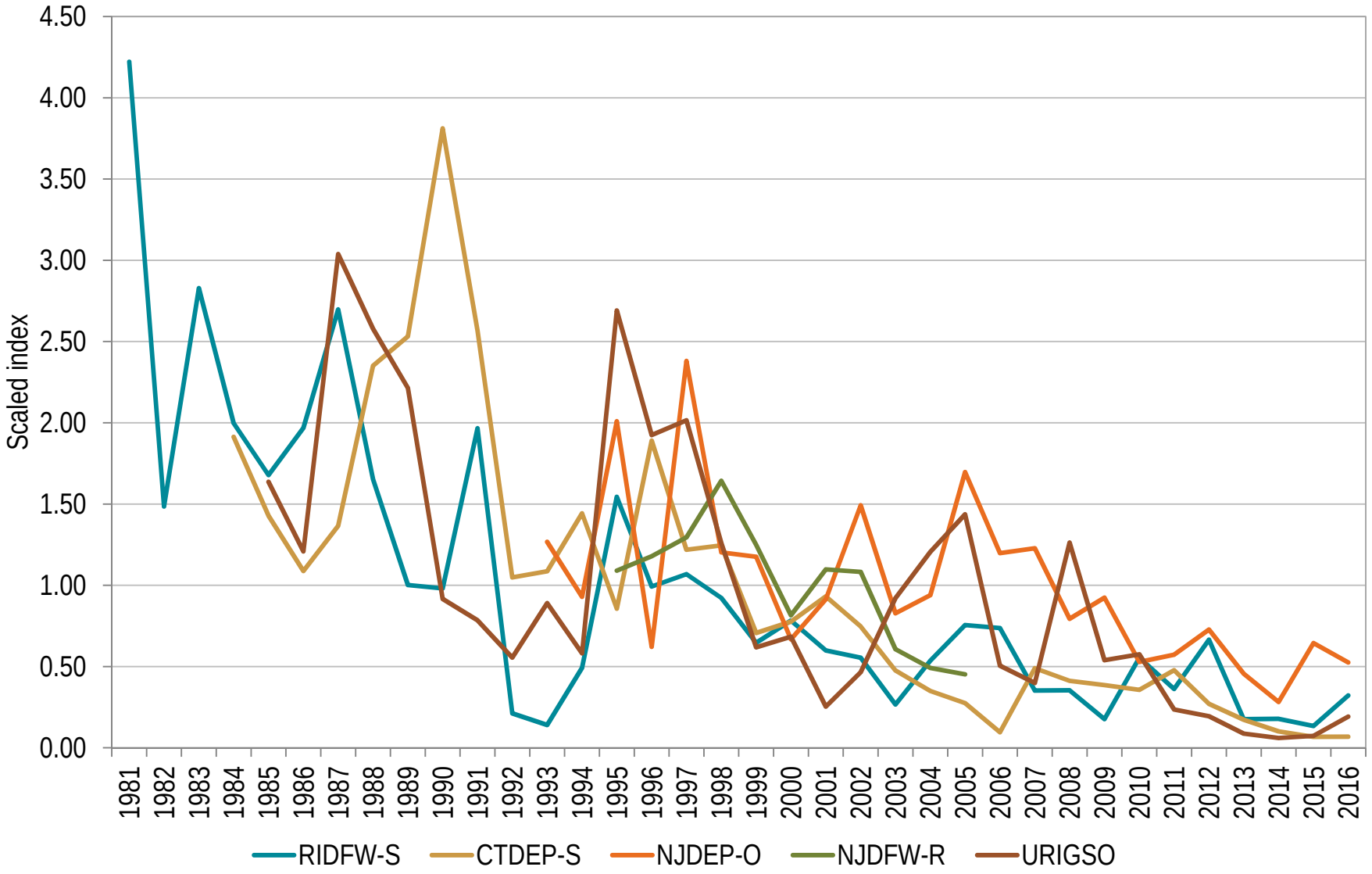
Fishery Independent: 1981-2016 ages 0-7+

- NEFSC winter, spring, and fall
- MADMF spring
- RIDMF spring
- CTDEP spring
- NJDFW ocean and river
- URIGSO
- Recruits: MADMF, CTDEP

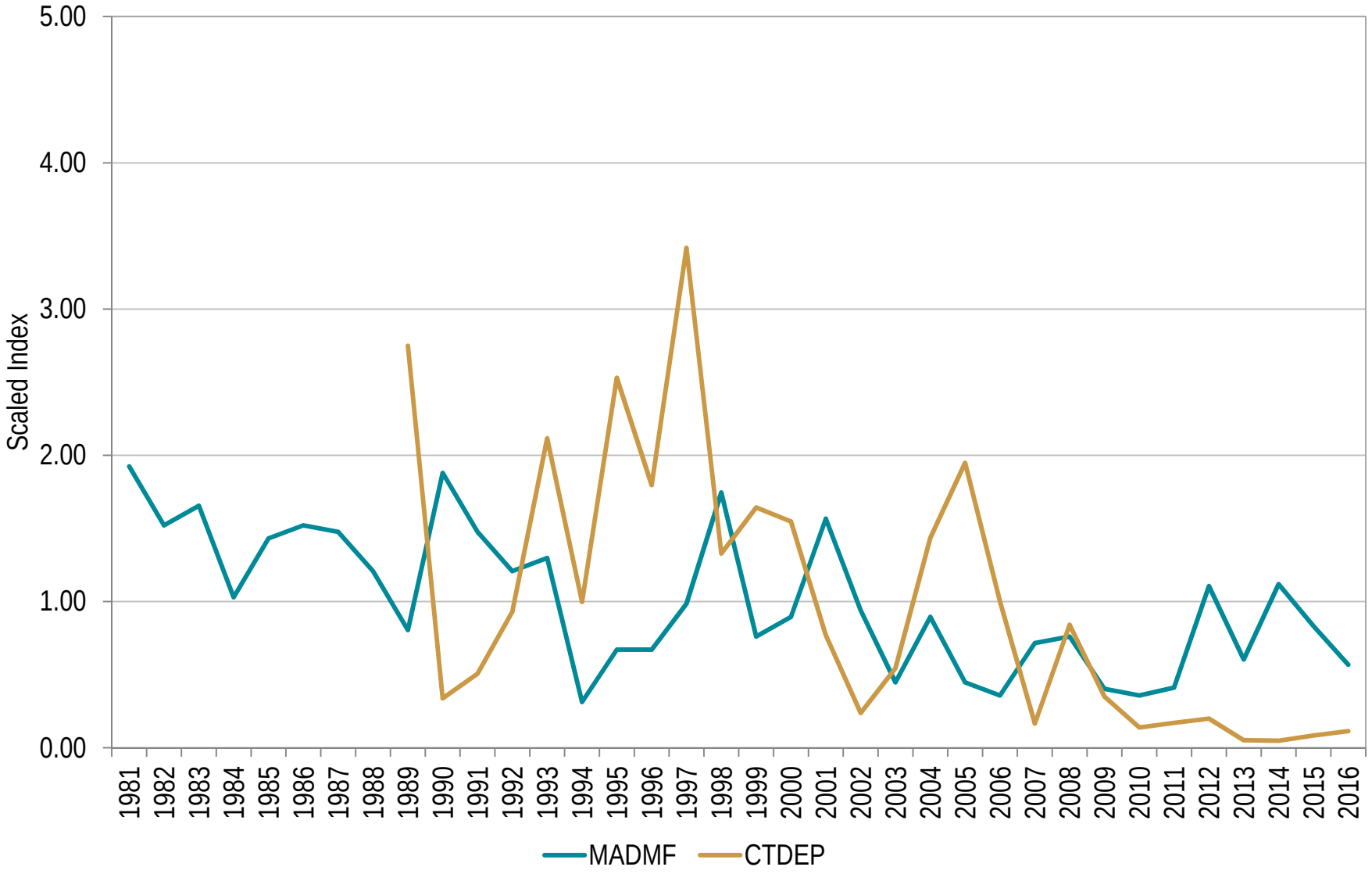
NEFSC BTS and MADMF Spring survey indices



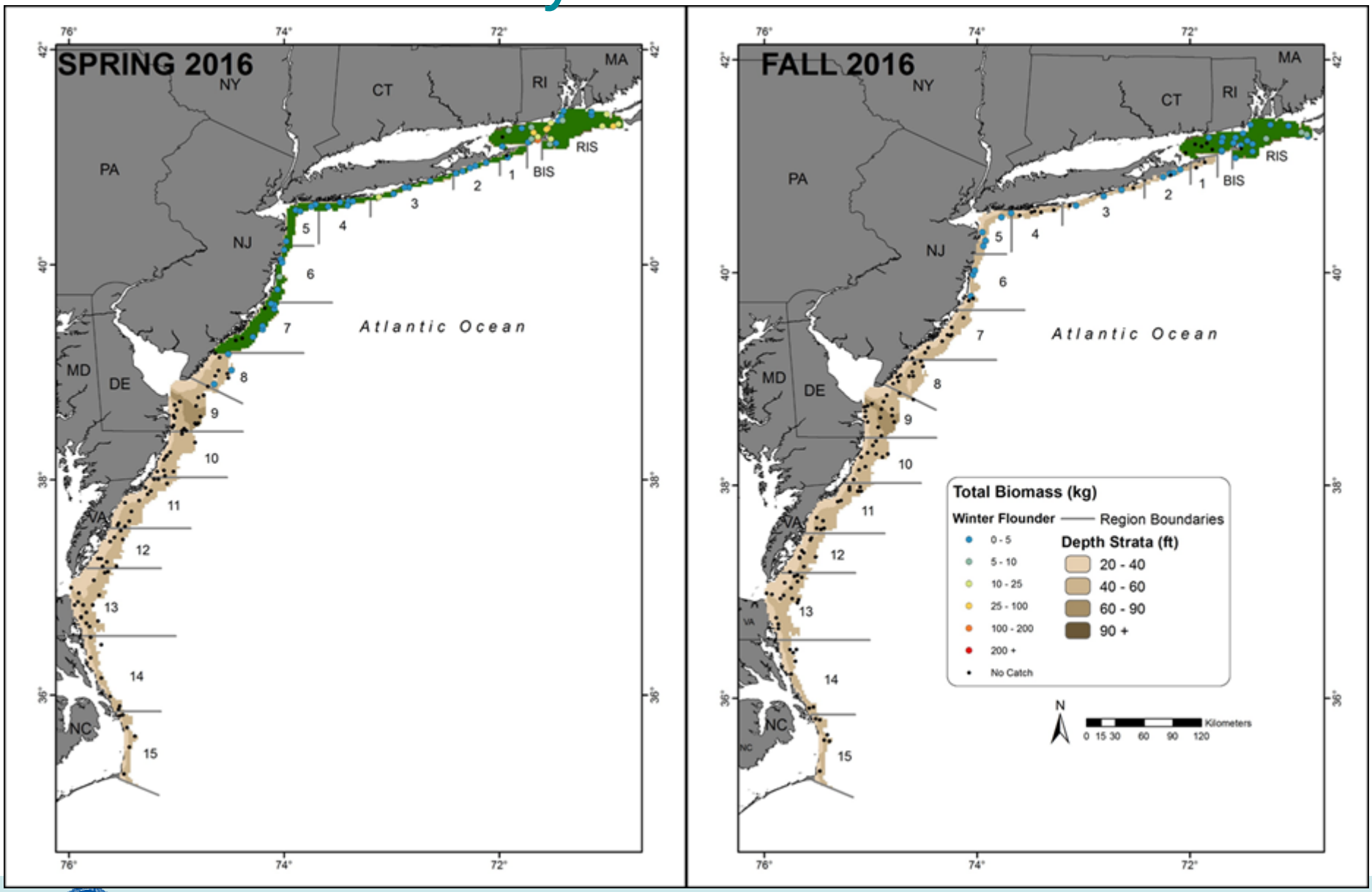
State survey indices



State Age 0 survey indices



NEAMAP Survey



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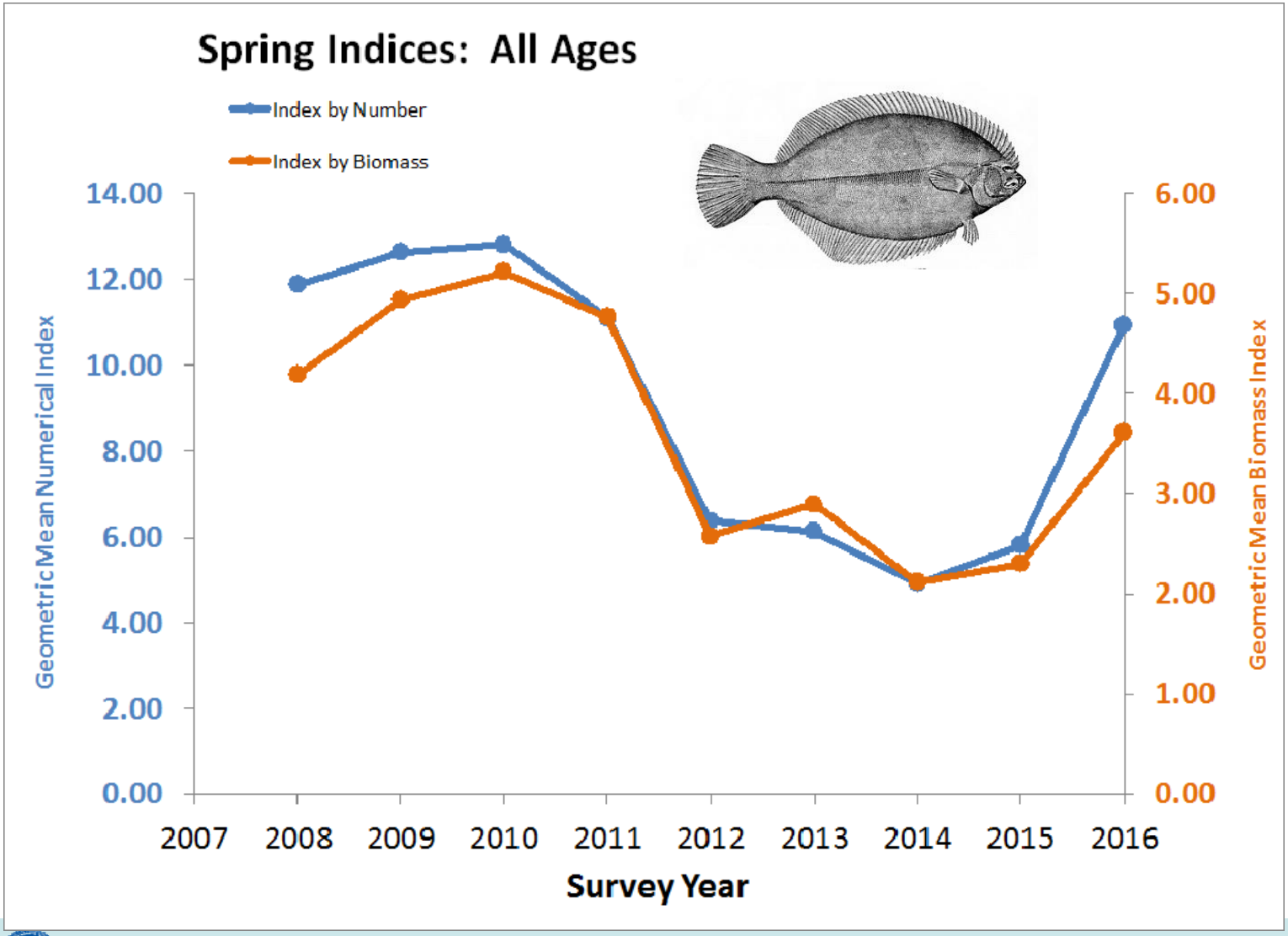
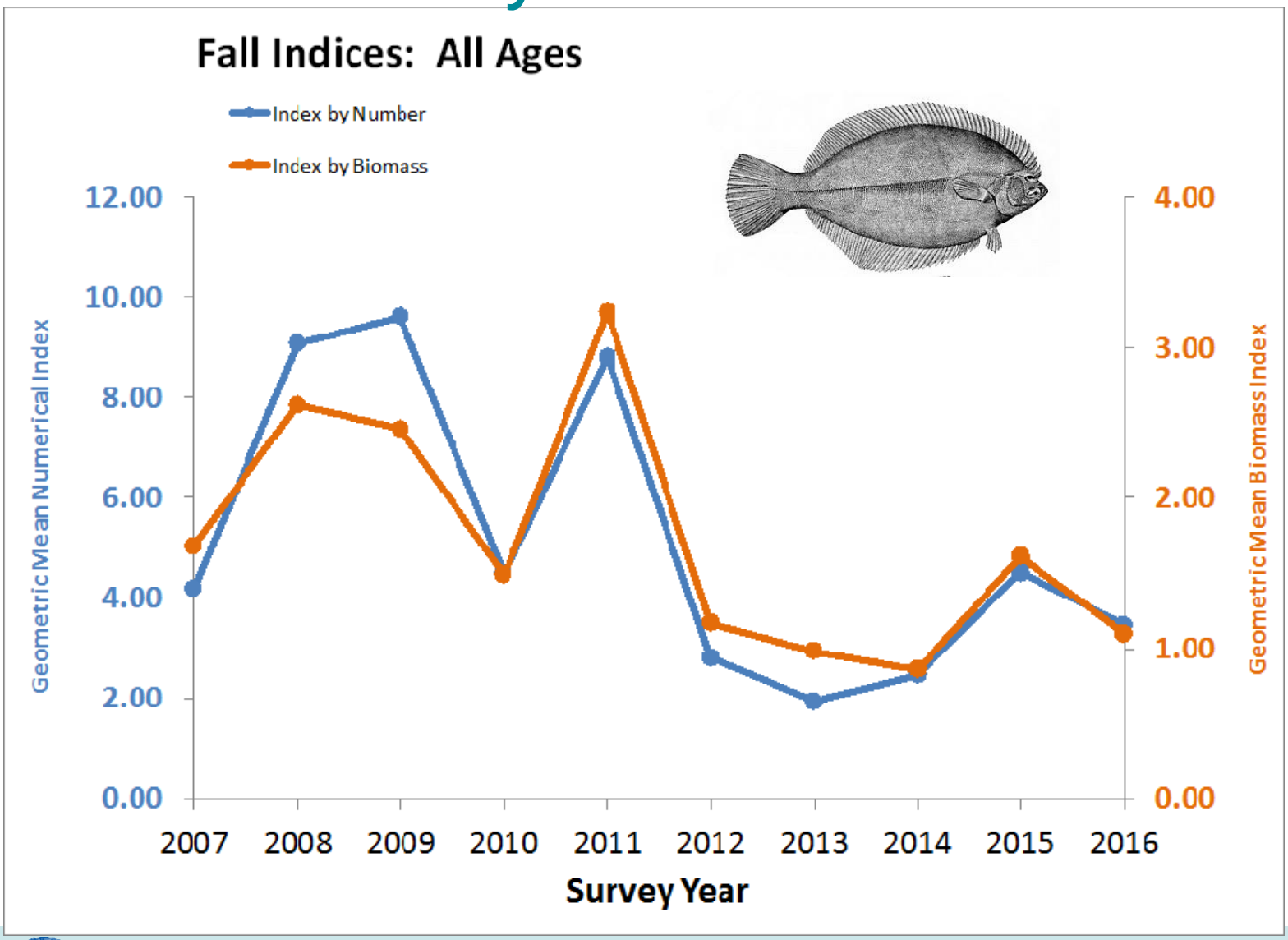


NEAMAP Survey

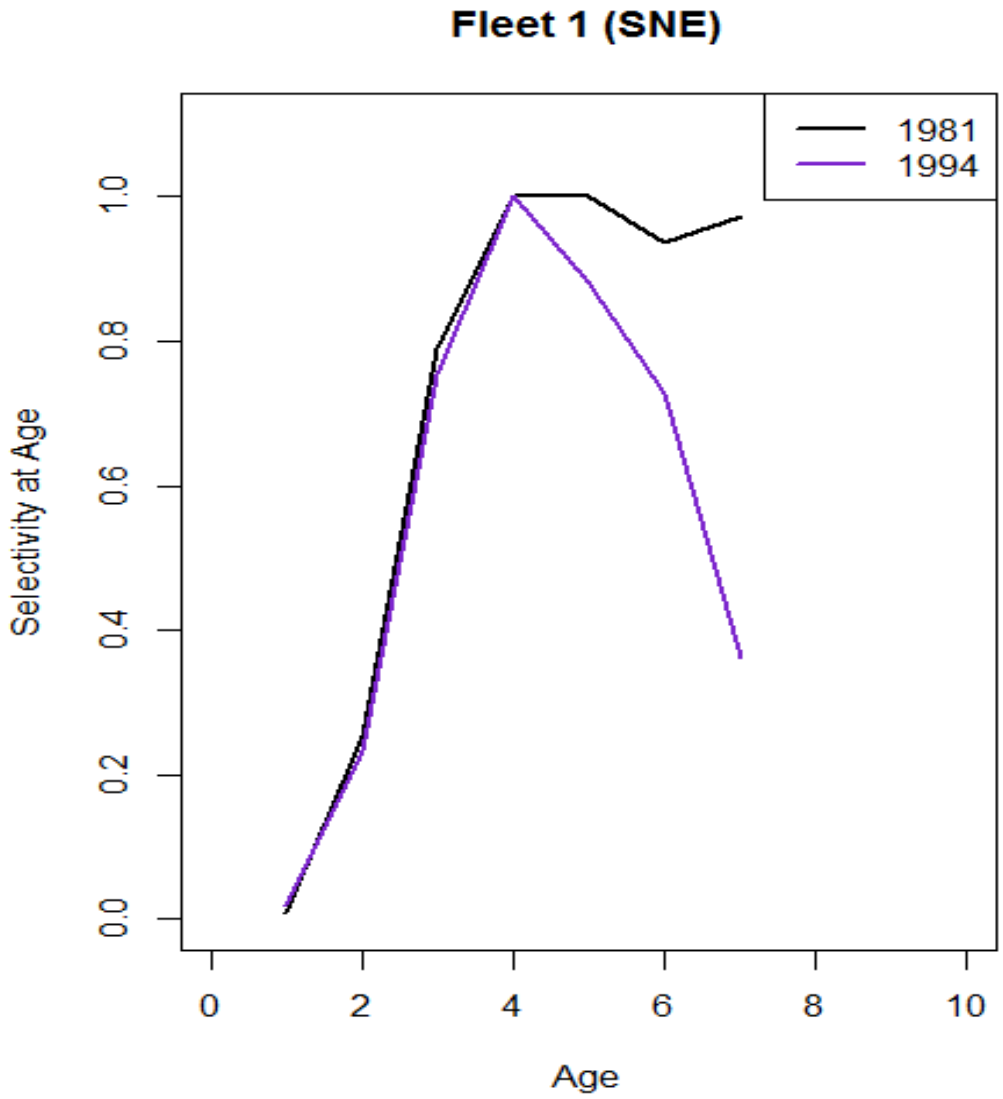


Biology

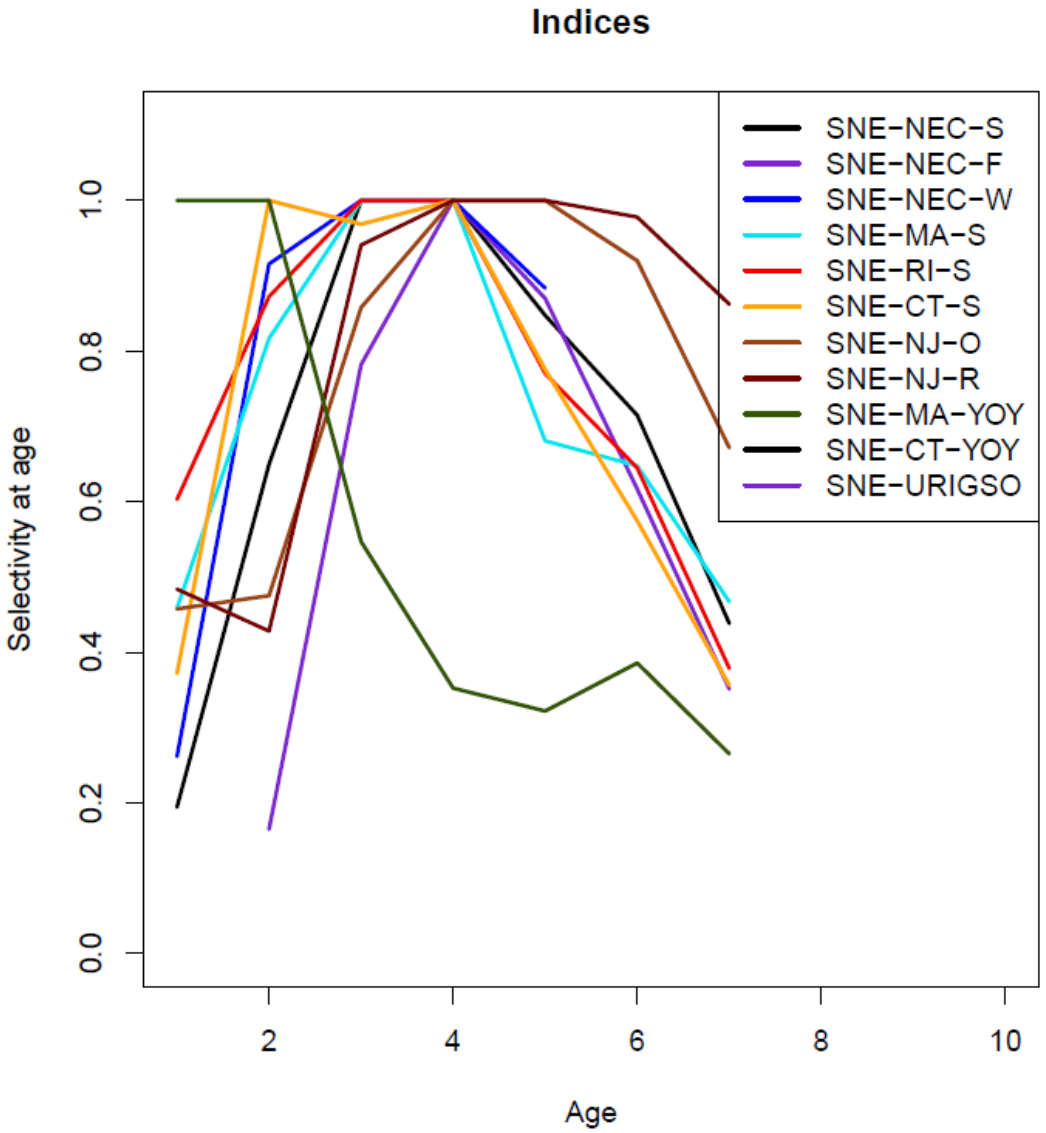
- M = 0.3
- Maturity: MADMF Spring survey data provide maturity information
  - Data from 1982-2008 used in SAW52
  - Age 1: 0%, Age 2: 8%, Age 3: 56%, Age 4: 95%

  Age 5+: 100%
- These input values were retained for the 2017 operational assessment

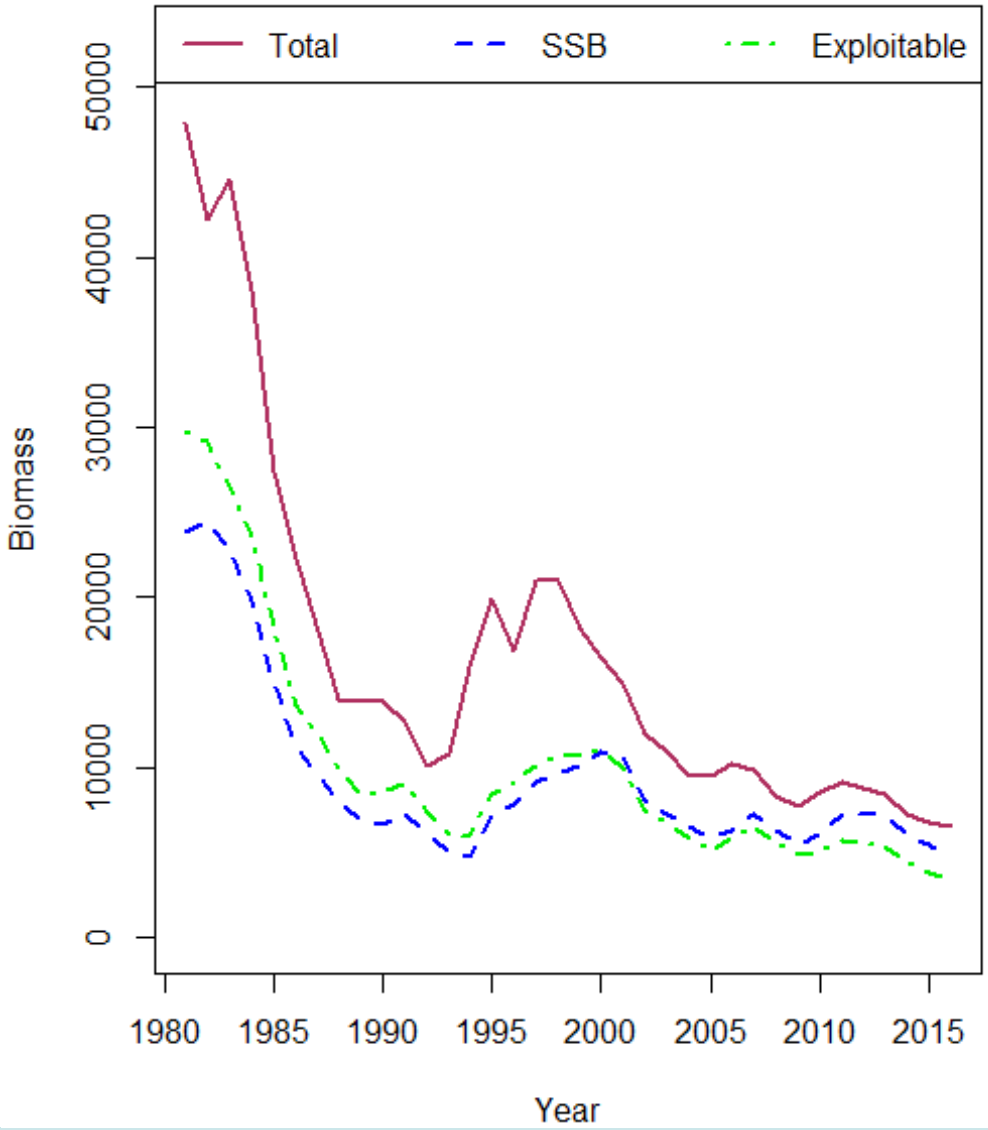
Results: Fleet Selectivities



Results: Index Selectivities



Results: Biomass



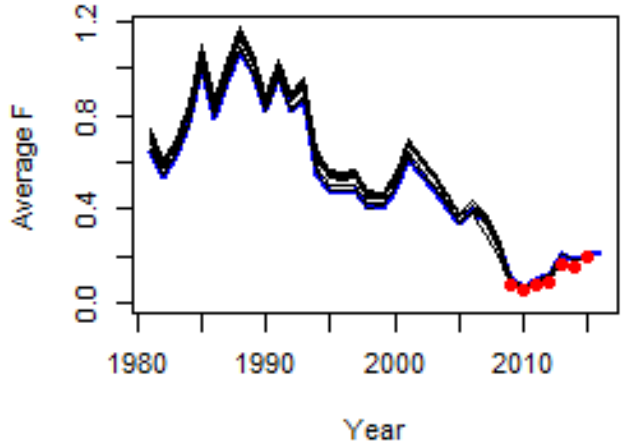
2016 Biomass Estimates

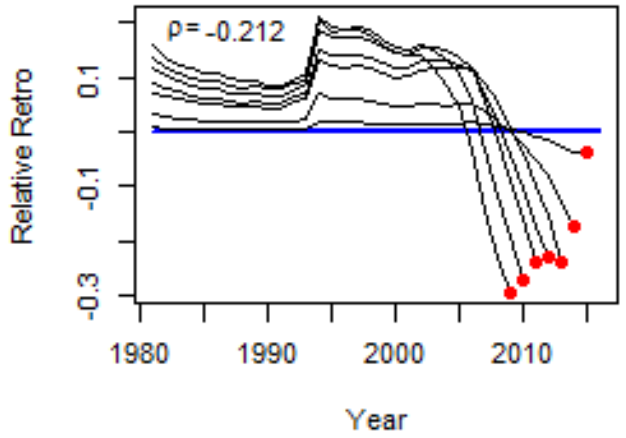
Total = 6,479 MT

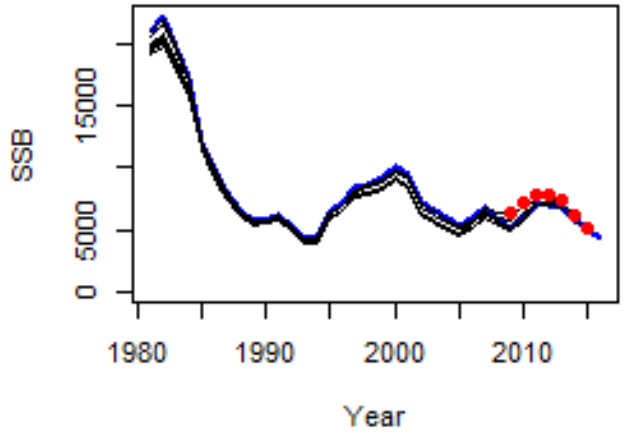
SSB = 4,360 MT

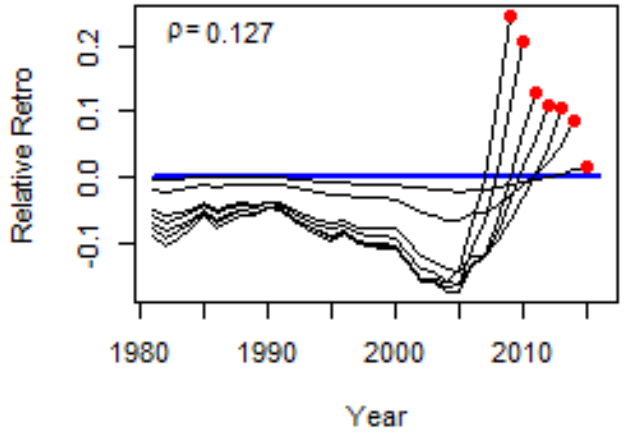
Exploitable = 3,643 MT

Results: Retrospective bias



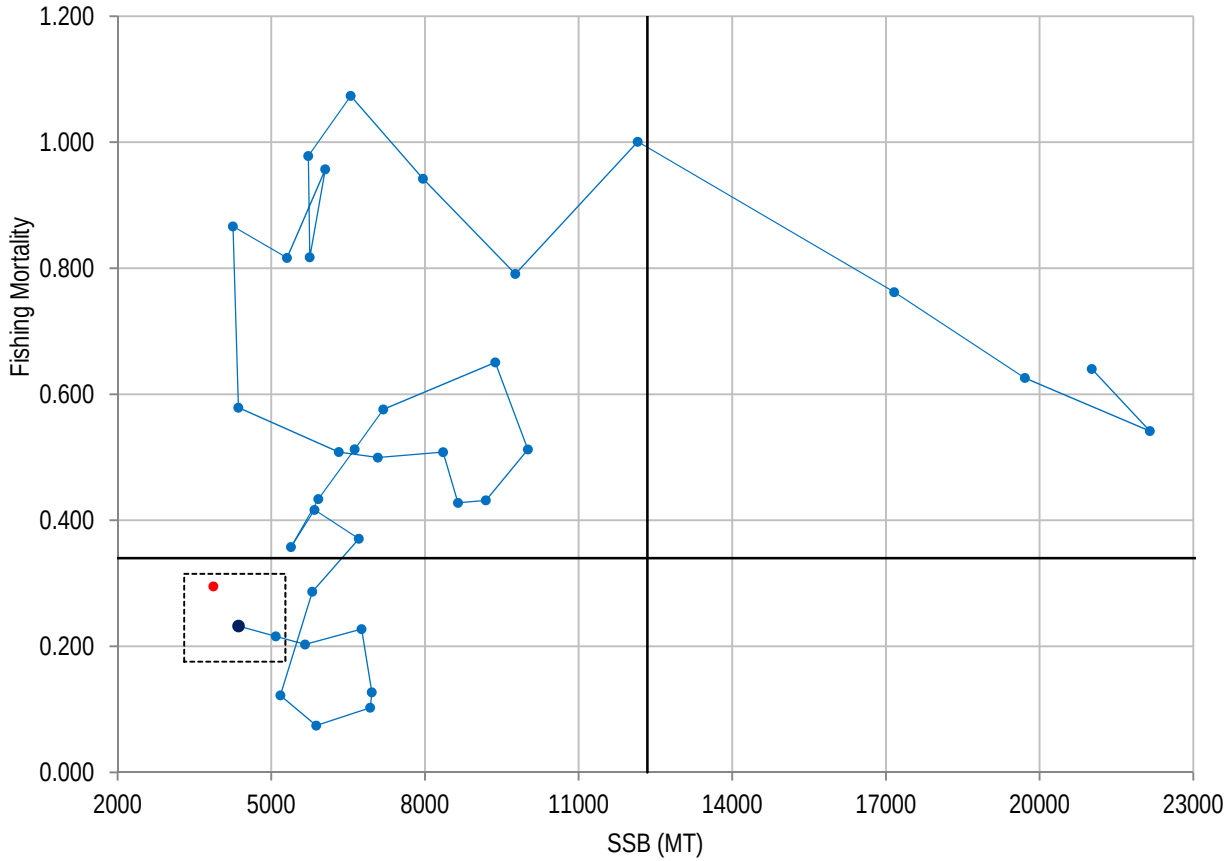






- Retrospective bias has decreased in both F and SSB

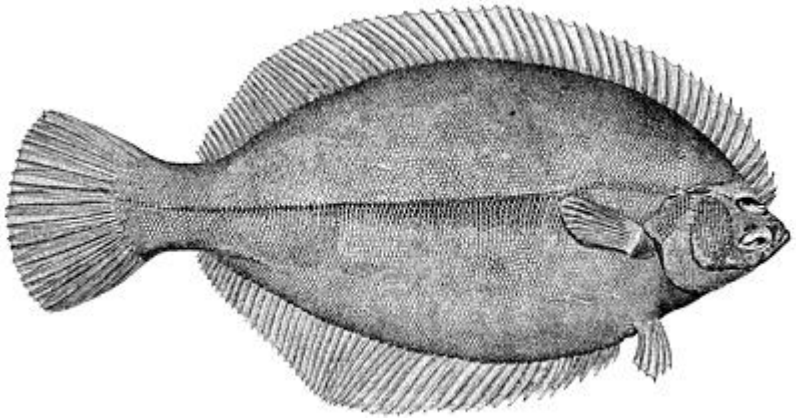
Current Stock Status



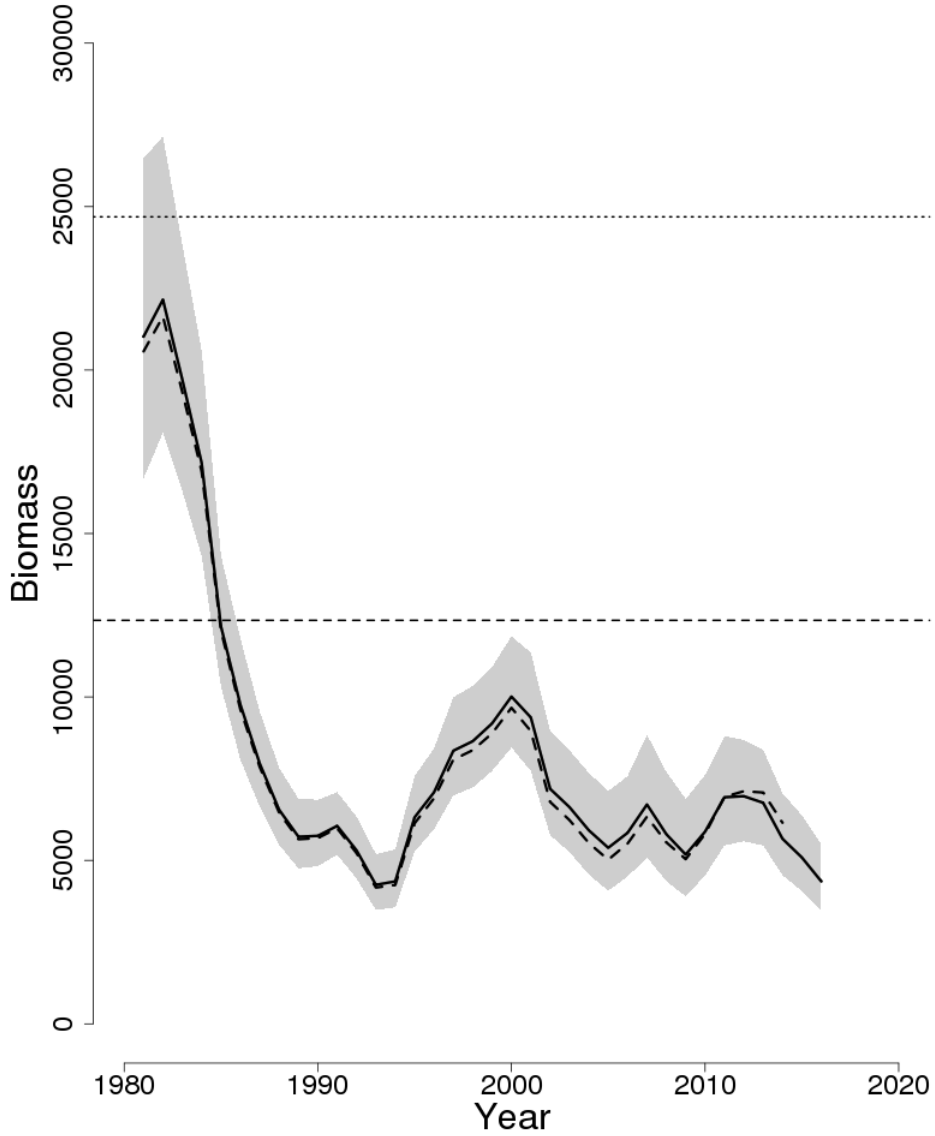
- Status unchanged: Overfished, overfishing not occurring
- Minor retrospective bias, no adjustment made

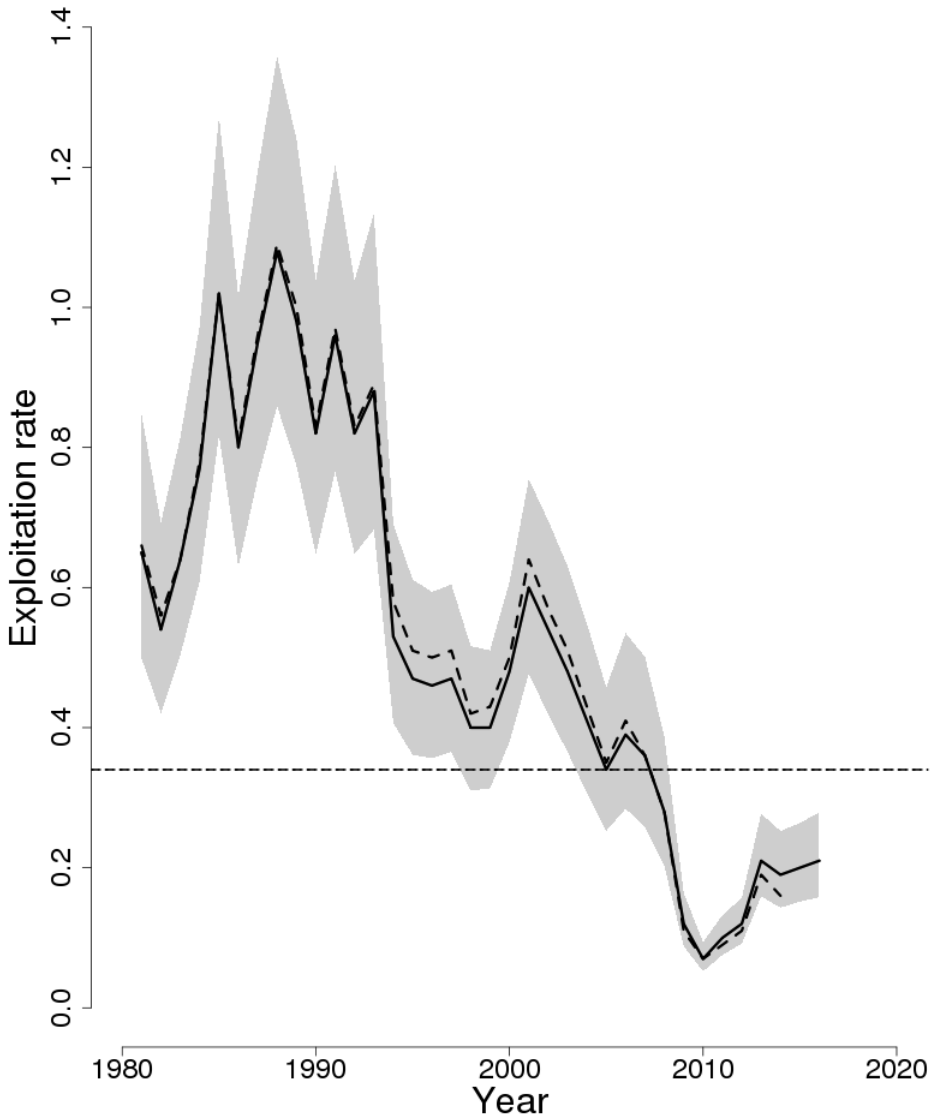
Southern New England/Mid-Atlantic Winter Flounder

	2015	2017
F_{MSY}	0.325	0.34
SSB_{MSY} (mt)	26,928	24,687 (16,919 - 36,693)
MSY (mt)	7,831	7,532 (4,991 - 11,570)
Median recruits (age 1) (000s)	16,448	15,802
Overfishing	No	No
Overfished	Yes	Yes

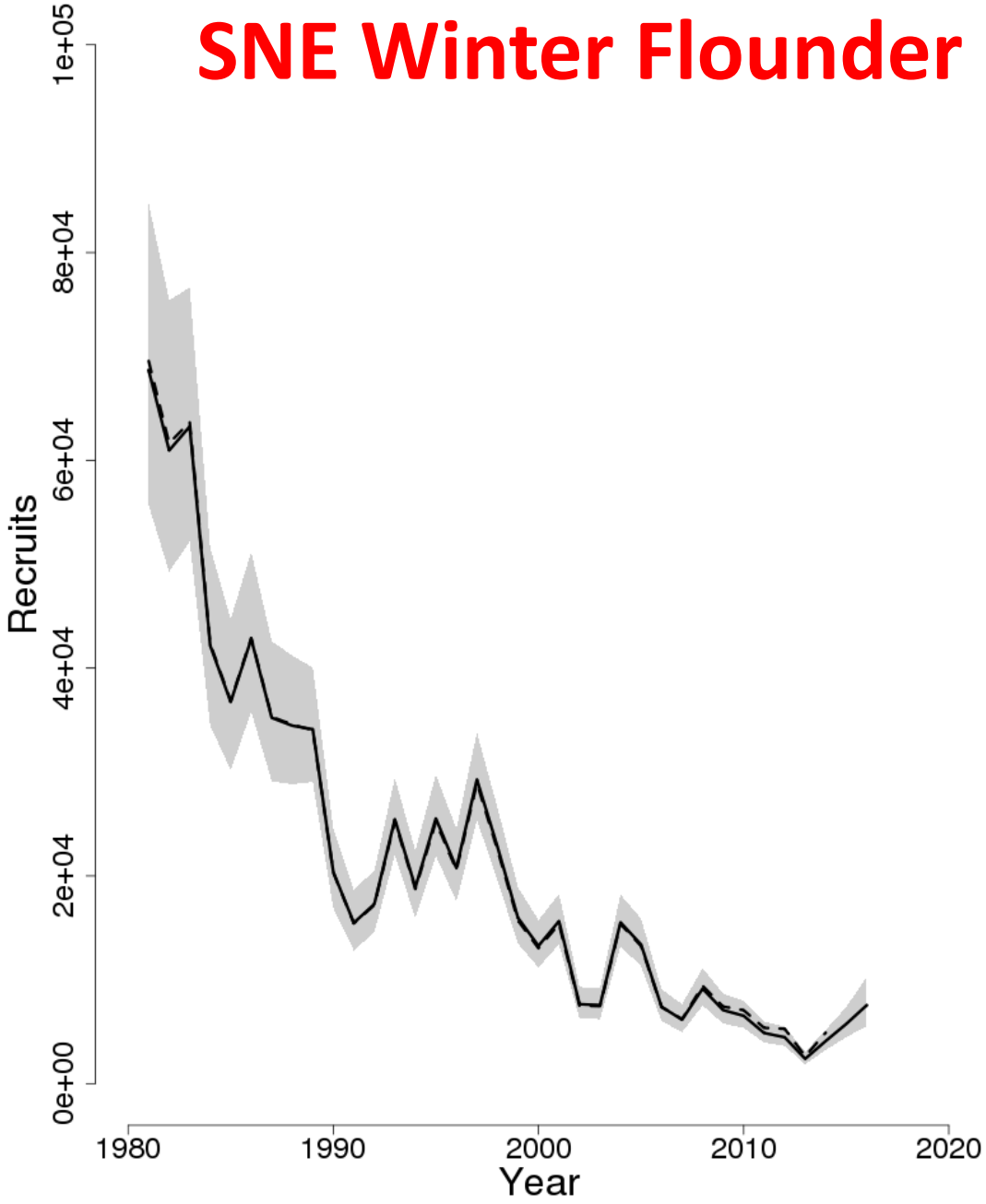


SNE Winter Flounder

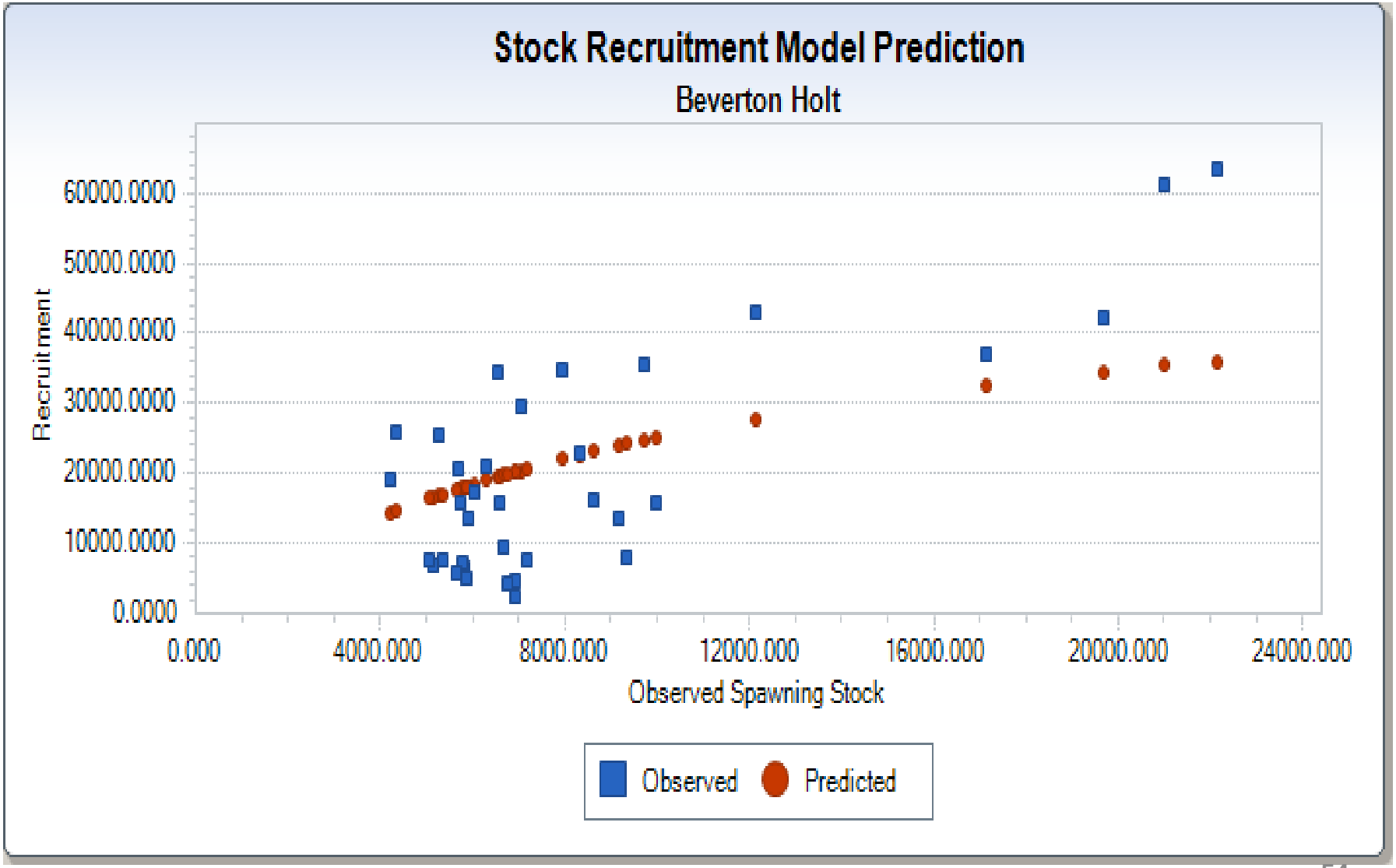




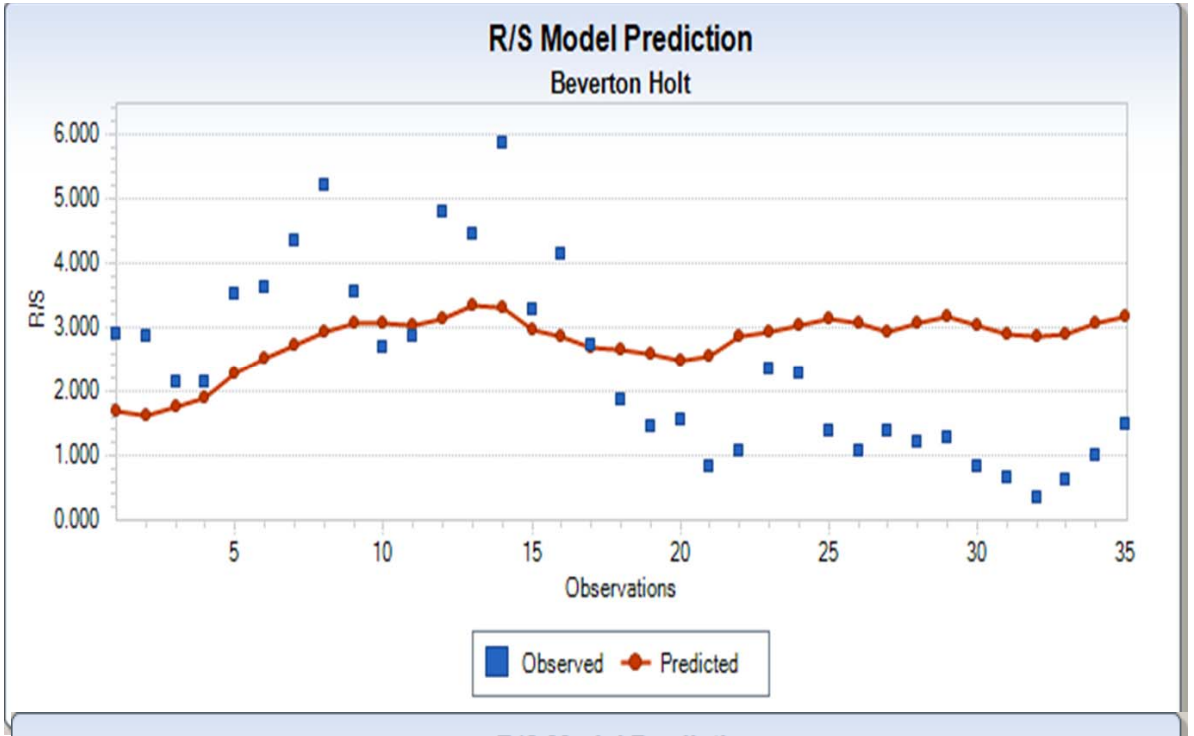
SNE Winter Flounder

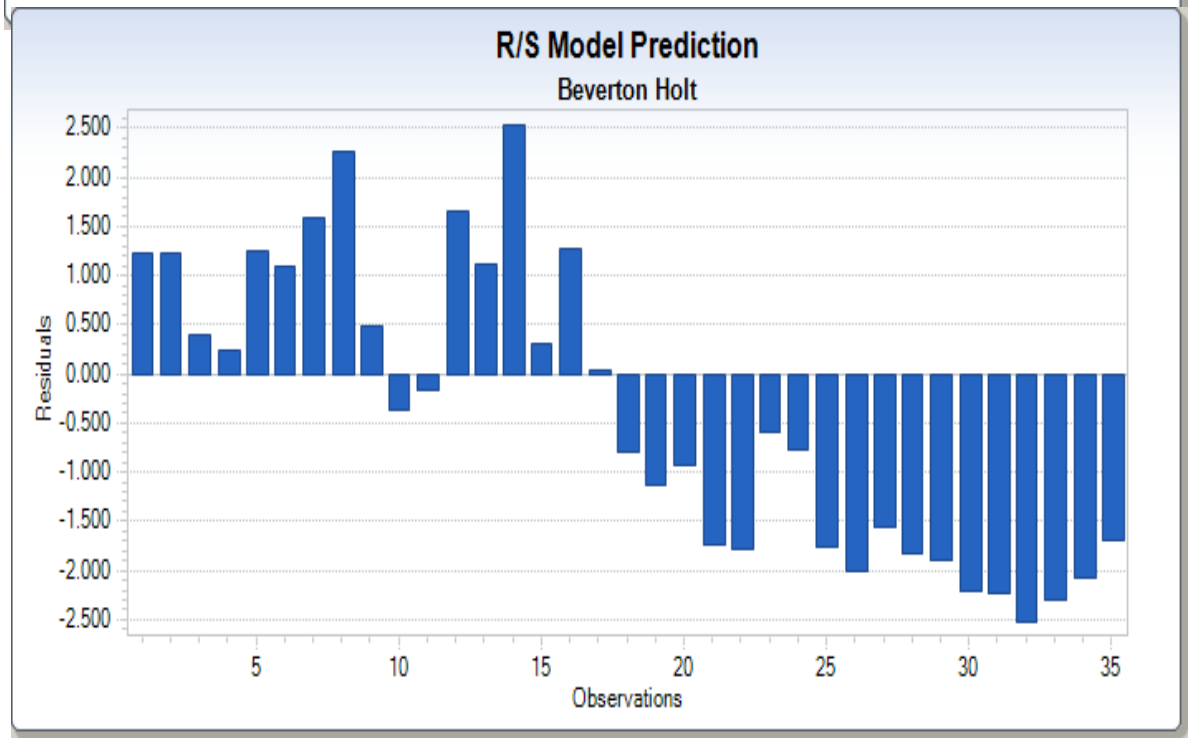


SNE Winter Flounder

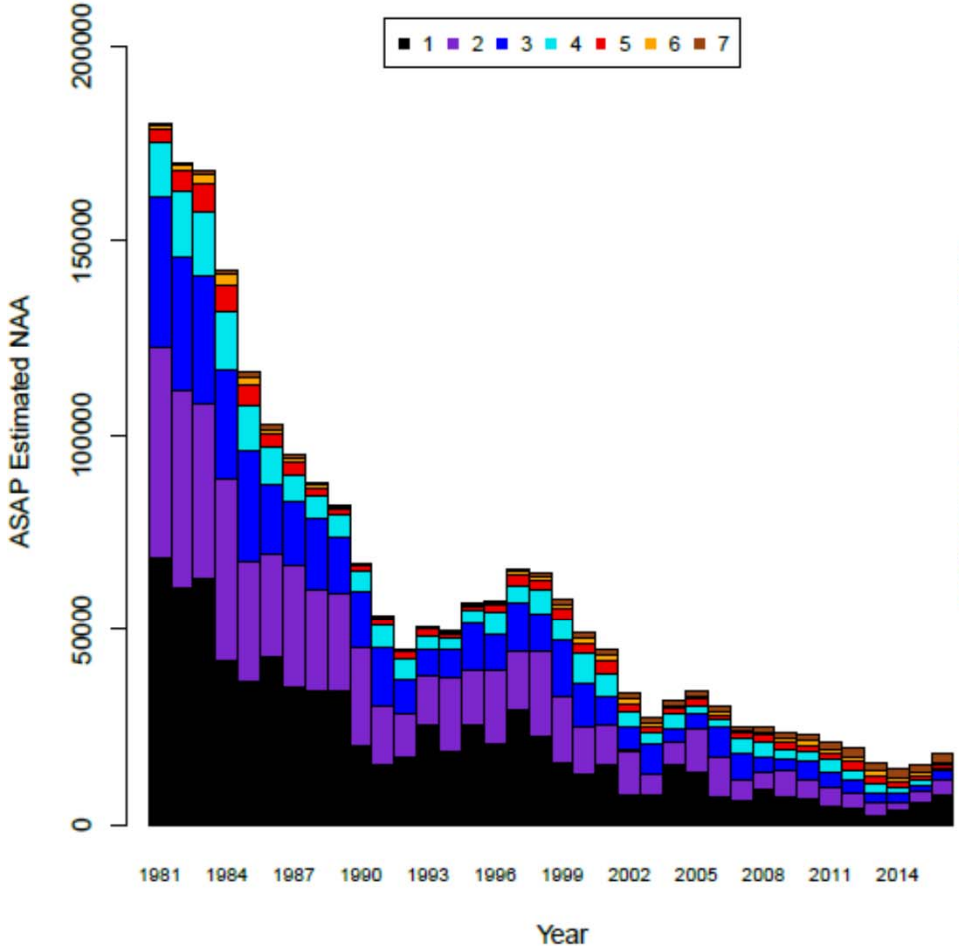


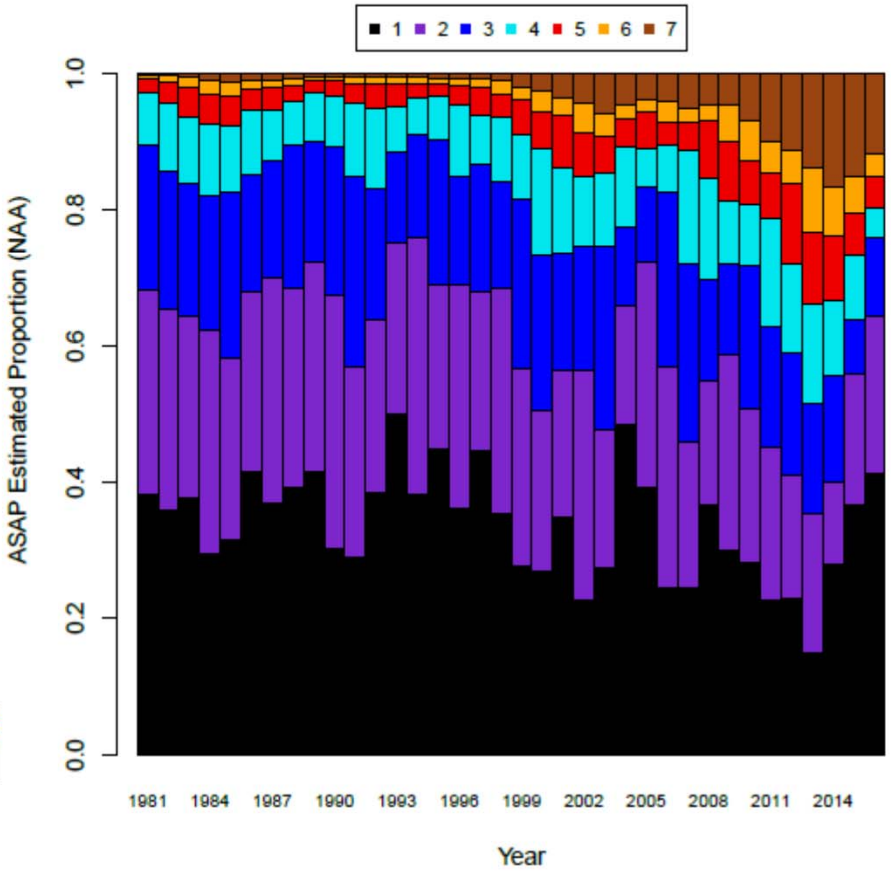
SNE Winter Flounder



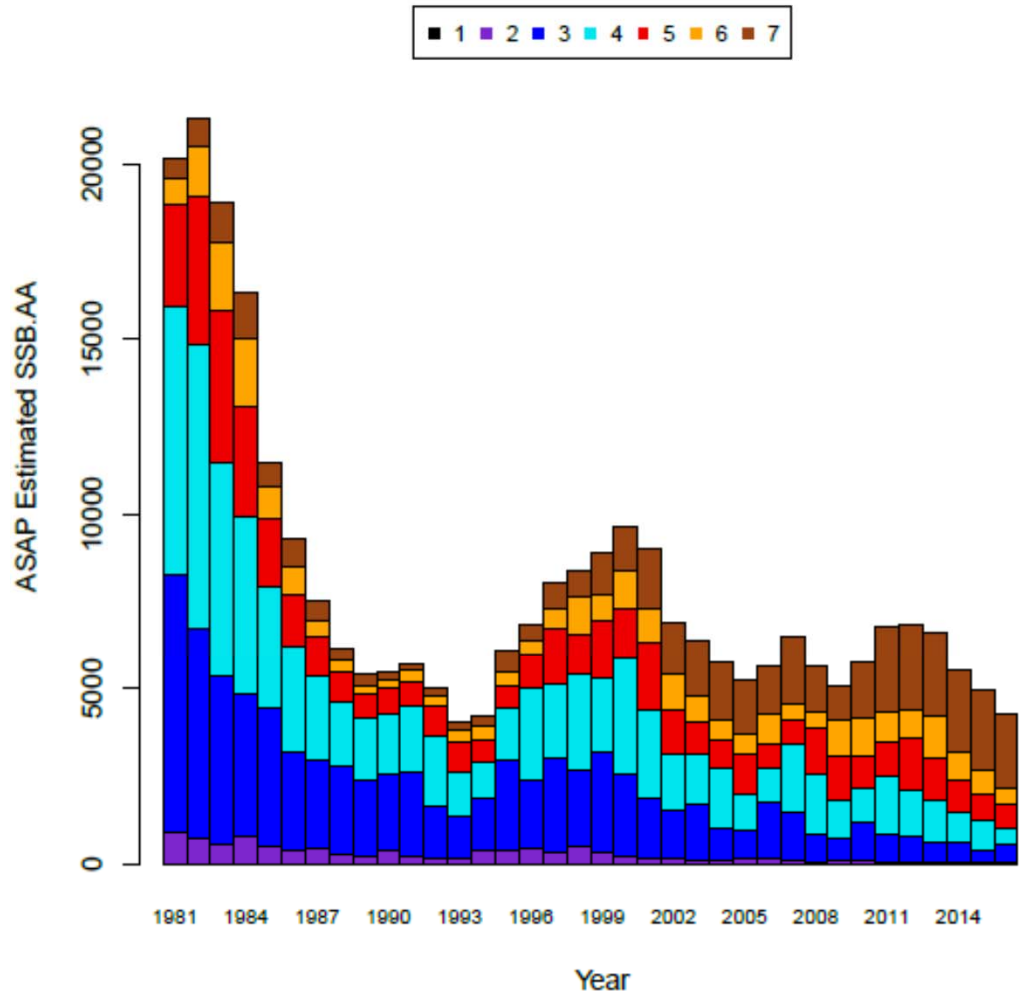


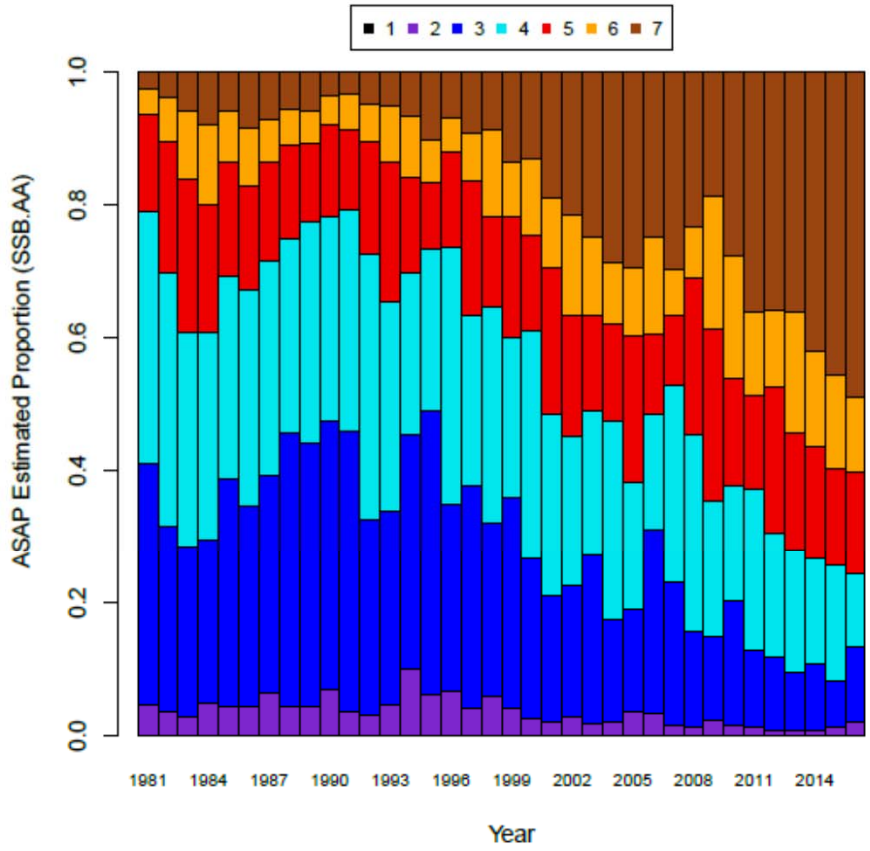
SNE Winter Flounder





SNE Winter Flounder

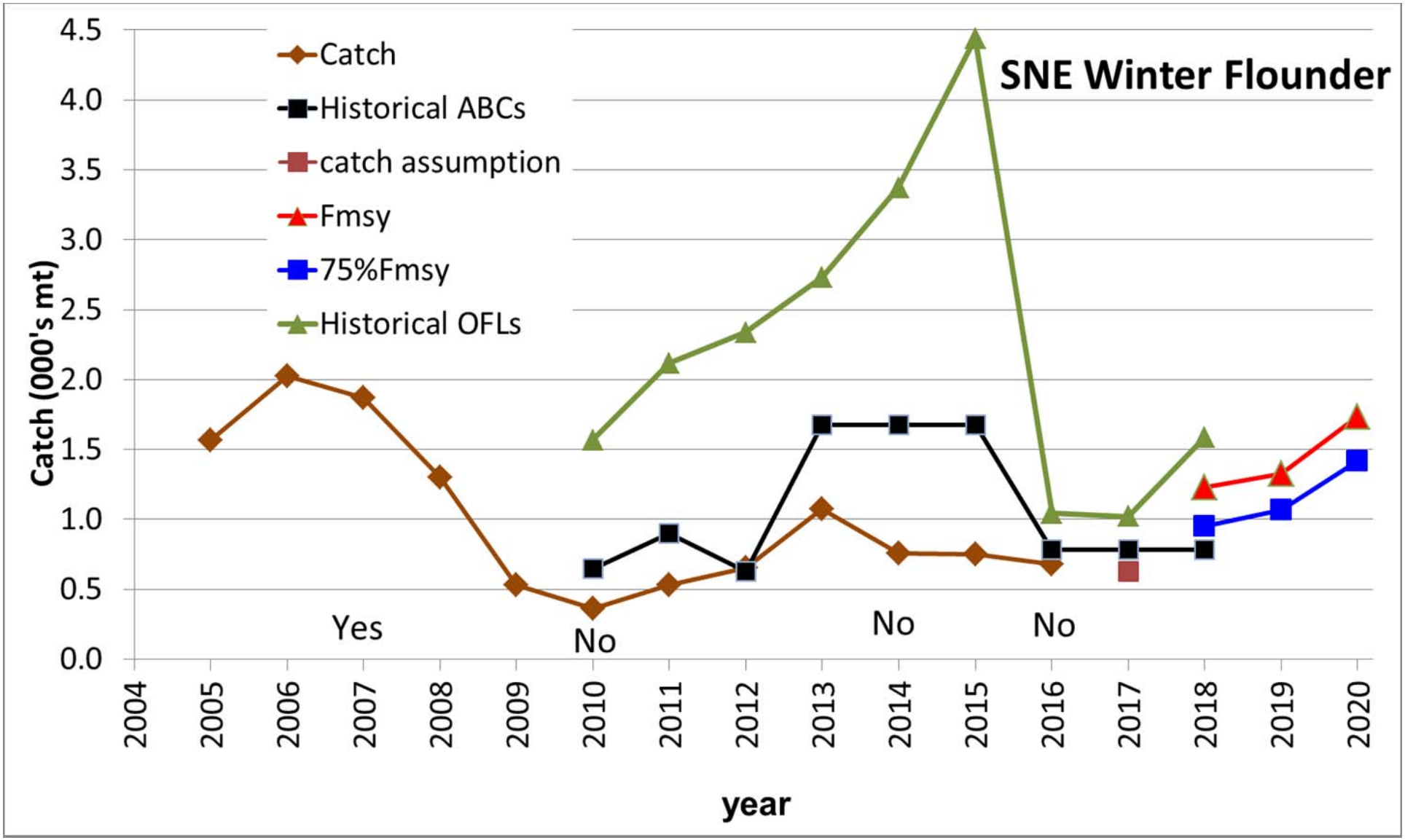




Sources of Uncertainty

- Fixed natural mortality which is based on uncertain estimates of longevity (tmax)
- S-R relationship based on fixed steepness
- Length distribution of the recreational discards. Very few samples in recent years however very small component of total catch
- Retrospective bias (F and SSB) is minor, however close to being outside of confidence bounds and needing adjustment

SNE Winter Flounder



SNE Winter Flounder

Year	Catch	Historical OFLs	Historical ABCs	Catch Assumption	F_{MSY}	$75\%F_{MSY}$
2010	363	1,568	644			
2011	531	2,117	897			
2012	650	2,336	626			
2013	1,074	2,732	1,676			
2014	753	3,372	1,676			
2015	749	4,439	1,676			
2016	678	1,041	780			
2017		1,021	780	625		
2018		1,587	780		1,228	948
2019					1,326	1,070
2020					1,736	1,420

2018-2020 Constant ABCs and OFLs

ABC was based on the average catch from 2014-2016 = 727 mt.

OFLs was based on F_{MSY} projected catch estimate in 2018 = 1,228 mt.


Questions?