

Monkfish Assessment Summary

(Presentation 9/07)

**Northeast “Data Poor” Stocks Working Group:
Monkfish**

**Stephen H. Clark Conference Room – Northeast Fisheries Science Center
Woods Hole, Massachusetts
7/9 – 7/13, 2007**

Review Panel Chairman:

**Dr. John Annala
(GMRI, Maine)**

Panelists :

**Dr. Robert Mohn
(BIO, Canada)**

**Mr. Rafael Duarte
(PNRI, Portugal)**

Background:

**Both stocks
have Rebuilding Plans**

**Rebuilding Deadline =
May, 2010**

Assessment

Monkfish

Review Outcome

Accepted

(6 TORs completed
successfully.

3 TORs partially completed)

Reports available at: www.nefsc.noaa.gov/nefsc/saw/

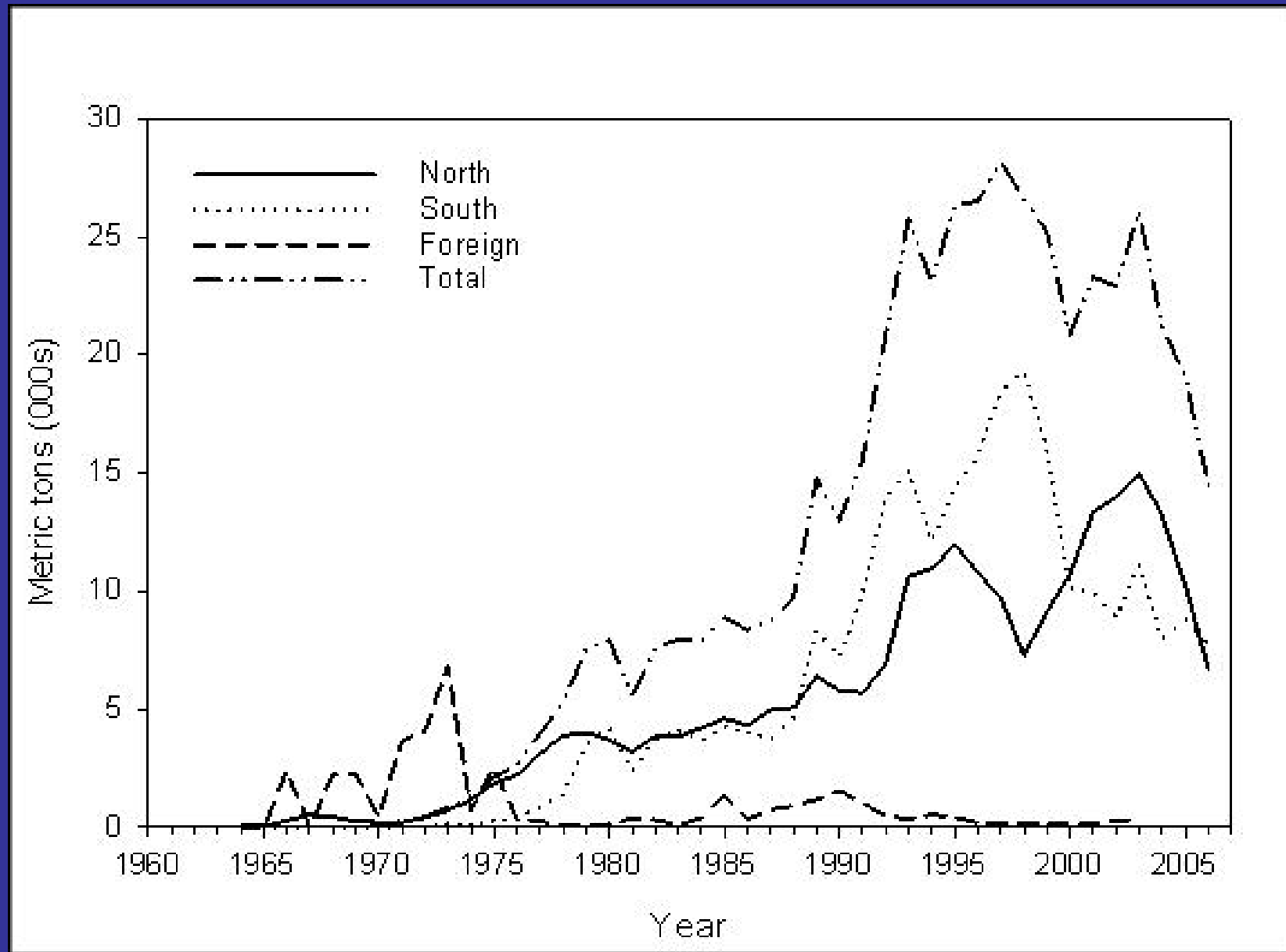
and

www.nefsc.noaa.gov/nefsc/publications/series/crdlist.htm

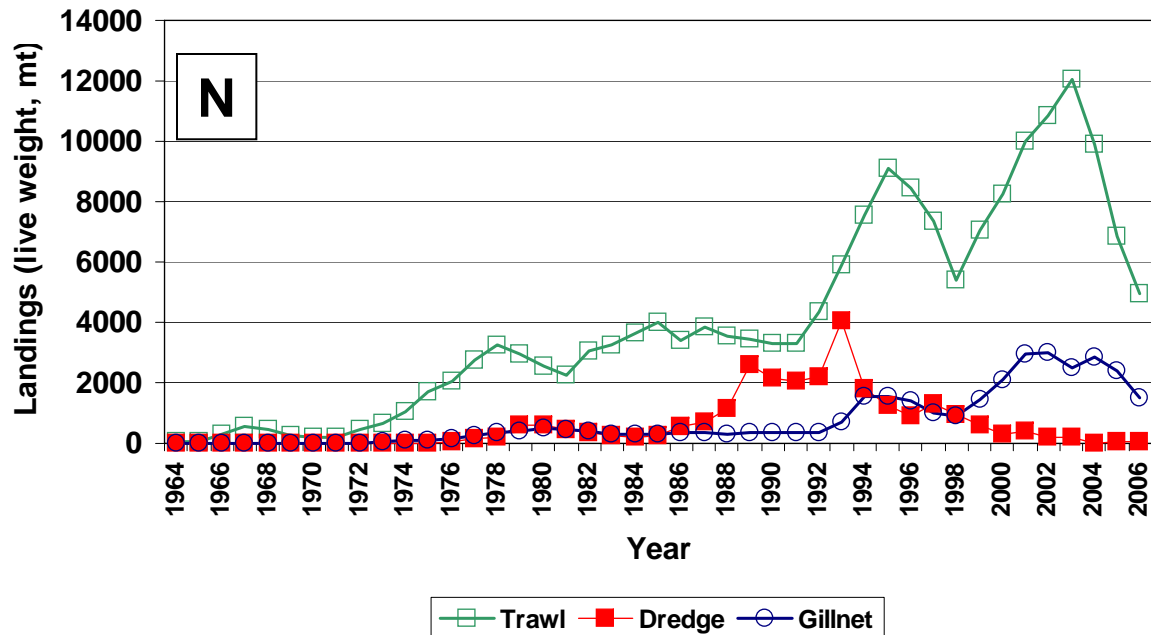
Monkfish TORs

1. Characterize the commercial landings, effort, LPUE, and discards for monkfish in the northern and southern management areas.
2. Evaluate the fishery-independent and fishery-dependent measures of relative abundance with respect to their accuracy and precision.
3. Incorporate recommendations of the March 2006 External Peer review of the 2001 and 2004 Cooperative Monkfish Surveys. Incorporate these industry based assessments as appropriate into the stock assessment. Recommend whether additional cooperative surveys should be conducted.
4. Estimate fishing mortality, spawning stock biomass, and total stock biomass or suitable proxies for as many years as possible for existing time series. Characterize the uncertainty of those estimates.
5. If appropriate, update or redefine biological reference points (BRPs) that could be used annually for stock status determination, taking into account that survey vessels will change in 2008, and that BRPs must be objective and measurable.
6. Evaluate the current status of the stock assessment units relative to both the existing BRPs and the updated or redefined BRPs (see TOR 5).
7. Compute TALs and measures of uncertainty for Fishing Years 2007 and 2008 (and if possible, future years) under various levels of fishing mortality. If fishing mortality can not be estimated, consider alternative or proxy methodologies for computing TALs.
8. Evaluate the efficacy of management measures and control rules that have been used to rebuild monkfish to target levels. Specifically address whether the stocks can be rebuilt by 2010 under the existing rebuilding program, and indicate what the fishing mortality rates or catch limits would have to be. Consider alternative approaches with respect to the probability of attaining target levels and the relevance of time lags in availability of information for formulation of management decisions.
9. Review research conducted to date that addresses research recommendations in the previous SARC-reviewed assessments. Incorporate any validated results into

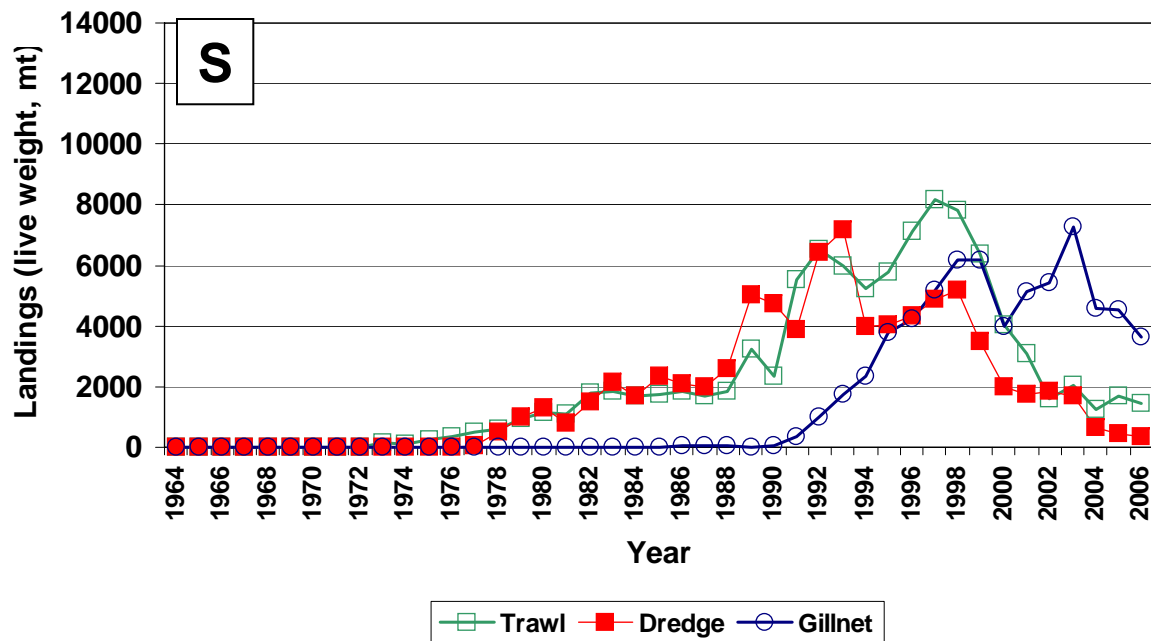
Monkfish – Commercial Landings (1964-2006):



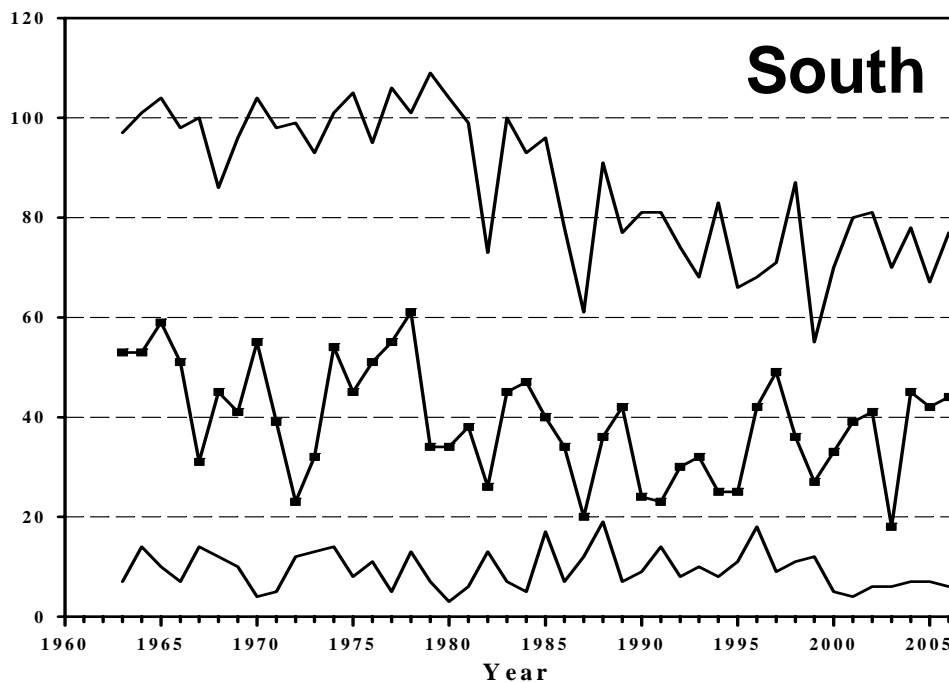
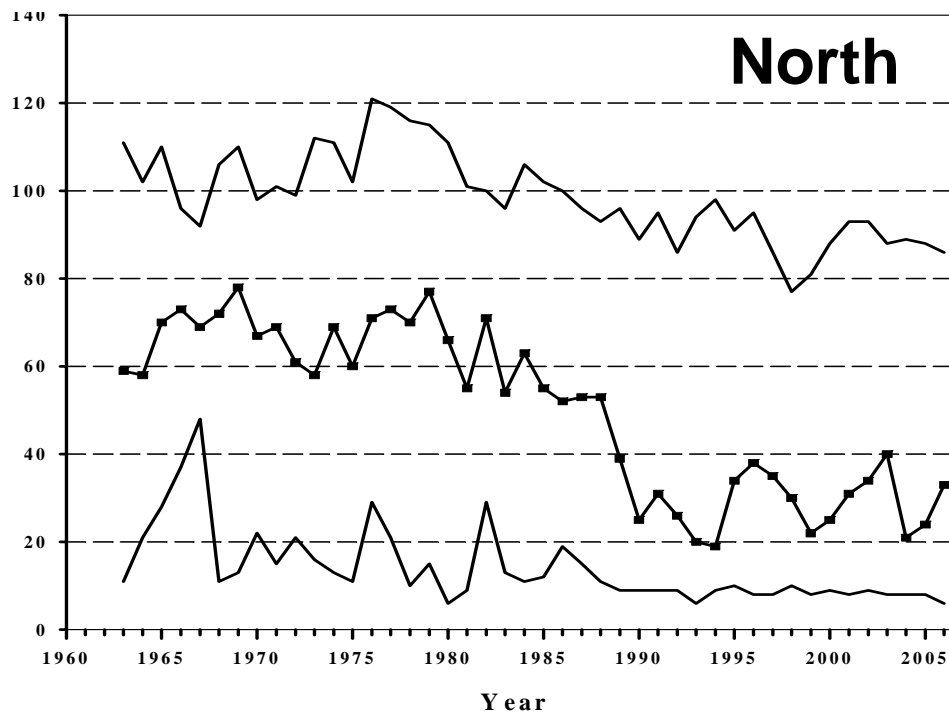
Monkfish – Commercial Landings by Gear:



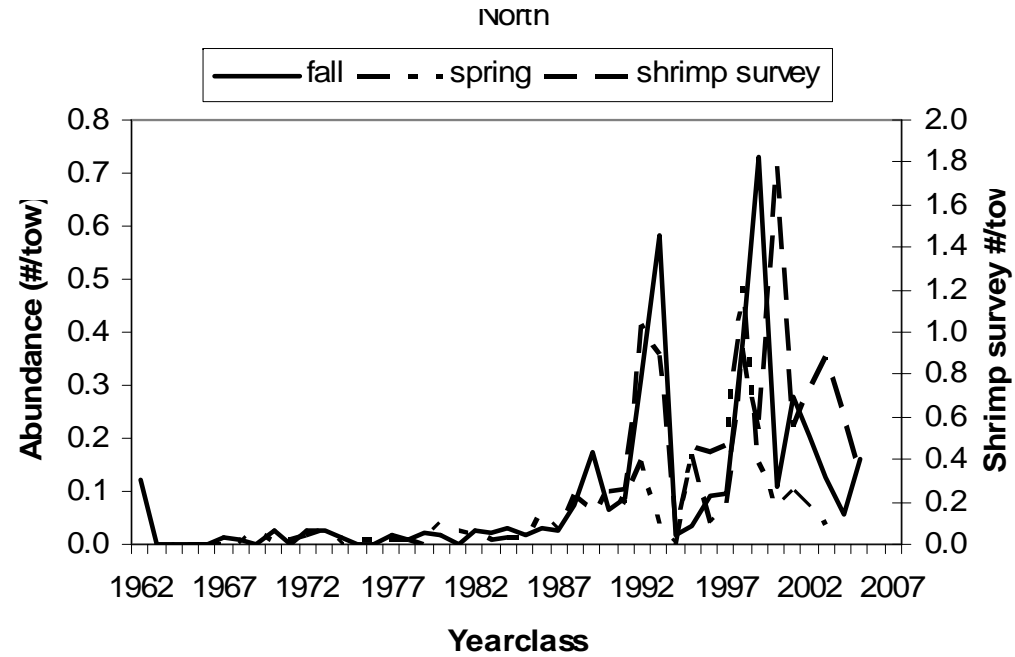
South: Commercial



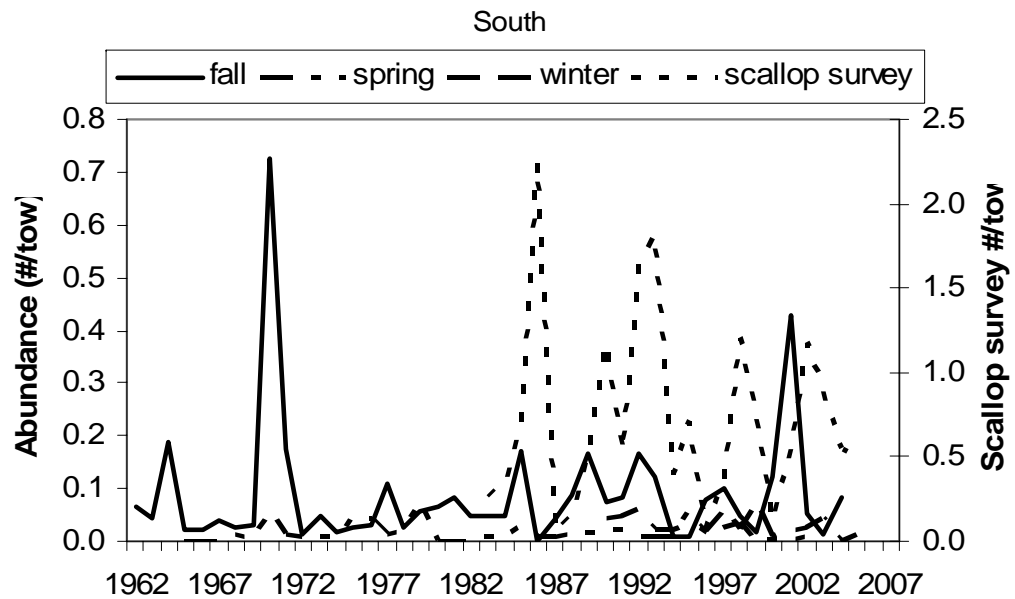
Monkfish – Survey Trends in Body Length (min, median, max)



Monkfish – Recruitment Survey Indices



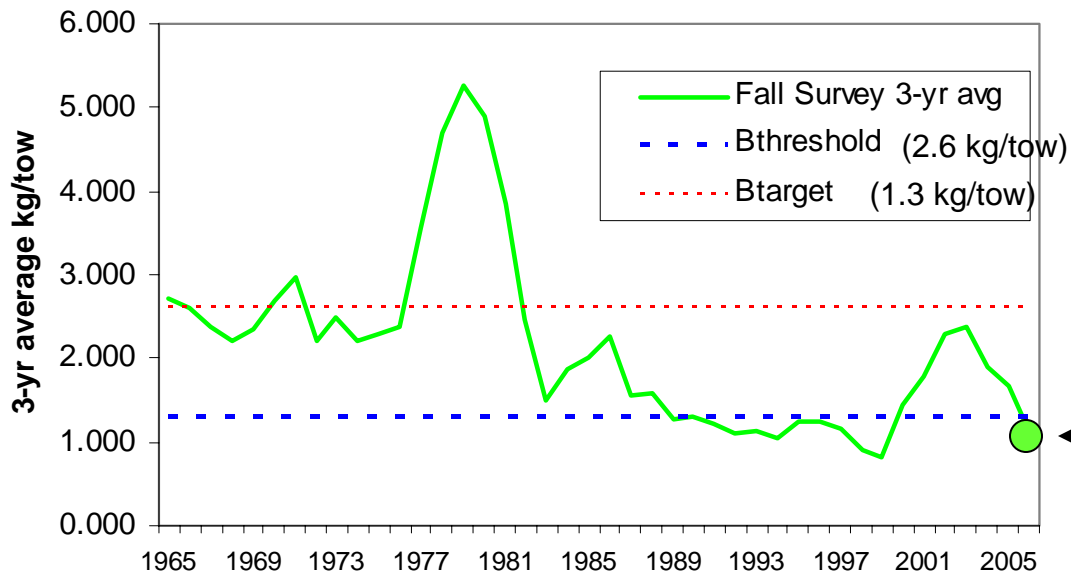
Strong YC:
1993
1999
2001



Strong YC:
2001

Monkfish – NEFSC Fall Survey Indices, Stock Status :

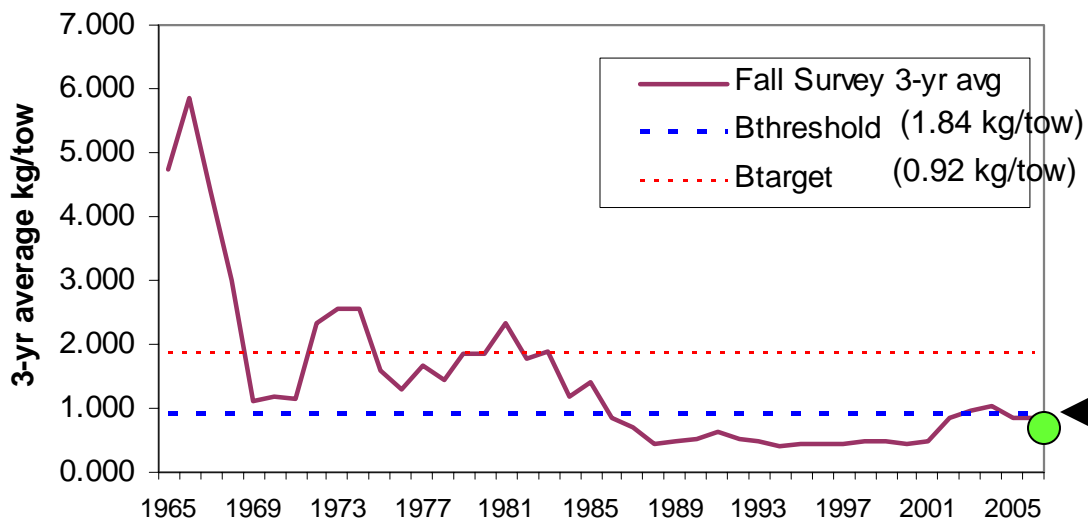
North



**Status based on
Current FMP Def.**

**Overfished
(1.1 kg/tow)**

South



**Overfished
(0.87 kg/tow)**

New Monkfish Assessment Model was used:

“SCALE” Statistical Catch-at-Length

Strengths of the new approach:

Uses much more of the available data:

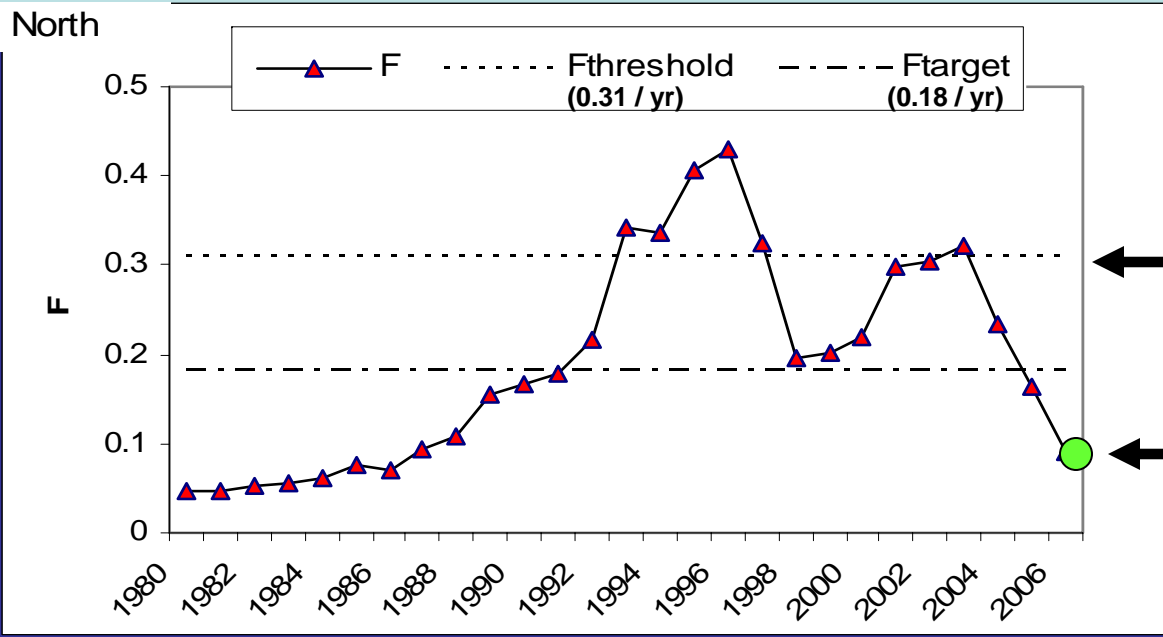
**NEFSC and Cooperative Surveys; total catches;
catch at length; recruitment indices;
growth and mortality rates**

Weaknesses:

**New model; starting year is 1980 (not 1960s);
many inputs to model have high uncertainty.**

Northern Monkfish: Biomass, Fishing Mortality and Stock Status

F

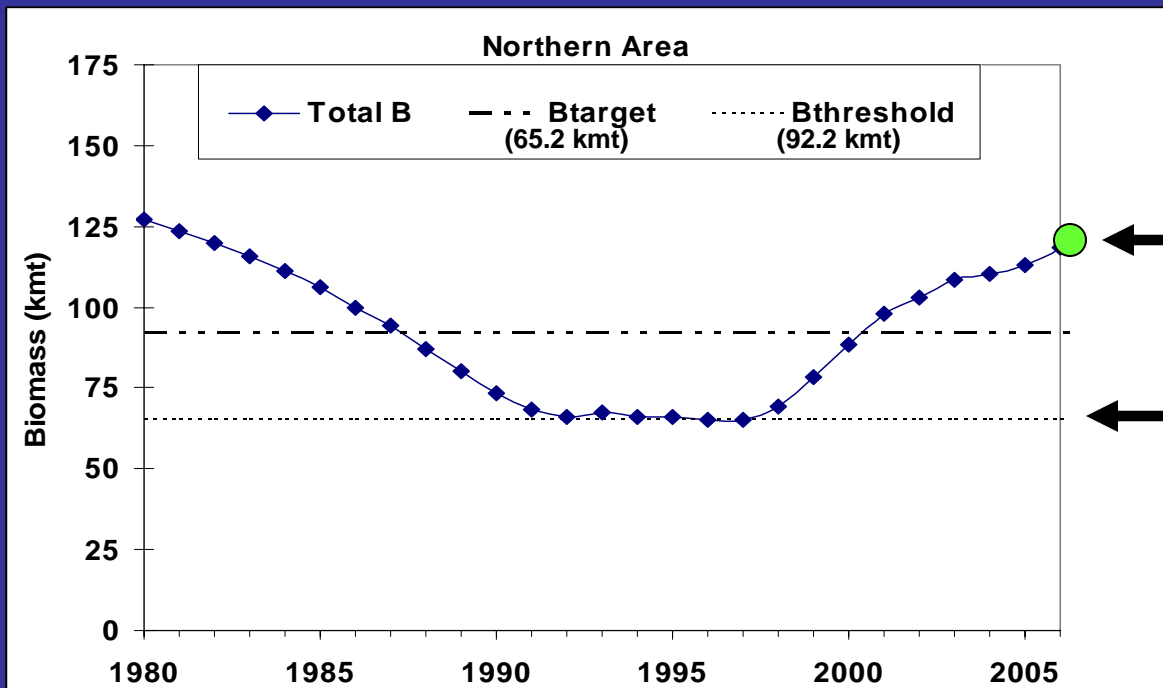


Status based on **New** Assessment:

F threshold

Not Overfishing
($F_{2006} = 0.09$)

Biomass

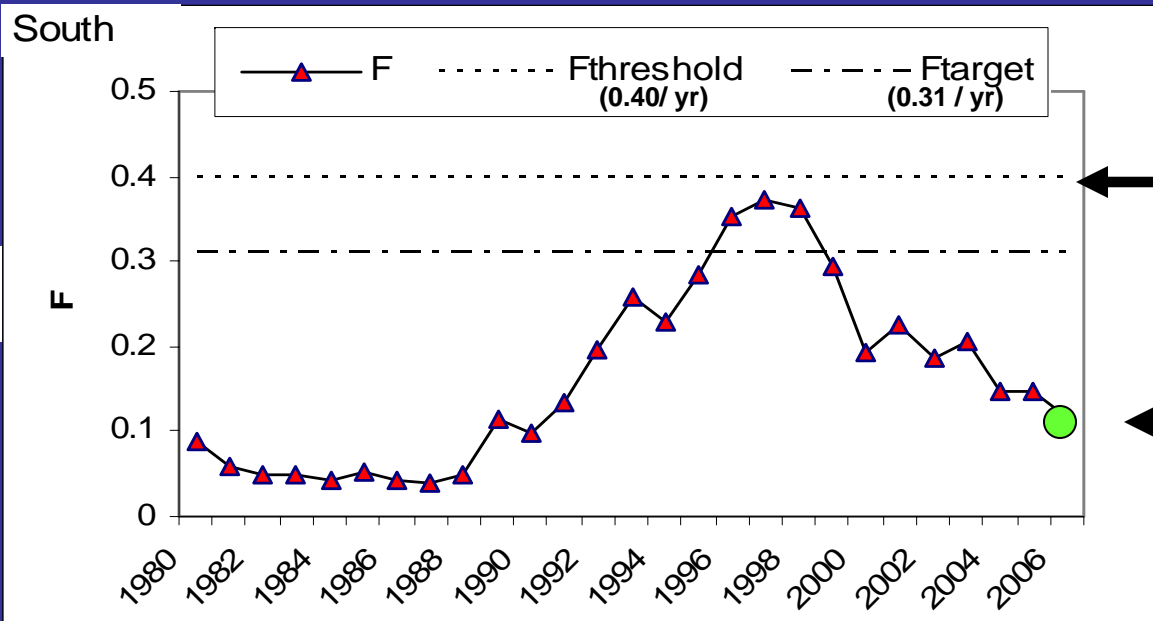


Not Overfished
 $B_{2006} = 118.7$ kmt)

B threshold

Southern Monkfish: Biomass, Fishing Mortality and Stock Status

F

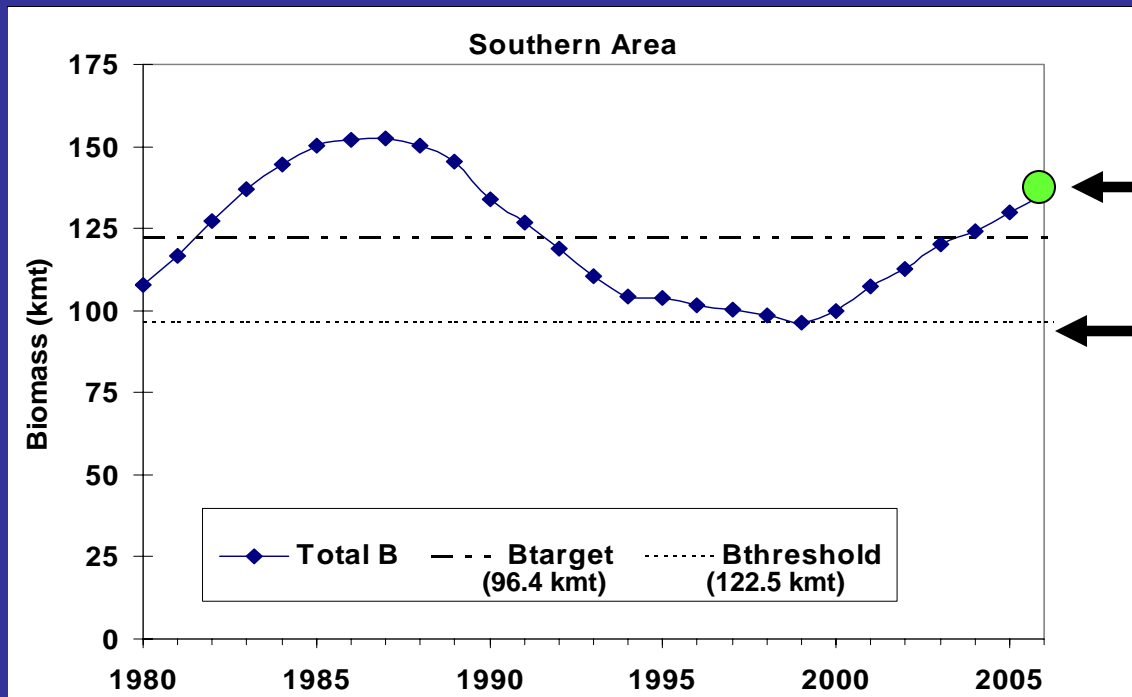


Status based on **New** Assessment

F threshold

Not Overfishing
($F_{2006}=0.12$)

Biomass



Not Overfished
 $B_{2006}=135.5$ kmt)

B threshold

Assessment Uncertainty:

1. “Monkfish is a data-poor species, and there are significant uncertainties associated with the assessment results. This should be considered when developing management measures.”

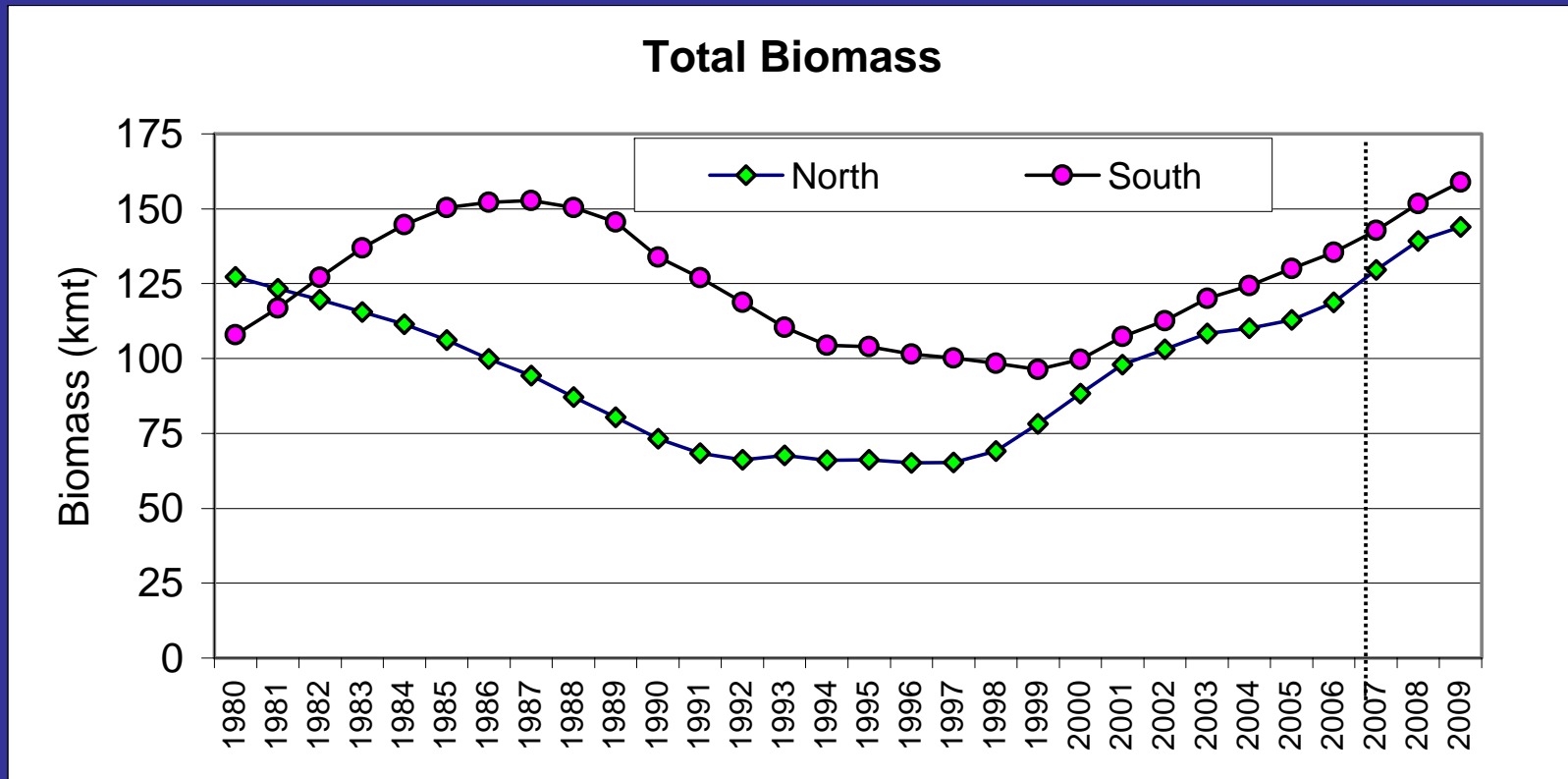
2. “Landings on the order of 5,000 mt in each management area (roughly the proposed TACs in FMP Framework Adjustment 4) are unlikely to result in a change in stock status, and should allow monkfish resources in both regions to increase.”

Uncertainty (cont.)

3.

“The SCALE model used for assessment could only be applied to the period from 1980 to the present. Monkfish biomass indices in NEFSC surveys were approximately twice as high prior to 1980 than after this time. As such, the productivity of the resource may be higher than reflected in this assessment and thus, the possibility of attaining higher biomass levels in the future should not be discounted. Reconsideration of the newly proposed biomass reference points might thus be justified in the future.”

Monkfish Projection












Projection of total biomass to 2009 based on the Statistical Catch-At-Length (SCALE) model in the northern and southern management regions. Assuming TACs of ~5kmt per region. **“Further work is needed to develop a complete forecasting approach.”**

Monkfish TORs

 Completed

 Partial

 Incomplete

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Monkfish – Reviewer Comments:

- 1. SCALE model is good because it links all sources of info (previously treated separately). This is the preferred model.**
- 2. Panel is concerned because results are very dependent on the value assumed for natural mortality rate.**
- 3. Panel is concerned over lack of fit of the model to the adult length.**
- 4. Using the revised BRPs and SCALE model, monkfish are not overfished and overfishing is not occurring.**
- 5. Full projections were not done, and the projections do not have estimates of uncertainty.**

Monkfish – Reviewer Recommendations :

- 1. Next time, see if a 2-sex model would work, taking into account their different growth rates.**
- 2. Continue work on aging.**
- 3. Continue work on estimation of natural mortality rate (M).**
- 4. Consider using larger length classes in the SCALE model.**
- 5. The existing (current) BRPs should not be used, and should be replaced by the redefined BRPs.**