NOAA FISHERIES SERVICE

#7

SAW/SARC-56 Summary
(NEFSC CRD#13-04)

Presentation for NEFMC: Apr. 2013

(with focus on White hake)

SAW/SARC Process

1. **SAW Working Groups**

2. **External Peer Review Panel: Center of Independent Experts (CIE) + SSC.**

   - Emphasis on reviewing just the science/assessment.

3. **Products: (Reviewer's Reports) + (2 Science Reports)**
   http://www.nefsc.noaa.gov/nefsc/saw/ (see SAW56)
   http://www.nefsc.noaa.gov/publications/ (see Ref. Docs.)

4. **Management advice:**
   - **SAW/SARC reports support SSC in making ABC recommendation.**
   - **Primarily developed by Tech. Committees, PDTs, SSC.**

The 56th Northeast Regional Stock Assessment Review Committee (56th SARC)

Stephen H. Clark Conference Room – Northeast Fisheries Science Center
Woods Hole, Massachusetts
Feb. 19-22, 2013

SARC Chairman:
Dr. Ed Houde
(Univ. of Maryland; MAFMC SSC)

SARC Panelists:
Dr. Kevin Stokes
(Stokes.net.nz, NZ; CIE)

Dr. Michael Smith
(CEFAS, UK; CIE)

Dr. Martin Cryer
(Directorate of Fisheries Management., NZ; CIE)

A. Atlantic surfclam
B. White hake

(B.) White hake

Occurs primarily in Gulf of Maine

White hake

Assessment TORs (1)

1. **Estimate catch from all sources including landings and discards. Describe the spatial and temporal distribution of fishing effort. Characterize the uncertainty in these sources of data. Analyze and correct for any species mis-identification in these data. Comment on the consistency of the approach to identify the catch of white hake with respect to that used in the red hake assessment.**

2. **Present the survey data being used in the assessment (e.g., regional indices of abundance, recruitment, state surveys, age-length data, etc.). Investigate the utility of commercial or recreational LPUE as a measure of relative abundance. Characterize the uncertainty and any bias in these sources of data.**

3. **Evaluate the utility of pooled age-length keys for development of a stock assessment model.**

White hake

Assessment TORs for 2013 (2)

4. **Estimate annual fishing mortality, recruitment and stock biomass (both total and spawning stock) for the time series, and estimate their uncertainty. Include a historical retrospective analysis to allow a comparison with previous assessment results. Review the performance of historical projections with respect to stock size, recruitment, catch and fishing mortality.**

5. **State the existing stock status definitions for "overfished" and "overfishing". Then update or redefine biological reference points (BRPs; point estimates or proxies for B_{MSY}, $B_{THRESHOLD}$, F_{MSY} and MSY) and provide estimates of their uncertainty. If analytic model-based estimates are unavailable, consider recommending alternative measurable proxies for BRPs. Comment on the scientific adequacy of existing BRPs and the "new" (i.e., updated, redefined, or alternative) BRPs.**

6. **Evaluate stock status with respect to the existing model (from previous peer reviewed accepted assessment) and with respect to a new model developed for this peer review. In both cases, evaluate whether the stock is rebuilt.**
    a. **If possible update the ASPM with new data and evaluate stock status (overfished and overfishing) with respect to the relevant BRP estimates.**
    b. **Then use the newly proposed model and evaluate stock status with respect to "new" BRPs and their estimates (from TOR-5).**

White hake

Assessment TORs (3)

7. **Develop approaches and apply them to conduct stock projections and to compute the statistical distribution (e.g., the probability density function) of the OFL (overfishing level) and candidate ABCs (Acceptable Biological Catch; see Appendix to the SAW TORs).**
    a. **Provide numerical annual projections (3-5 years). Each projection should estimate and report annual probabilities of exceeding threshold BRPs for F, and probabilities of falling below threshold BRPs for biomass. Use a sensitivity analysis approach in which a range of assumptions about the most important uncertainties in the assessment are considered (e.g., terminal year abundance, variability in recruitment).**
    b. **Comment on which projections seem most realistic. Consider the major uncertainties in the assessment as well as sensitivity of the projections to various assumptions.**
    c. **Describe this stock's vulnerability (see "Appendix to the SAW TORs") to becoming overfished, and how this could affect the choice of ABC.**

8. **Evaluate the validity of the current stock definition, taking into account what is known about migration among stock areas. Make a recommendation about whether there is a need to modify the current stock definition for future stock assessments.**

9. **Review, evaluate and report on the status of the SARC and Working Group research recommendations listed in the most recent SARC reviewed assessment and review panel reports. Identify new research recommendations.**

White hake	SARC56 Panel Findings (1)

- **Stock is not overfished and overfishing is not occurring .**
- **Stock status changed from the previous stock assessment. This is not the result of changing assessment models.**
- **The improving condition of the stock is indicated by the recent 3X increase in spawning stock biomass (SSB). Recent increase in SSB was during a period when F was low and recruitment was near the long-term average.**

White hake | SARC56 Panel Findings (2)

- **Biological reference points (BRPs) are based on recruitment estimates from the entire time series. There was not a clear reason to derive BRPs based on a shorter, recent time series.**

- ***The $F_{MSY\ proxy}$ of F40% currently in place should remain. Decision was based on risks of depleting the stock associated with F40% and F35% as well as on sensitivity of risks to assumed S-R relationship.**

- **Short term projections are based on recent recruitment; Projections at 75%FMSY indicate that SSB and catches increase after 2012.**

*** The SARC made its recommendation to retain F40% during the peer review meeting. The SARC requested an additional sensitivity calculation on the final day in WH. That info was provided, and the SARC still recommended F40%.**

Previous White hake Assessment
(GARM-III, CRD08-15, 2008)

1. overfished
2. overfishing

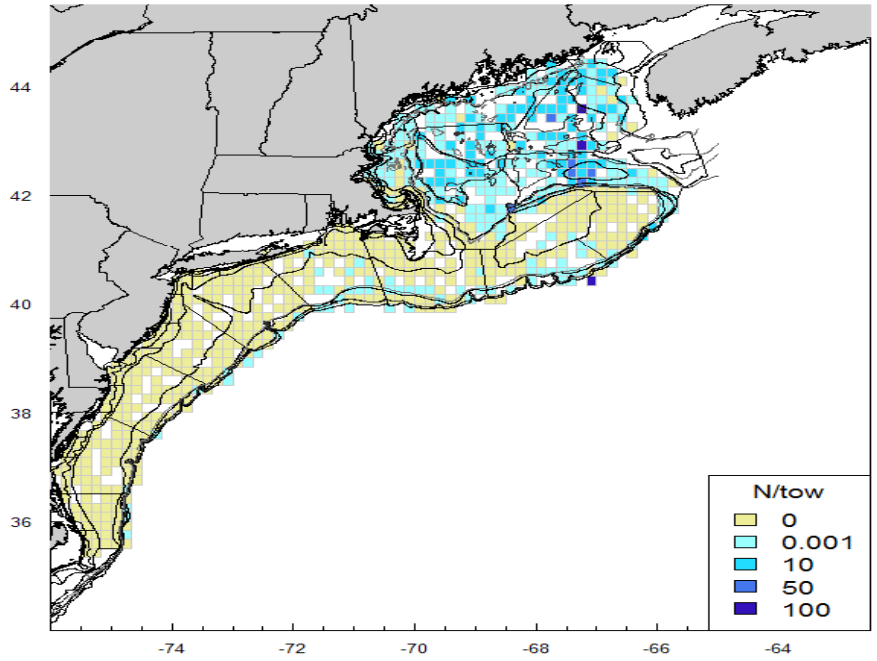
Most recent Assessment
(CRD13-04, 2013)

1. NOT overfished
2. NOT overfishing

White hake: Stock Area

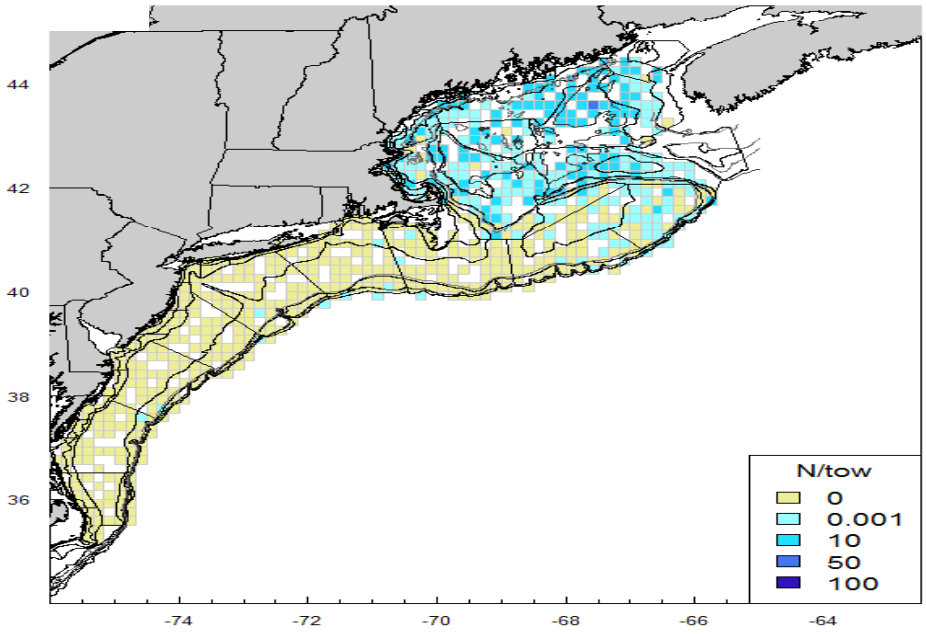
White hake NEFSC Spring Survey

Average 2008 - 2012

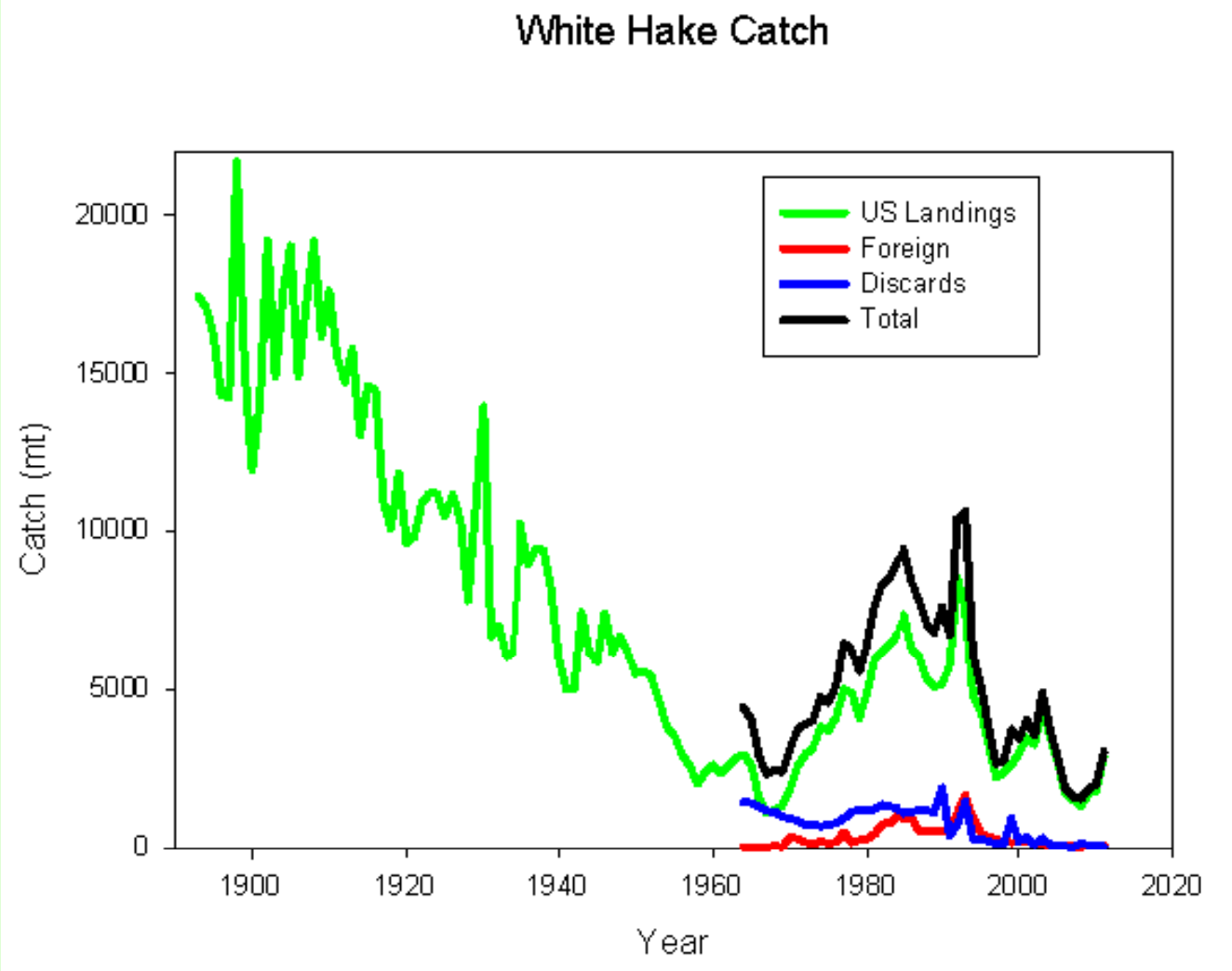


White hake NEFSC Fall Survey

Average 2008 - 2012



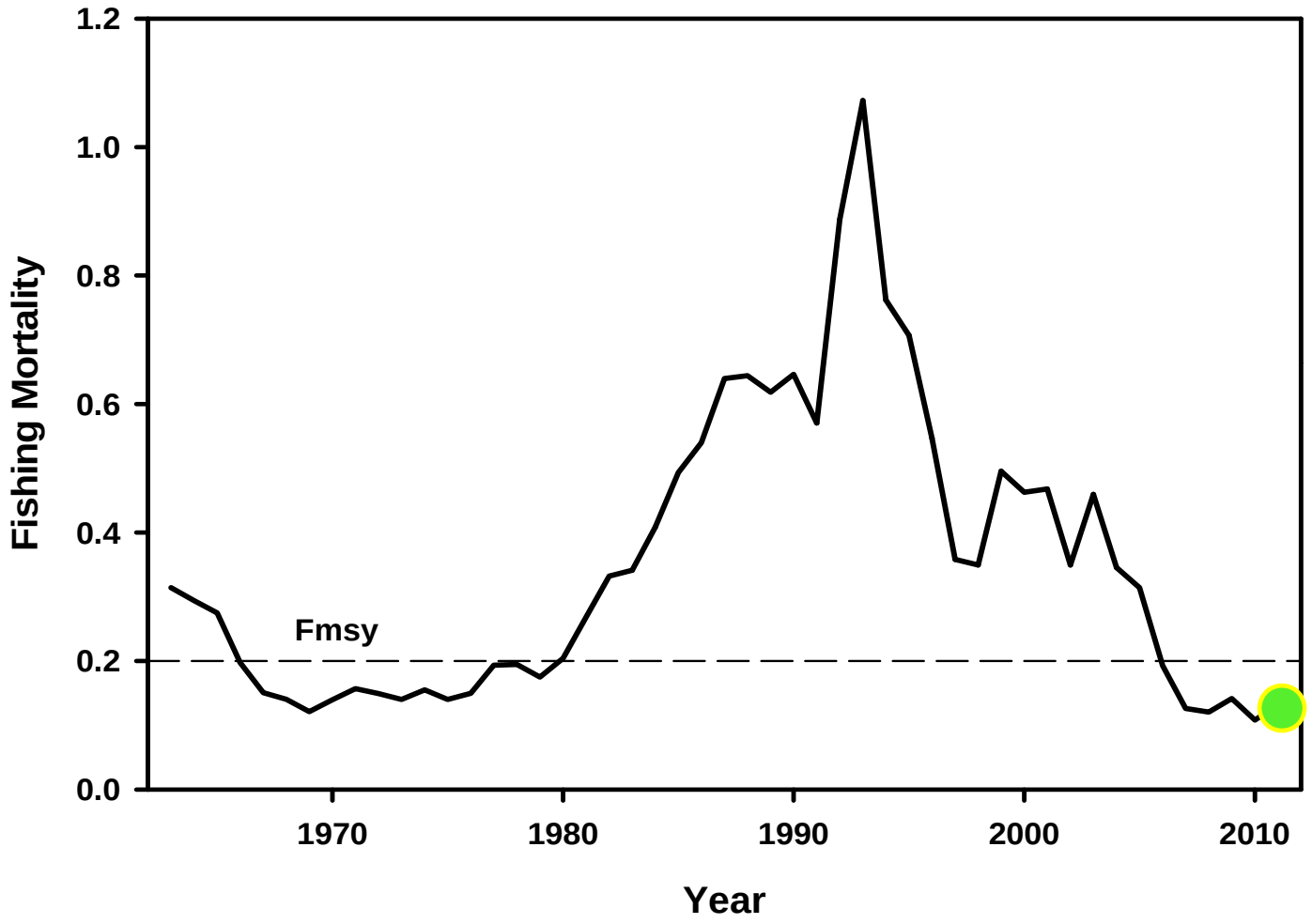
White hake: Catches



Catches have been low since the late 1990's.

White hake:

F and BRP

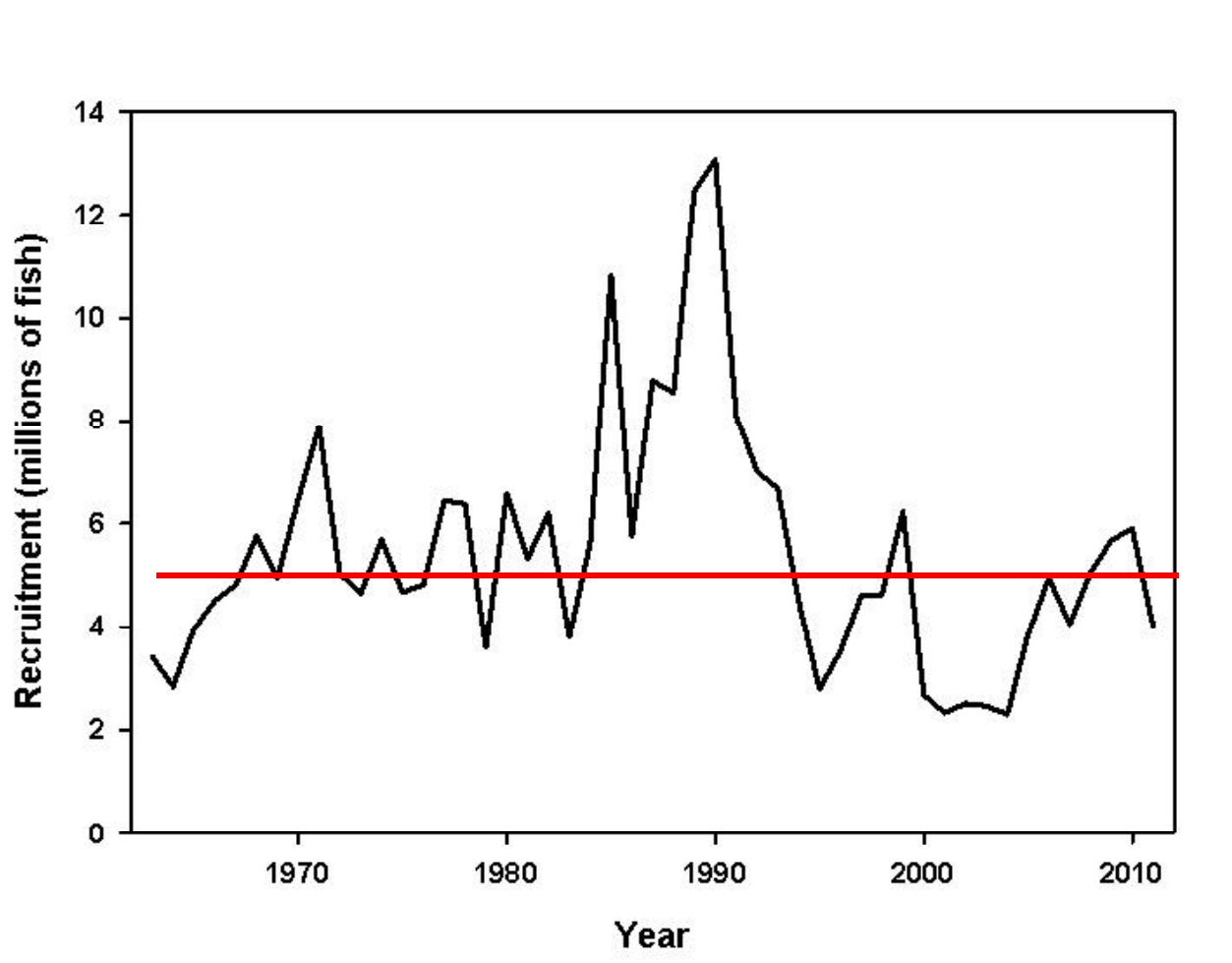


Fmsy proxy = 0.2

F'11 = 0.13

F has declined since 2003.
In 2011: Not overfishing.

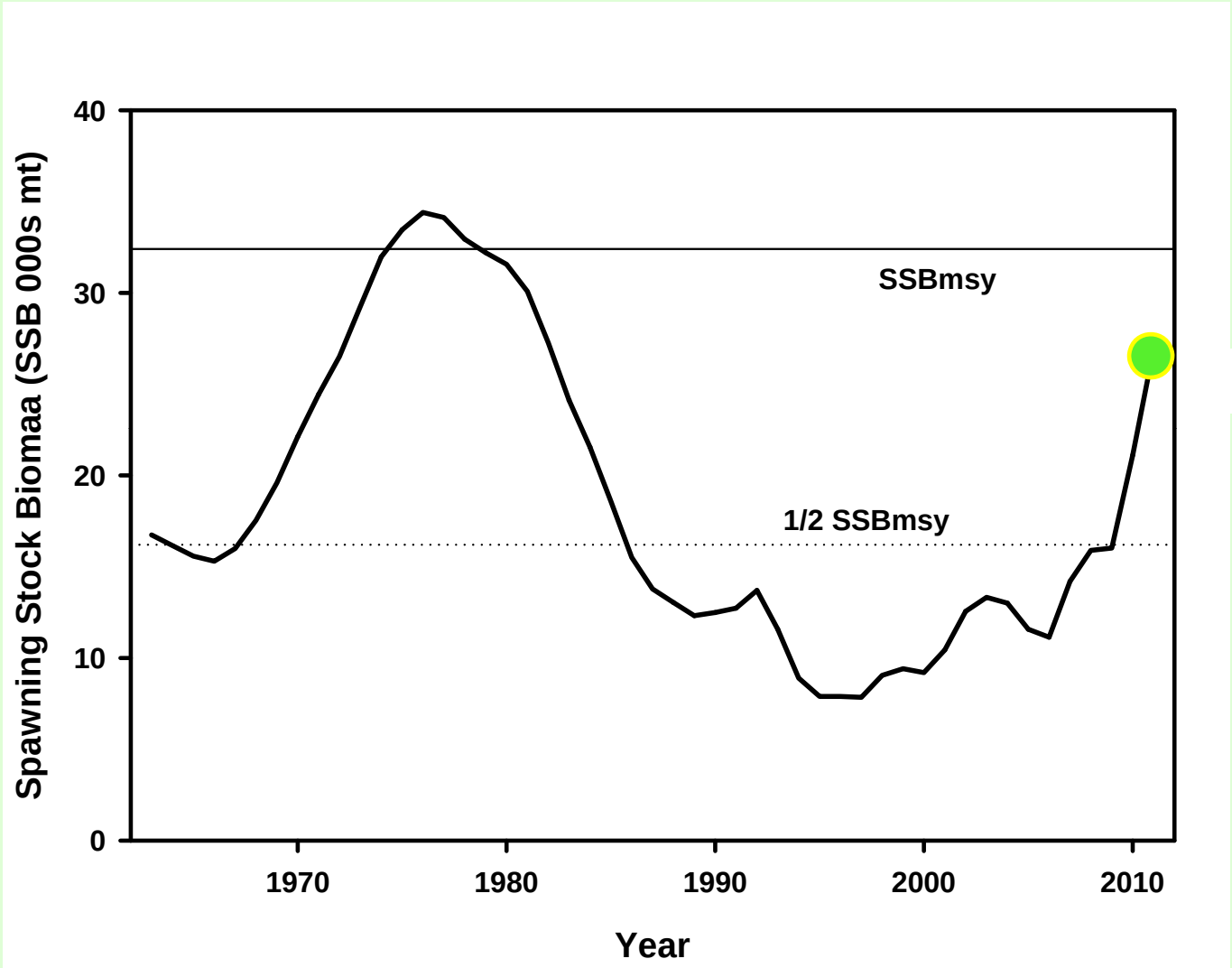
White hake: Recruitment



Recruitment has increased since 2005 to near the long term average.

White hake:

SSB and BRP

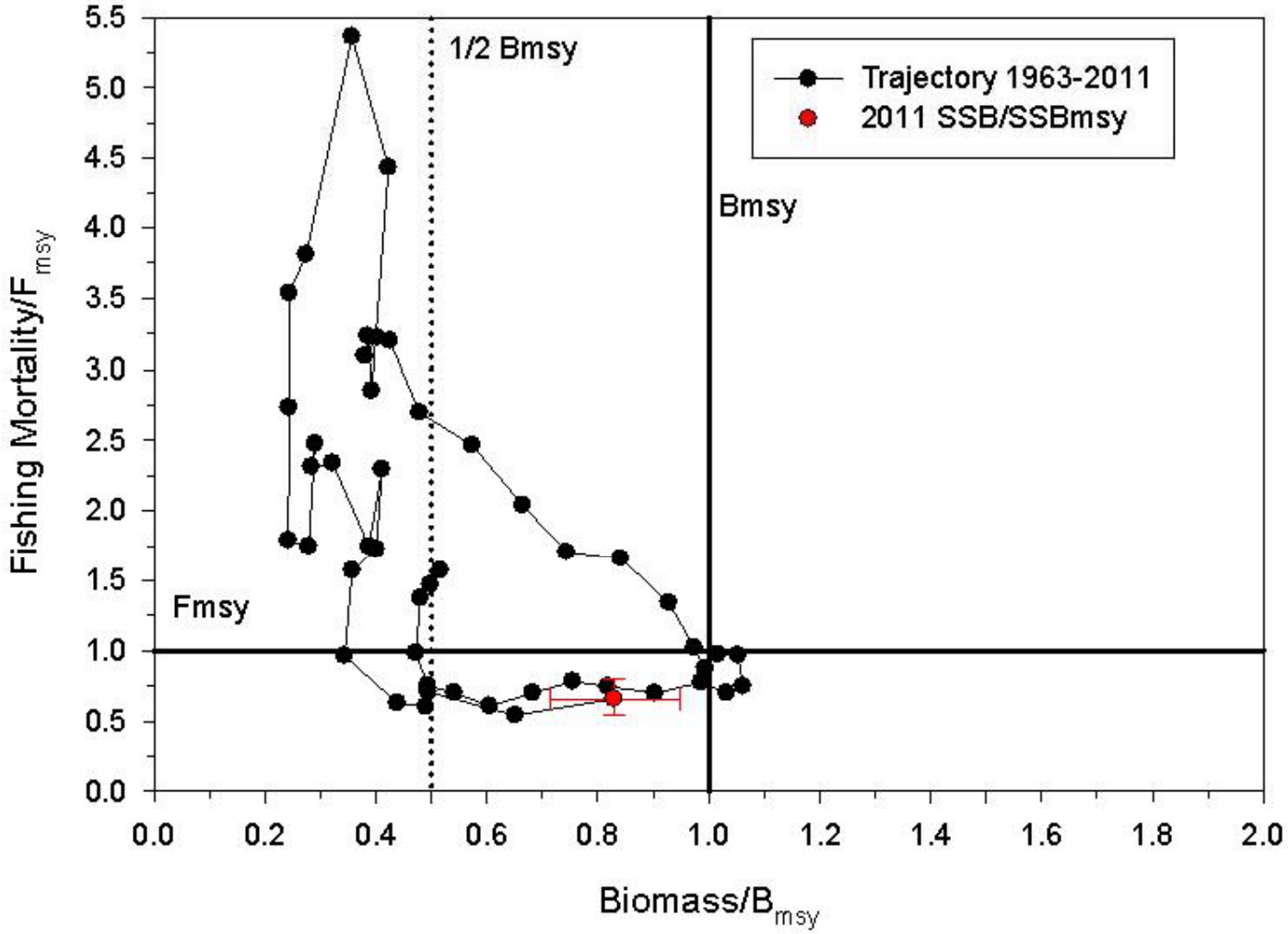


SSBmsy proxy = 32.4 kmt

SSB'11 = 26.9 kmt

Biomass has increased since 2006.
In 2011: Not overfished

White hake: BRPs and Stock Status



White hake:

Stock Projection

Year	Catch	SSB	F
2012	2,900	28,886	0.12
2013	4,177	31,986	0.15
2014	4,435	33,559	0.15
2015	4,532	33,893	0.15
2016	4,490	33,683	0.15

Basis of calculations:

1. **Stock Projection at 75%F_{MSY} , where F_{MSY} proxy (F40%) = 0.2 .**
2. **Recent time series of recruitment (1995-2009)**

White hake

SARC Recommendations

- **Complete ageing of samples collected by the Observer Program, the shrimp survey and state surveys**
- **Use cooperative research to collect improved biological samples (length measurements and otoliths) from intact fish from commercial fishing trips**
- **Include a fuller description of ASAP model development and selection process**
- **Consider genetics investigations of stock structure**

(A.) Atlantic surfclam

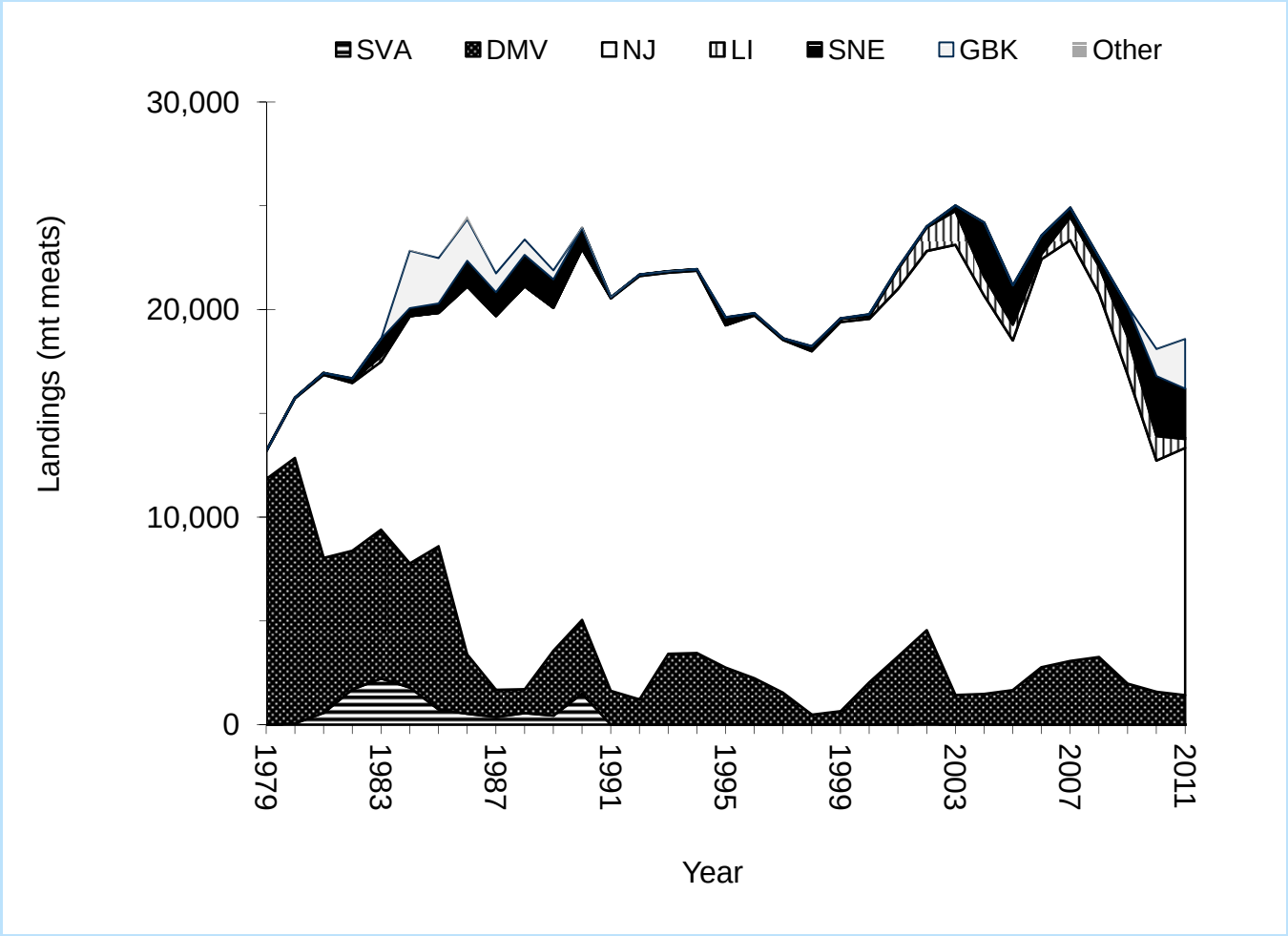
Atl. surfclam	SARC56 Panel Findings (1)

- **Stock is not overfished and overfishing is not occurring in 2011**
- **The surfclam fishery has been concentrated in relatively small areas. Much of the stock area has not been heavily fished. This explains the low overall *F* estimates, and is consistent with previous assessments.**
- **Projections: very low probabilities of the stock being over-fished in any of the projected years.**
- **The assumed natural mortality rate (*M* = 0.15) is uncertain and may overstate stock productivity. Further work on M is recommended to better understand stock vulnerability.**
- **The SARC could not decide whether to recommend changing from the current single stock definition. This should not prevent conducting stock assessments by subareas, nor should it preclude area-based management, if appropriate.**

SARC56 Panel Findings (2)

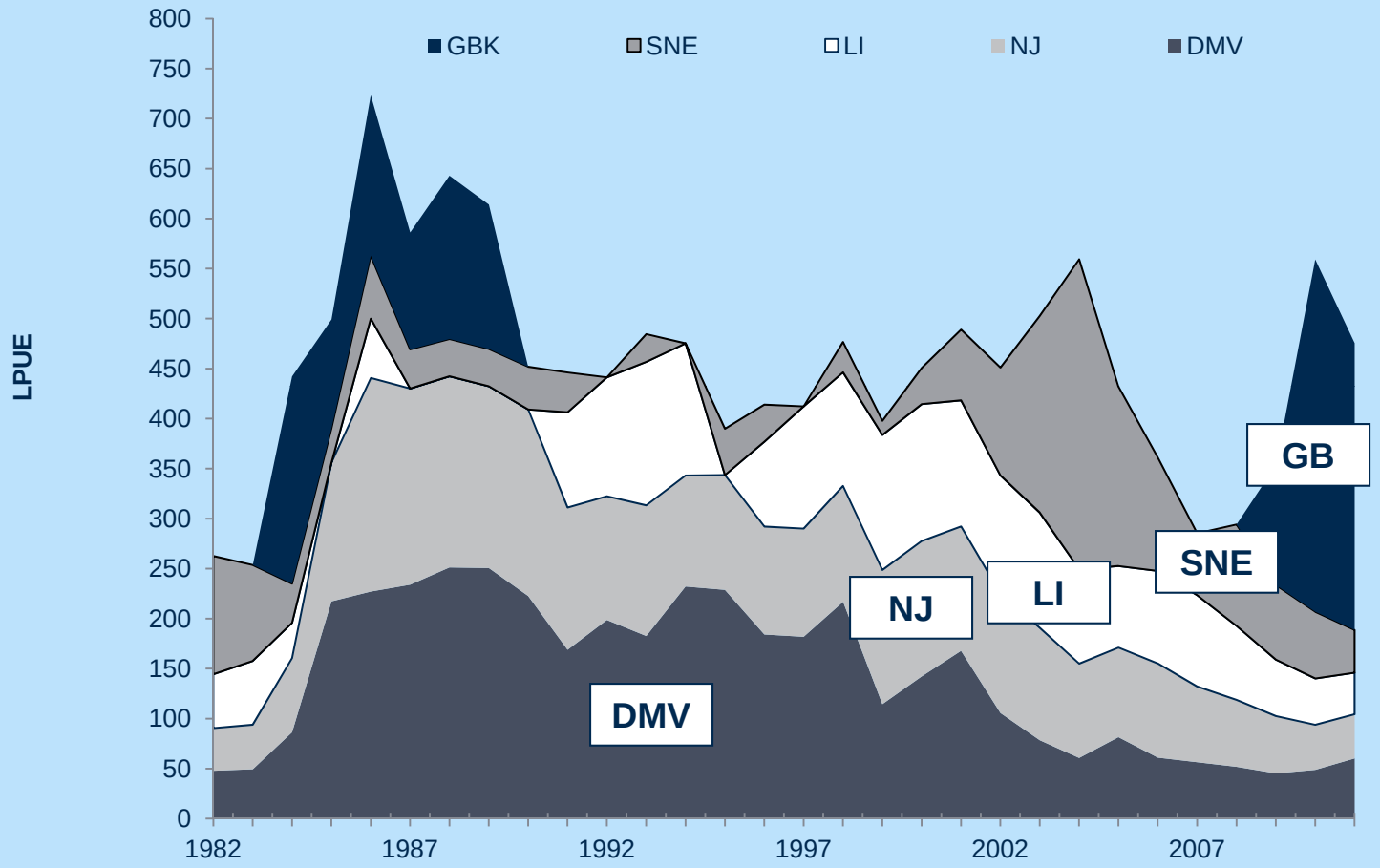
- The rationale for using B_{1999} as a basis for BRPs was questioned and needs to be clearer.
- Trends in landings per unit effort (LPUE) during the past decade are downward, except for GBK. Recent LPUE on GBK: five times higher than elsewhere.
- Commercial LPUE trends are similar to the declining surfclam stock trends estimated in the analytical assessment. LPUE could potentially serve as a useful index of abundance

EEZ Catch of Atl. surfclam



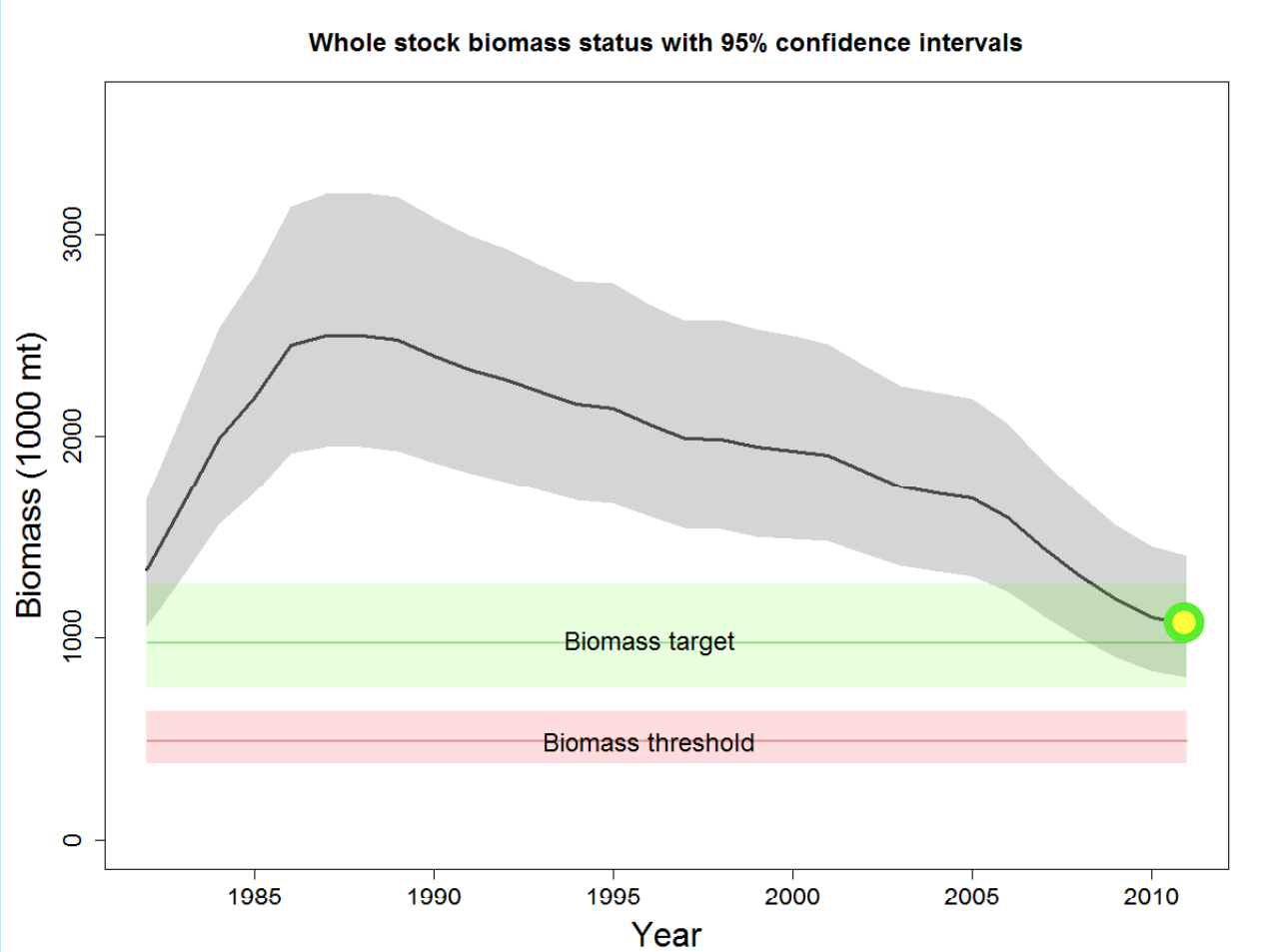
EEZ catch ranged 15-20 kmt meats.
Mostly harvested from New Jersey region.

Commercial LPUE of Atl. surfclam



In recent yrs: LPUE has declined, except for GB

Atl. surfclam



SSB_{11} ~ 1,060 kmt

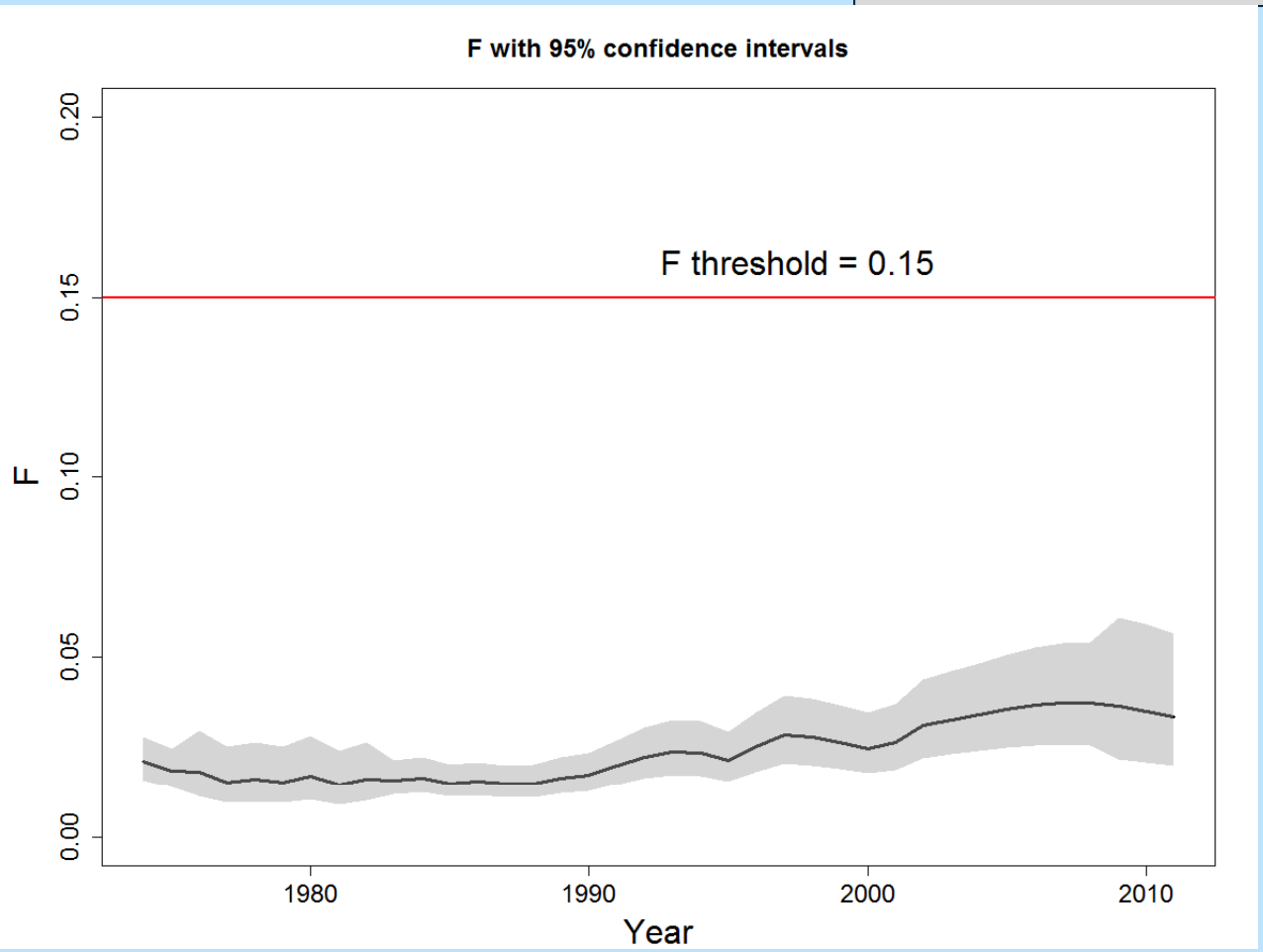
SSB_{THRESH} ~ 486 kmt

Not Overfished in 2011

Spawning Stock Biomass over time, and associated overfished level, $SSB_{Threshold}$.

Atl. surfclam

Not Overfishing in 2011



F'11 ~ 0.03

Fishing mortality over time, and associated overfishing level, $F_{Threshold}$.