Atlantic Croaker and Spot Management Triggers

South Atlantic State/Federal Management Board

August 7, 2014

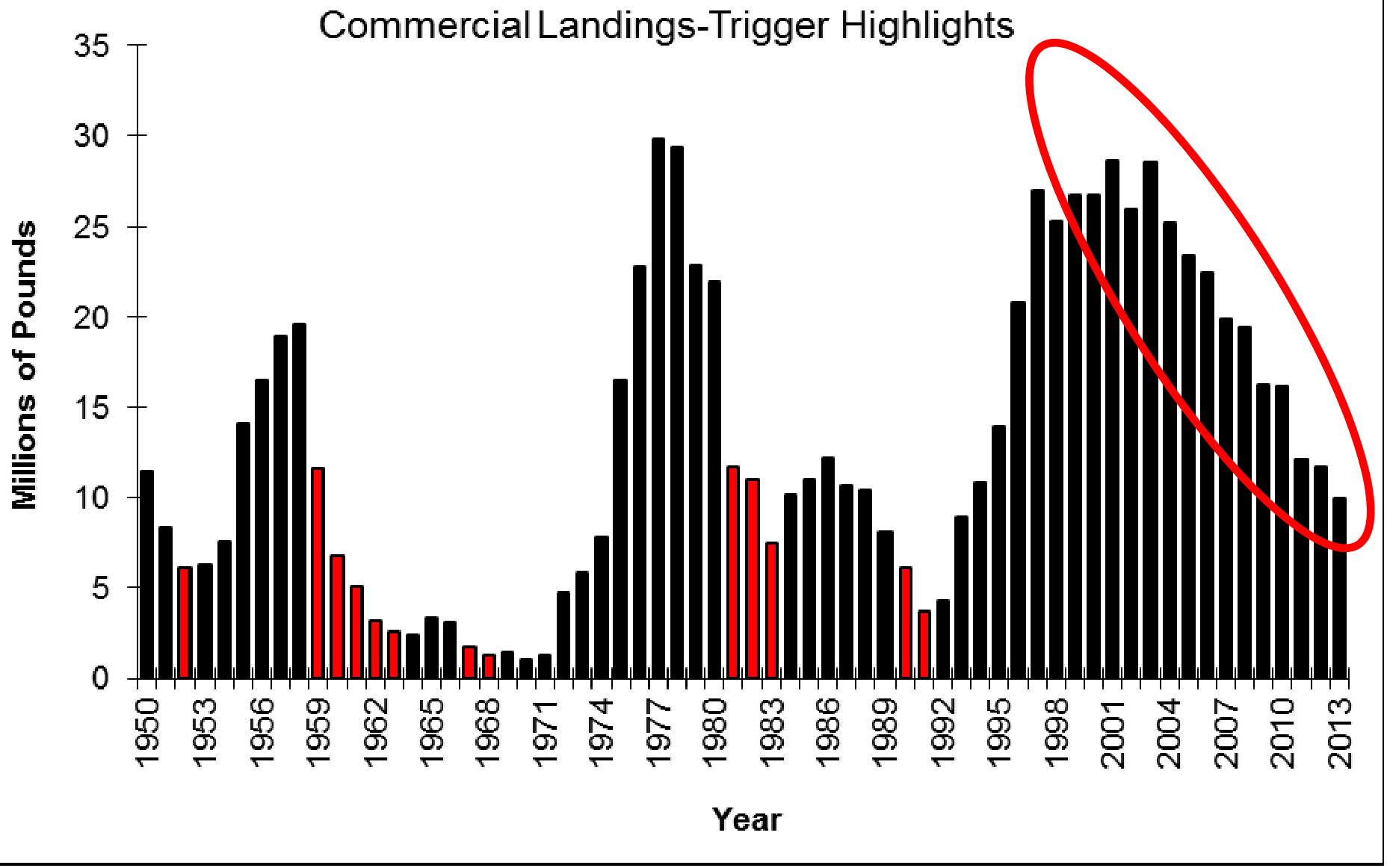
Atlantic Croaker Triggers

- Annual Landings
- Biological Data
- Commercial Fisheries Effort vs. Landings
- Recreational Fisheries Catch Rates
- Surveys

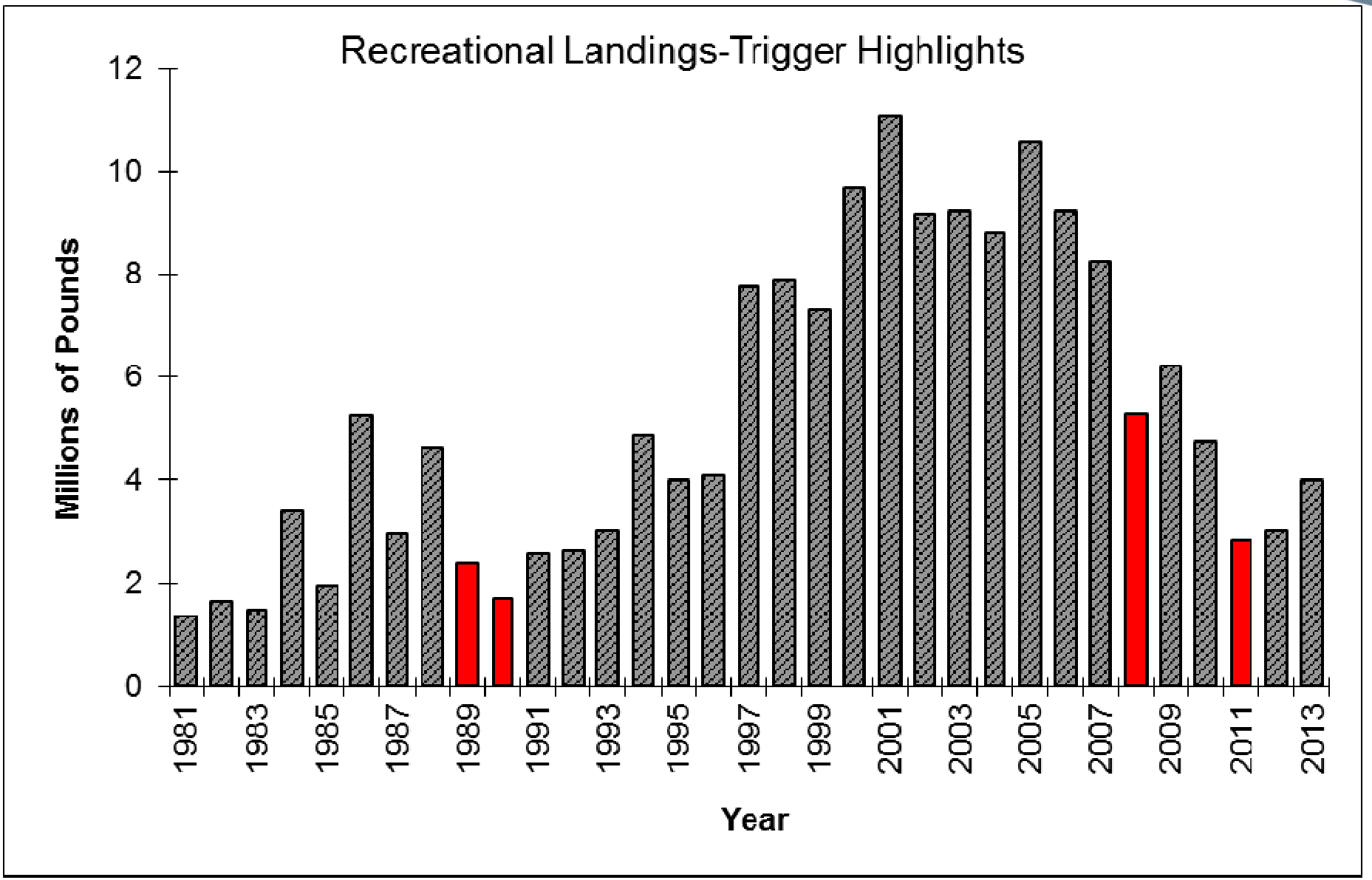
Annual Landings

- Hard triggers
- Commercial landings
  - A stock assessment is triggered if 2013 landings are < 70% of the 2011–2012 average landings
- Recreational landings
  - A stock assessment is triggered if 2013 landings are < 70% of the 2011–2012 average landings

Commercial Landings-Triggered Years



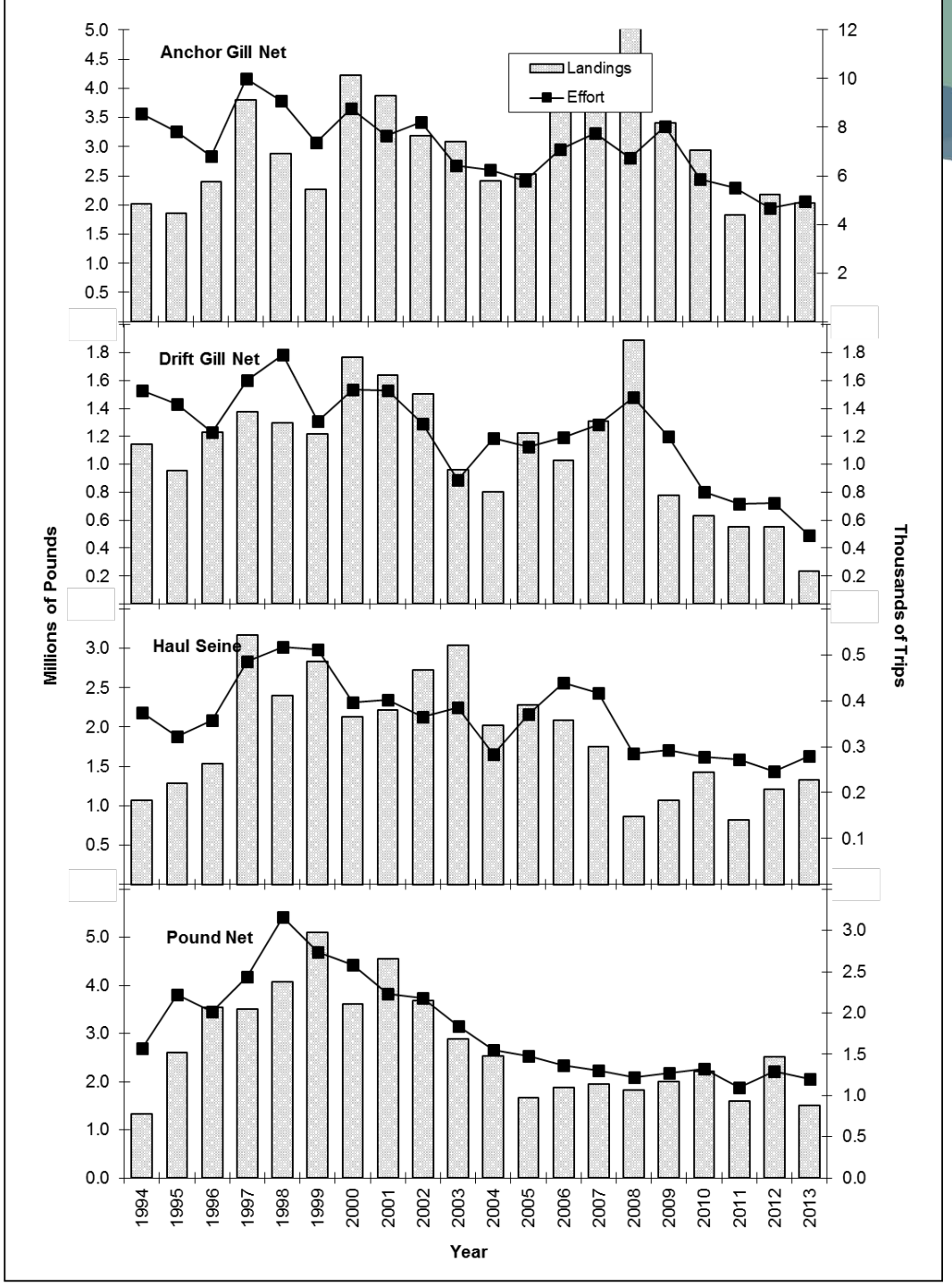
Recreational Harvest-Triggered Years



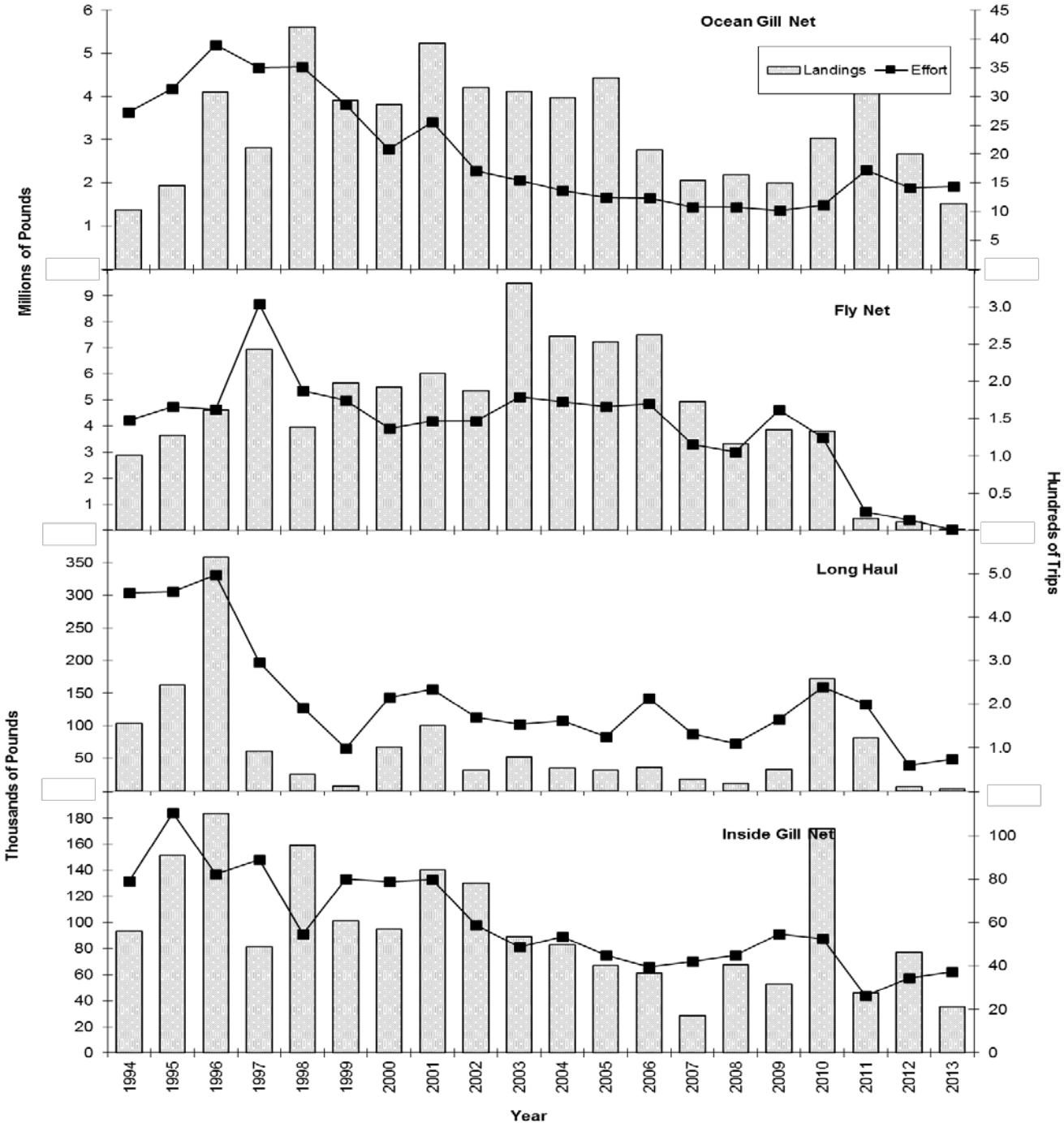
Virginia

Atlantic croaker CPUE

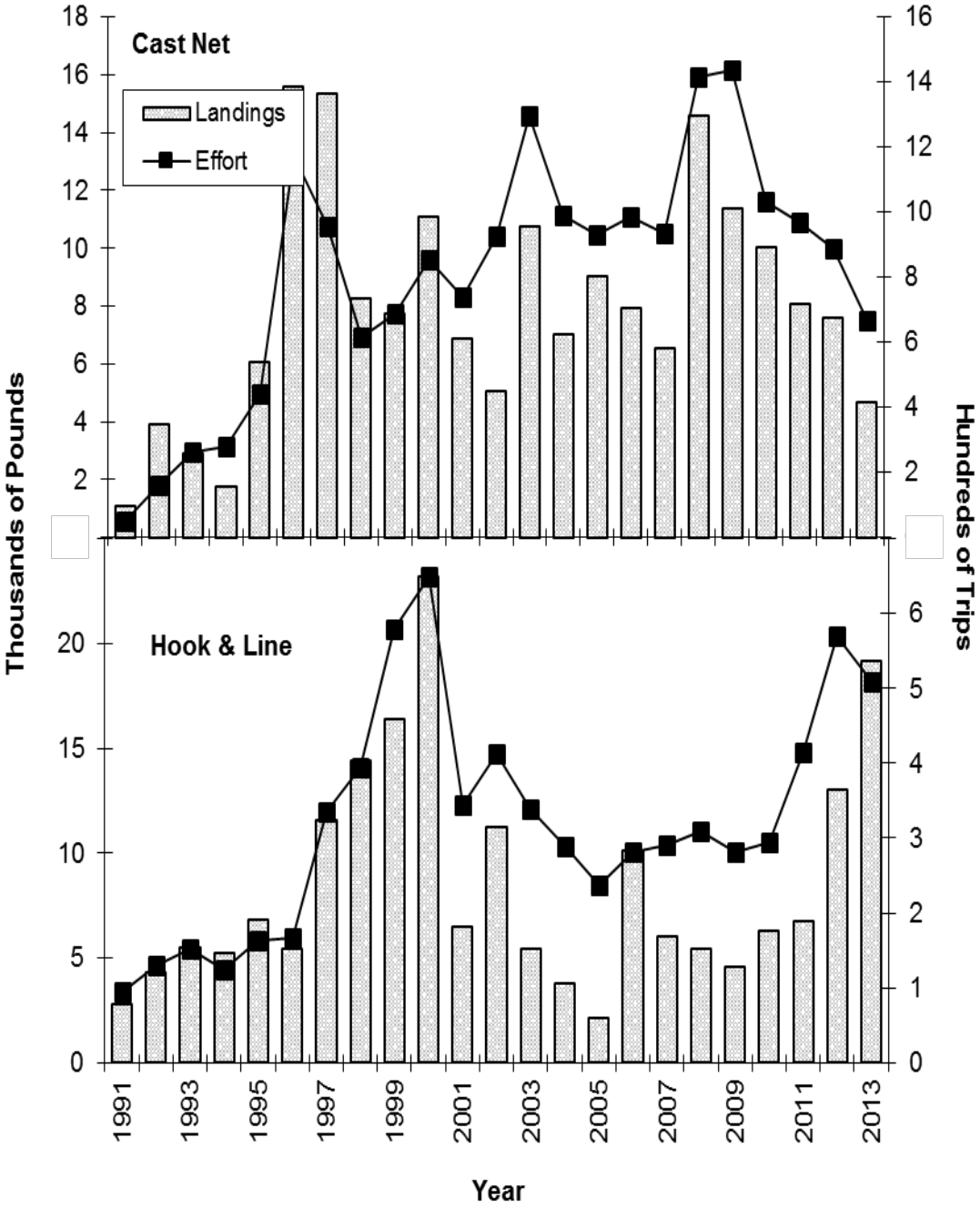
Anchor Gill Net, Drift Gill Net, Haul Seine, Pound Net



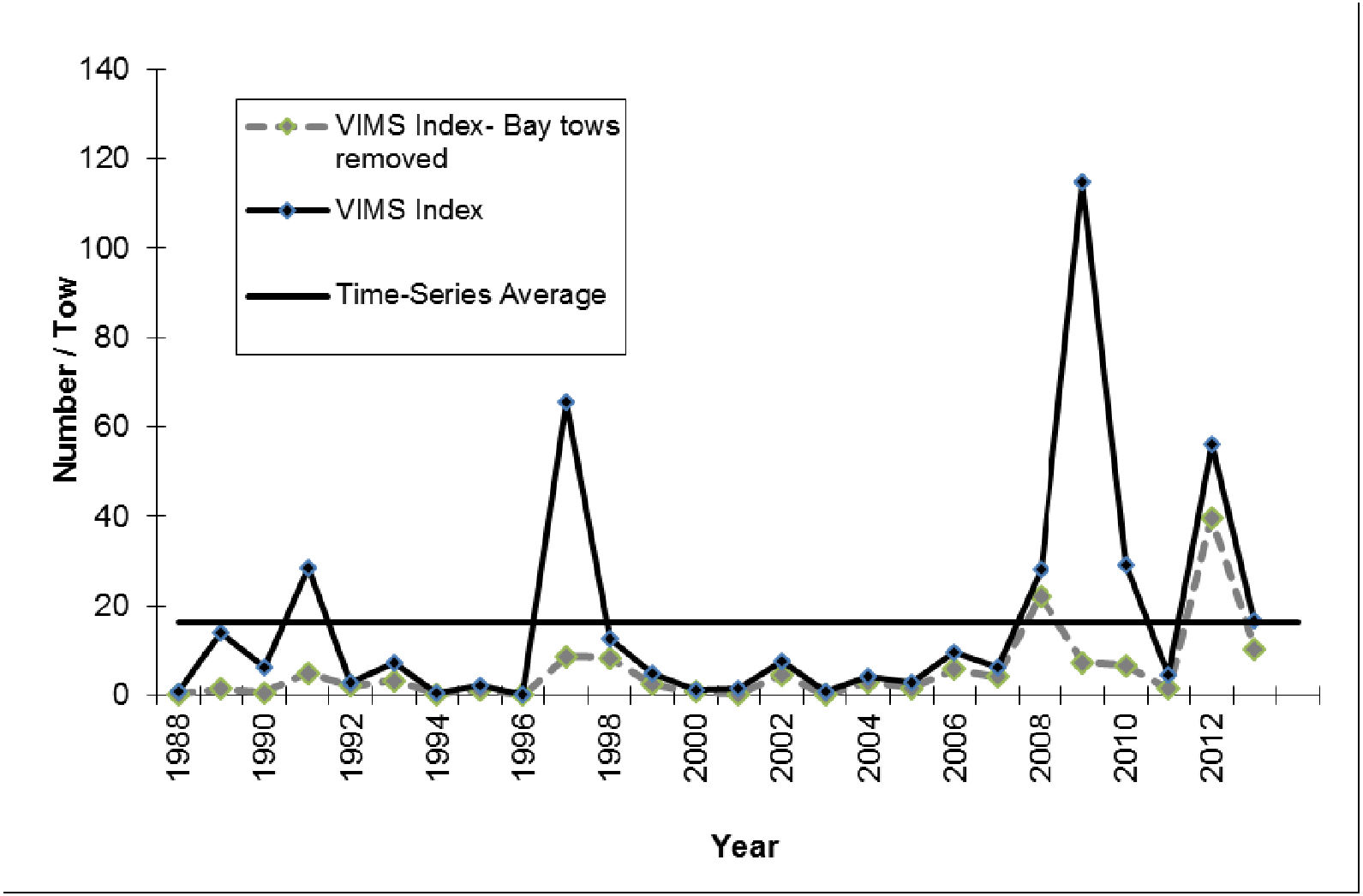
North Carolina Atlantic croaker CPUE Fly Net, Ocean Gill Net, Long Haul, and Inside Gill Net



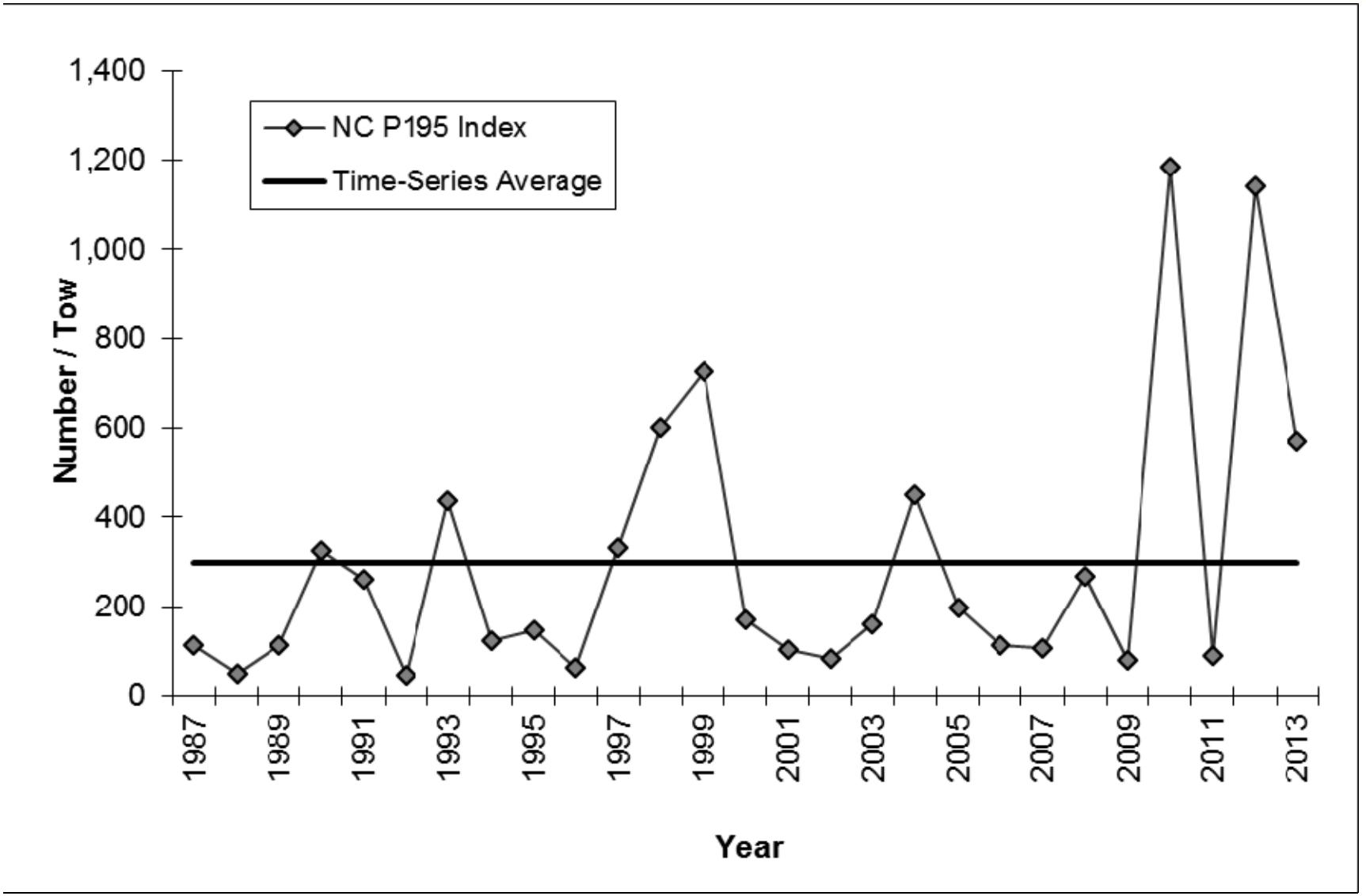
Florida
Atlantic croaker CPUE
Cast Net and
Hook & Line



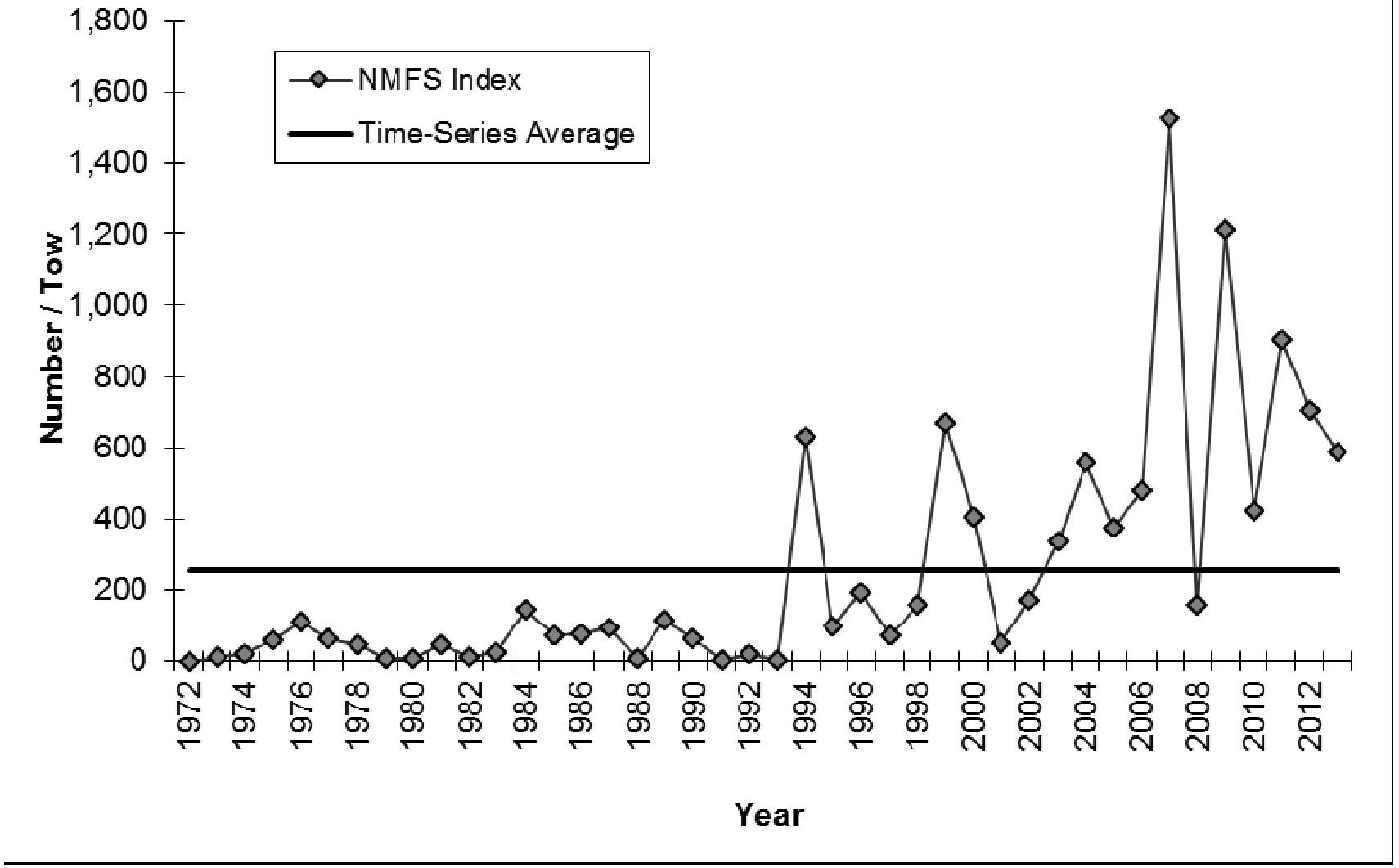
VIMS Atlantic Croaker Index



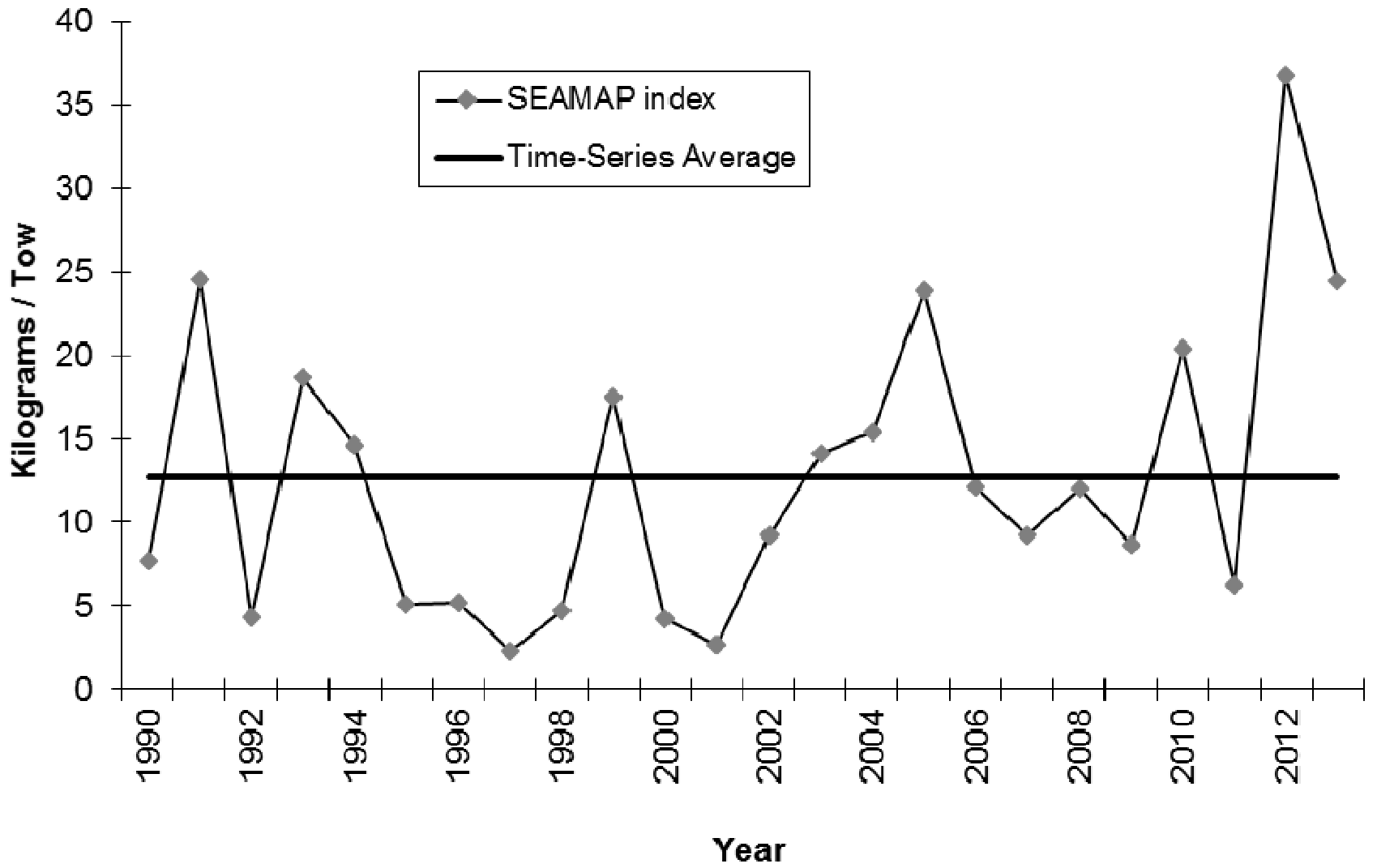
NC 195 Program: Atlantic Croaker



NMFS Atlantic Croaker Index



SEAMAP Atlantic Croaker Index

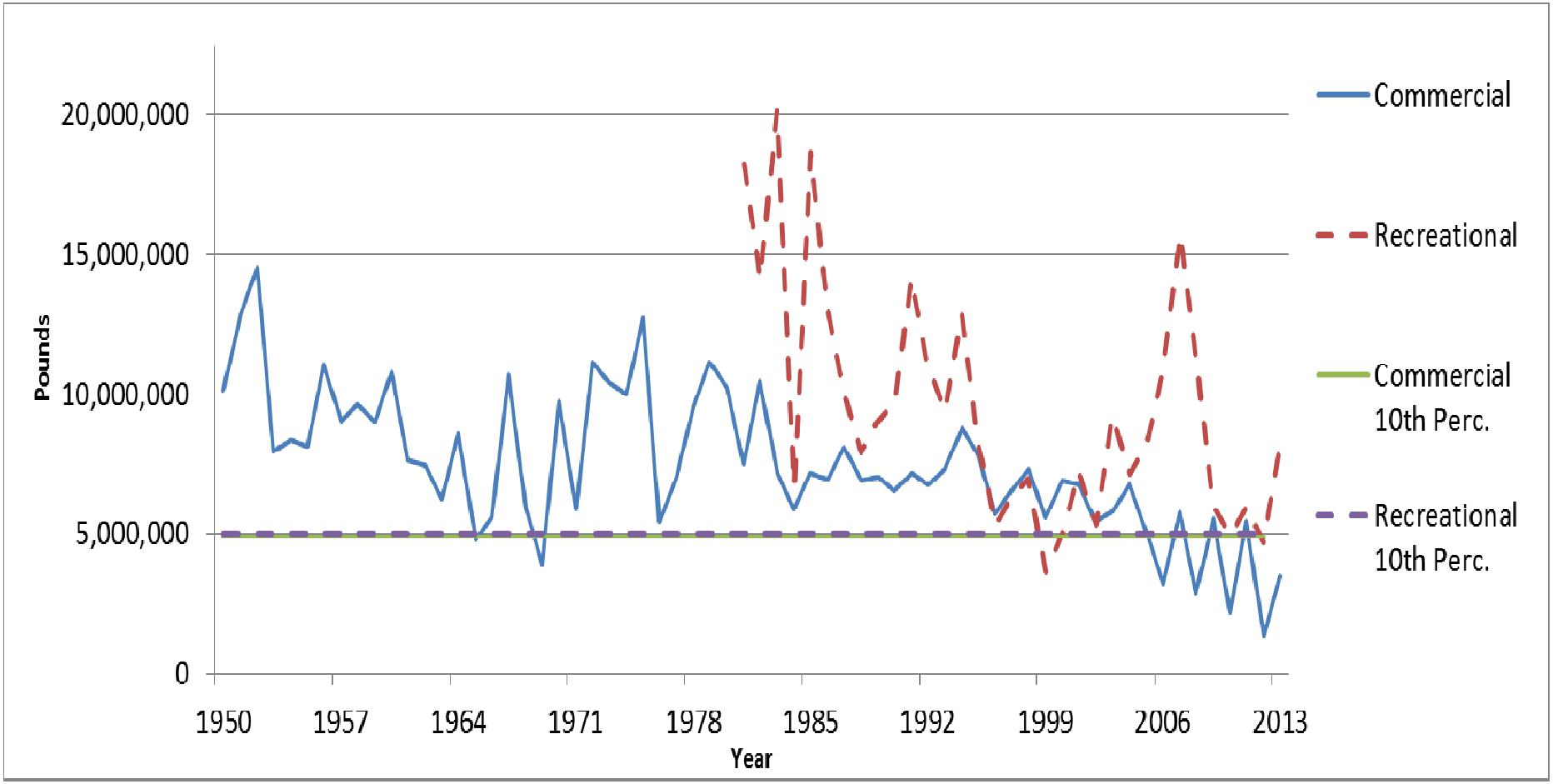


Spot Management Triggers
2014 Update

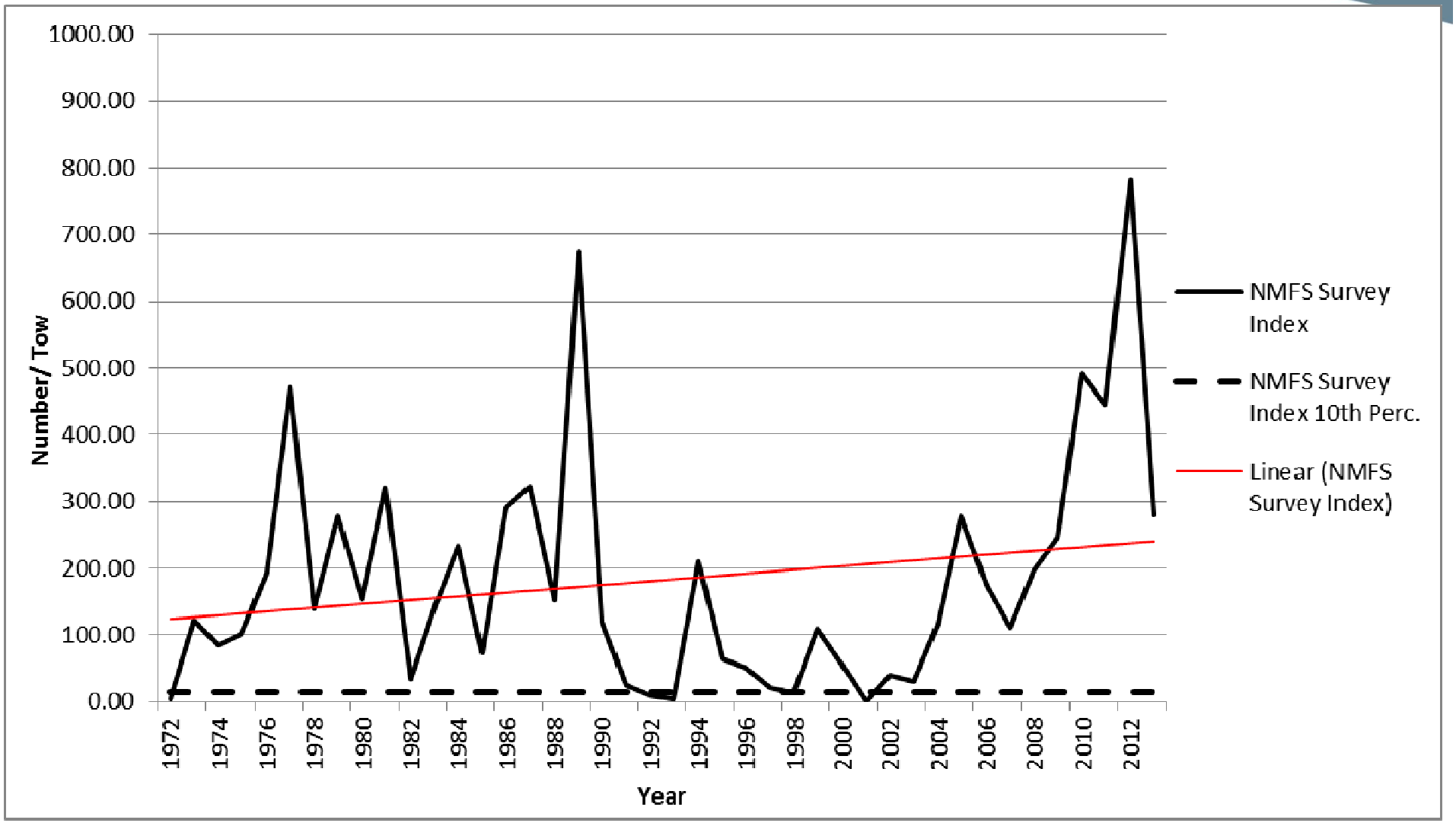
Spot Management Triggers

- 5 Triggers included in Omnibus Amendment
  - Fishery-Dependent
    - Commercial Landings
    - Recreational Landings
  - Fishery-Independent
    - NMFS Survey
    - SEAMAP Survey
    - MD Chesapeake Bay Seine Survey
  - 10^{th} Percentile

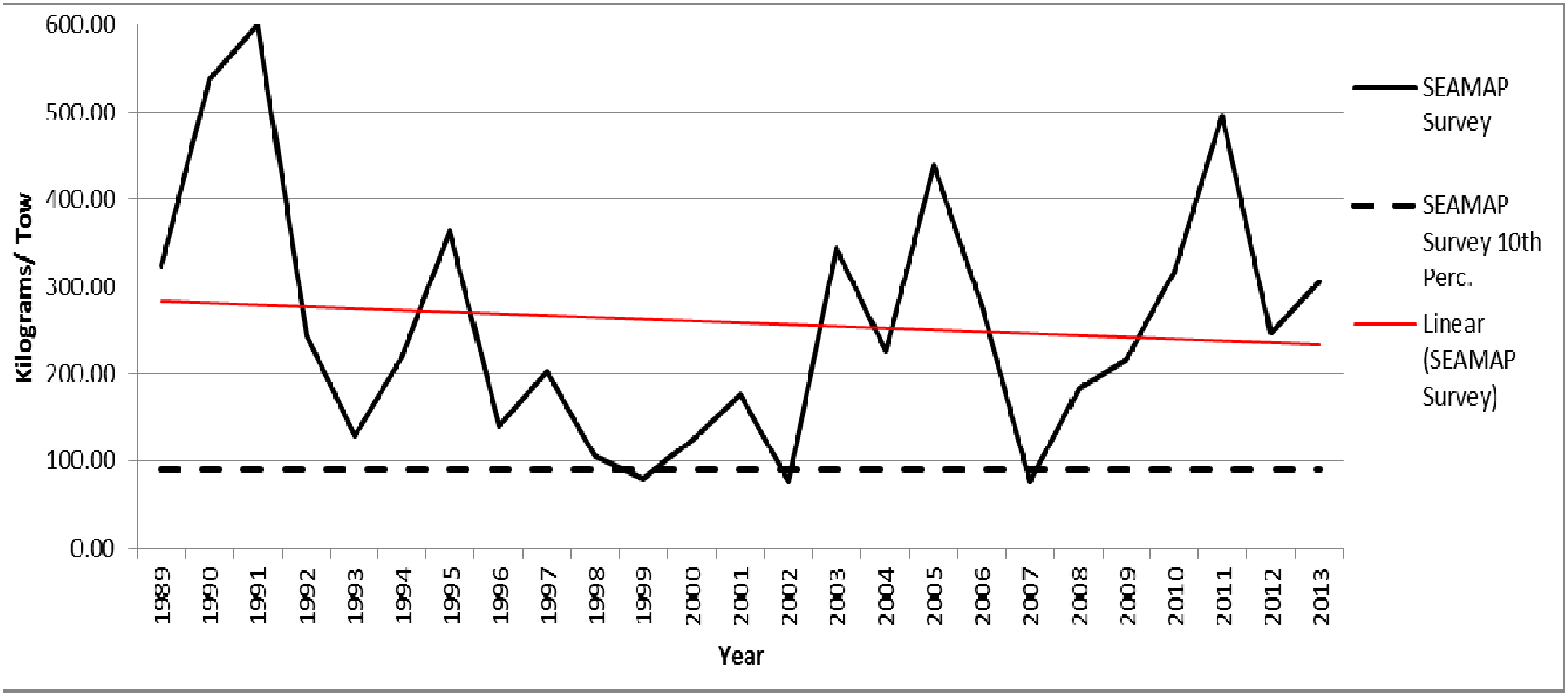
Spot Commercial & Recreational Landings



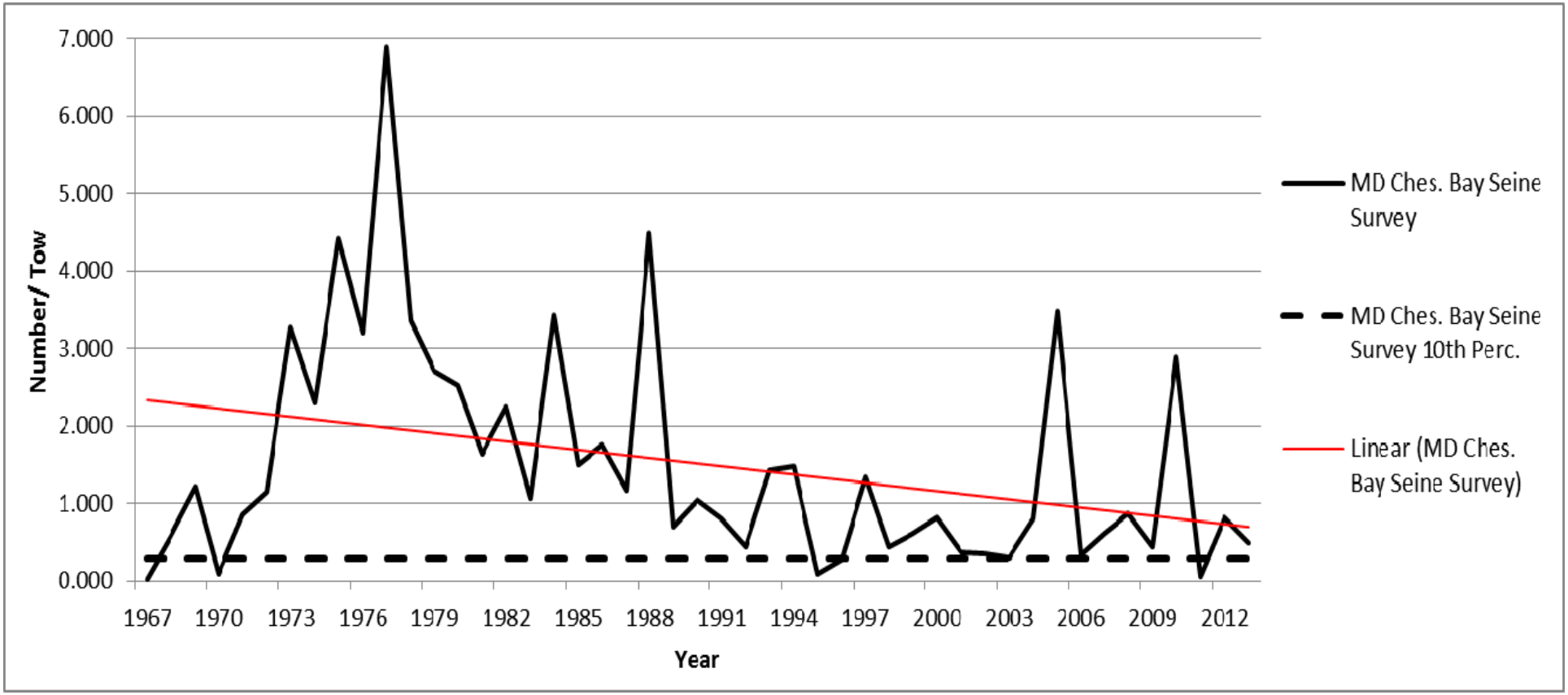
NMFS Bottom Trawl Survey



Spot SEAMAP Survey



MD Bay Seine Survey



Recommendation

- Management Triggers are not capturing trends in the fisheries of either species
- Current Management Triggers do not provide an effective means to respond to changes in the fisheries for Atlantic Croaker and Spot
- Atlantic Croaker TC and Spot PRT support the use of the Traffic Light Analysis in annually evaluating both species

Spot Draft Addendum I and Atlantic Croaker Draft Addendum II
&
Public Comment Summary

South Atlantic State/Federal Management Board

August 6, 2014

Background

Board Initiated Draft Addendum	February 2013
Board Review of Draft Addendum for Public Comment	May 2014
Public Comment	May-July 2014
Board Considers Final Addendum	**August 2014**

Statement of the Problem

- Current annual Trigger Exercises don't illustrate long-term declines or increases in abundance

- Both species lack an effective management framework to respond to changes in the fishery

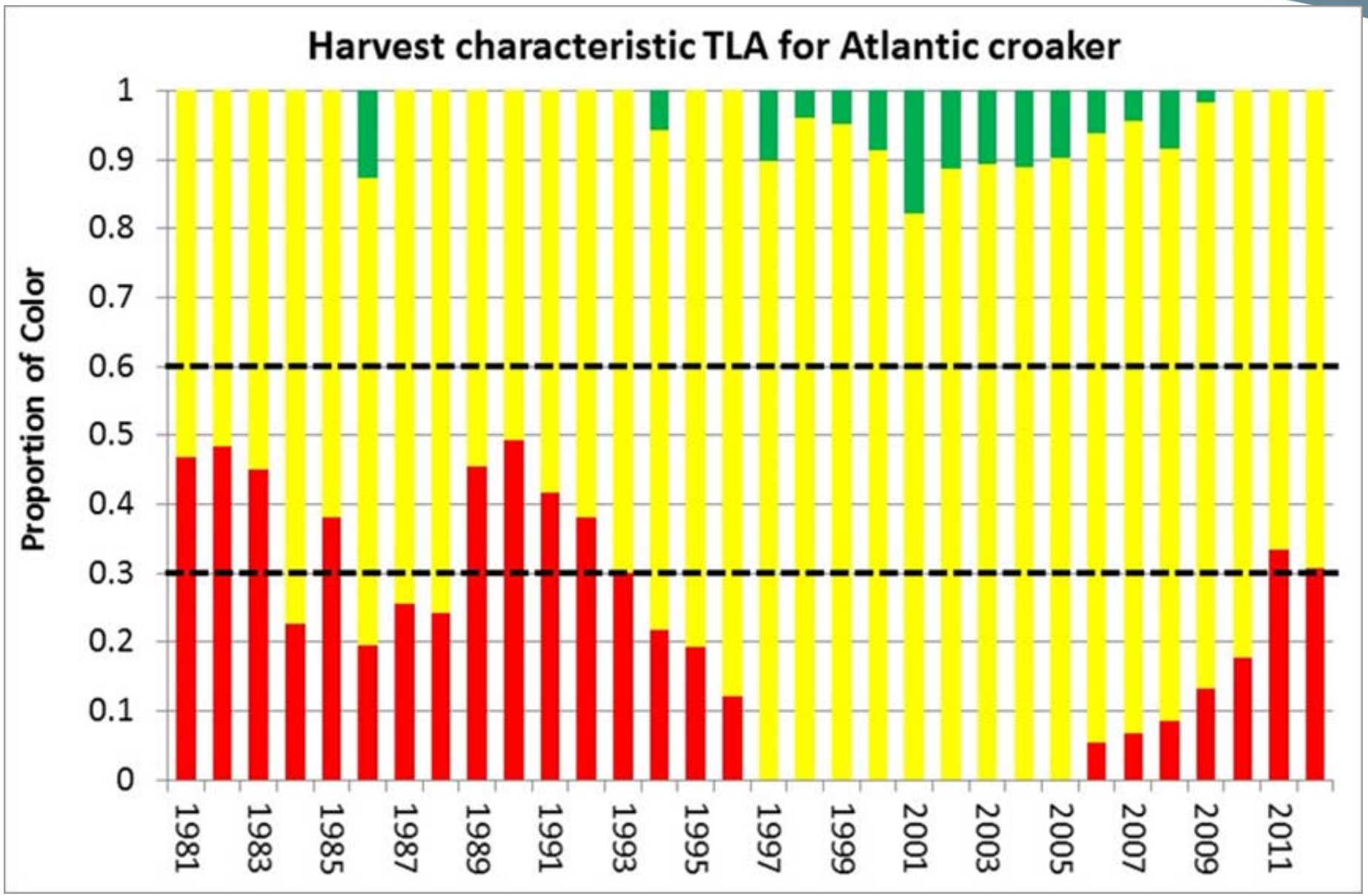
Background

- Small, sciaenid forage species
- Migrate seasonally along the coast
- Last Atlantic croaker stock assessment: 2010
  - Spot has never had a coastwide stock assessment
- Annual Trigger Exercises
- Bycatch concern

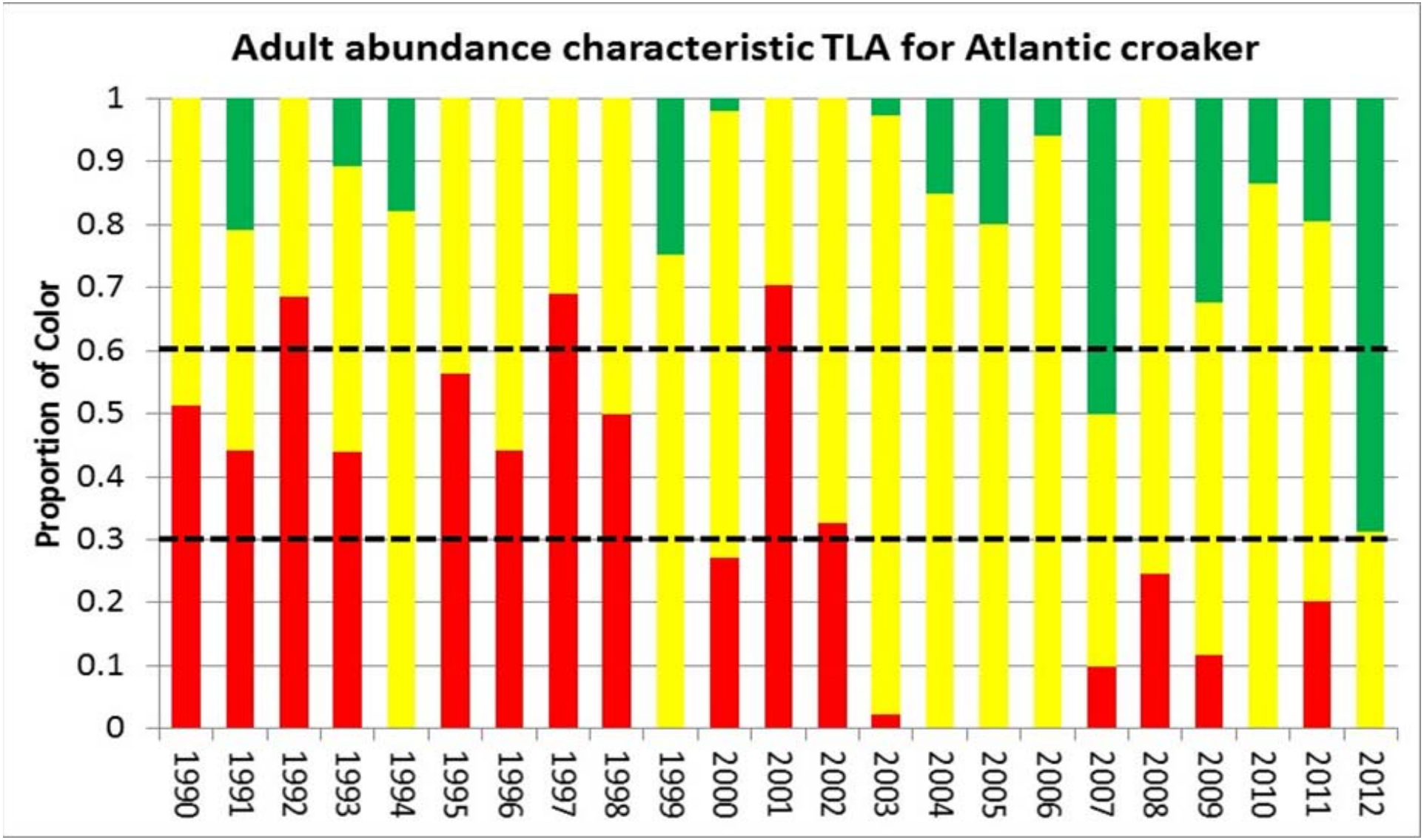
Traffic Light Approach (TLA)

- Developed for data poor fisheries
- Three colors
  - Green/yellow boundary set at long-term mean
  - Yellow/red boundary set at 60% of long-term mean, indicating 40% decline
- North Carolina Blue Crab Adaptive Management Program

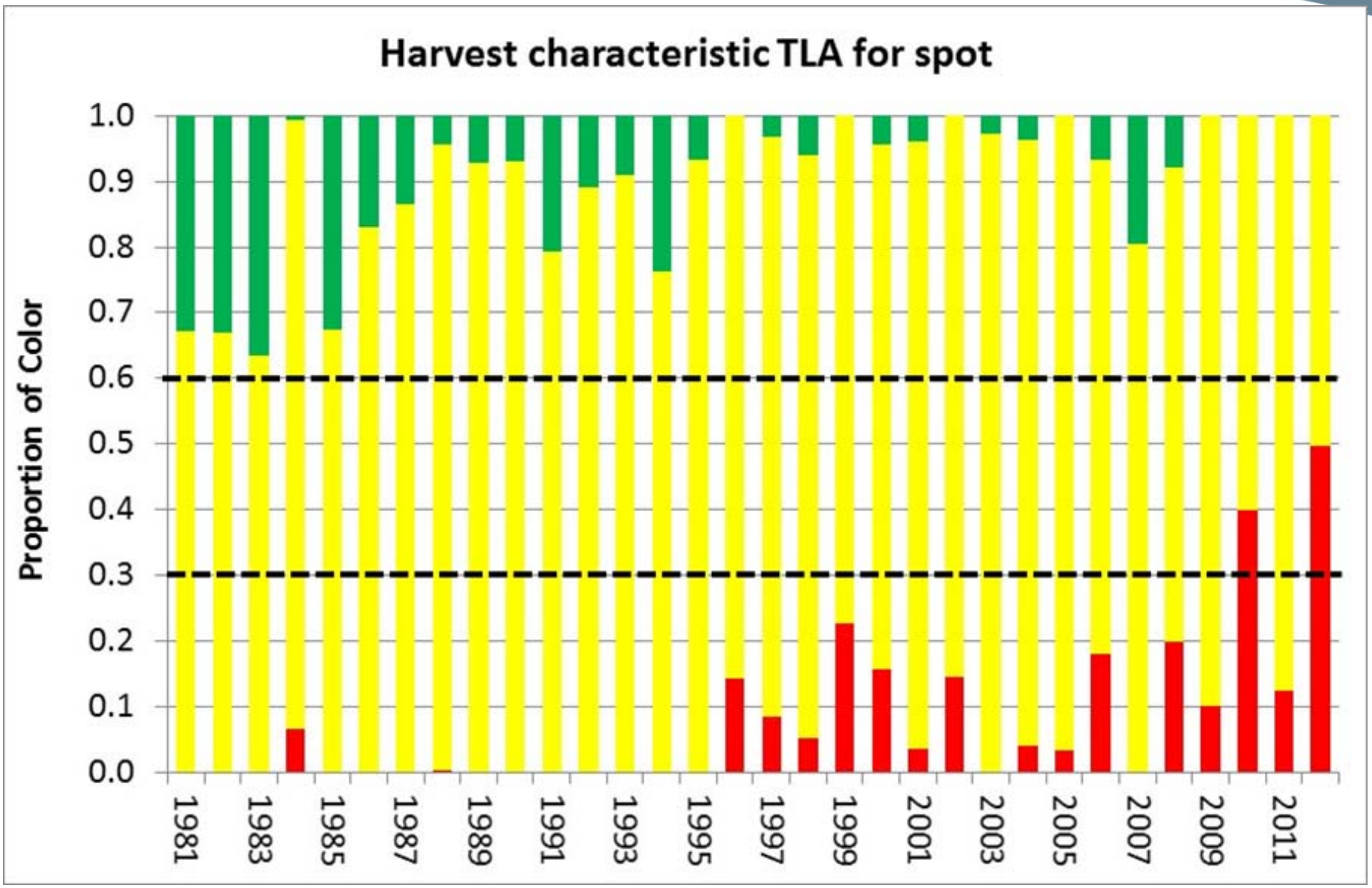
Traffic Light Approach (TLA)



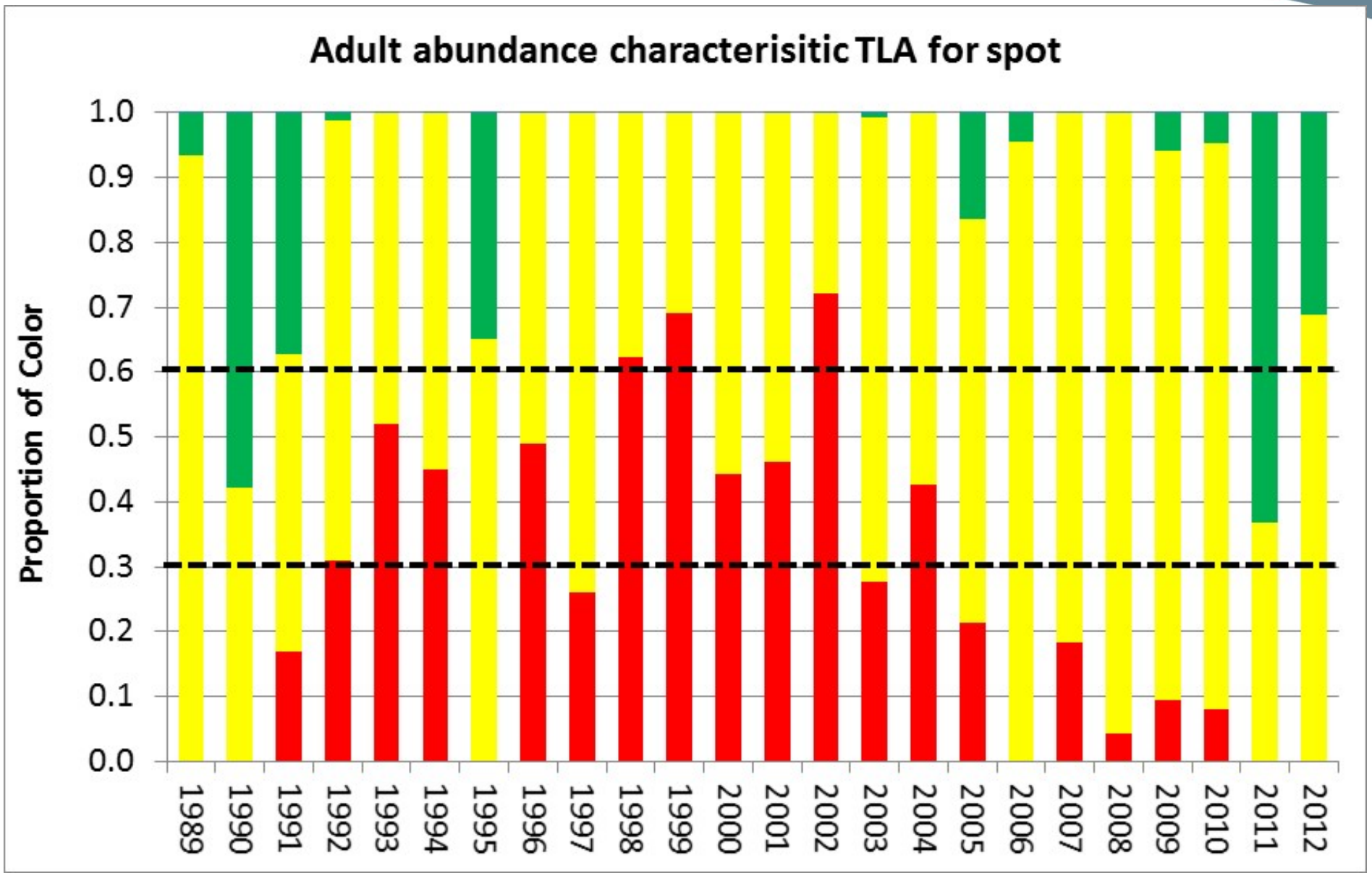
Traffic Light Approach (TLA)



Traffic Light Approach (TLA)



Traffic Light Approach (TLA)



Management Options

- **Option 1: Status Quo**
- **Option 2: Coastwide Management Framework**
  - **2A: Single Population Characteristic**
  - **2B: Multiple Population Characteristic**
- **Option 3: State-by-State Management Framework**
  - **3A: Single Population Characteristic**
  - **3B: Multiple Population Characteristic**

Management option #1

Continue annual trigger exercises

- Atlantic croaker: maintain comparison of recent year's landings & harvest to 70% avg of previous two years

- Spot: maintain updating relative abundance indices and comparing to the 10th percentile of the data's time series

Management Options Atlantic croaker: #2 Coastwide Measures

Population Characteristic	Moderate management level (at least 30% red for 3 consecutive years)		Elevated management level (at least 60% red for 3 consecutive years)	
	Recreational	**Commercial**	**Recreational**	**Commercial**
Adult abundance **Or** **Harvest**	Size limit: 8” minimum (coastwide) Bag limit: X number/day limit (coastwide) Closures: state specific areas closure for 20 days after May 1 & before Oct 1	Catch limit: 8” minimum (coastwide); Trip Limit: X pounds/day limit (coastwide) Closures: NA	Size limit: 9” minimum (coastwide) Bag Limit: X number/day limit (coastwide) Closures: state specific areas closure from Aug 1-Sept 1 Gear Restrictions: (e.g., landings from gillnets prohibited from August 1-30)	Catch limit: 9” minimum (coastwide); Trip Limit: X pounds/day limit (coastwide) Closures: state specific areas from Sept 1-Nov 1 Gear Restrictions: (e.g., landings from gillnets prohibited from August 1-30)

Sub-options

- **2A. Single Population Characteristic criteria for Management Action**
  - **Management action would be enacted when <u>one</u> population characteristic exceeds threshold**
    - **3 years for Atlantic Croaker**
    - **2 years for Spot**

- **2B. Multiple Population Characteristic criteria for Management Action**
  - **Management action would be enacted when <u>multiple</u> population characteristic exceeds threshold**
    - **3 years for Atlantic Croaker**
    - **2 years for Spot**

Management Options Spot: #2 Coastwide Measures

Population Characteristic	Moderate management level (30% red for 2 consecutive years)		Elevated management level (60% red for 2 consecutive years)	
	Recreational	Commercial	Recreational	Commercial
Adult Abundance **Or** **Harvest**	Minimum Size Limit: 6” Bag Limit: X” Closures: May 1- June 15	Trip limit: X pounds/trip Closures: NA	Minimum Size Limit: 6” Bag Limit: X Closures: Sept 1- Oct 15	Trip limit: <X pounds/trip Closures: Sept 1- Oct 1 Gear Restrictions: (e.g., gillnets prohibited from Sept 1-30)

Management Option #3: State-by-state measures

Proportion Thresholds

Thresholds for the proportion of red in either population characteristic would be the same as under the Coastwide Management Framework (30% and 60%)

Management Measures

- The TC would determine the percent reduction of harvest
- These measures would be determined on a state-by-state basis.
- The harvest percentage reduction would be proportional to the magnitude of exceeding the threshold
- Combination of management tools (size limits, bag/trip limits, seasonal closures, and gear restrictions).

Sub options

- **3A. Single Population Characteristic criteria for Management Action**
  - **Management action would be enacted when <u>one</u> population characteristic exceeds threshold**
    - **3 years for Atlantic Croaker**
    - **2 years for Spot**

- **3B. Multiple Population Characteristic criteria for Management Action**
  - **Management action would be enacted when <u>multiple</u> population characteristic exceeds threshold**
    - **3 years for Atlantic Croaker**
    - **2 years for Spot**

Questions?

Public Comment

Public Comment Summary

- Public Hearings
  - Maryland – Georgia in June 2014
  - 73 people attended across 4 states
  - Commissioners in attendance
- Written Submitted Comments
- A total of 176 comments were received
  - 1 group/organization provided comments
  - 116 form letters were received

Public Comment Summary

Atlantic Croaker & Spot Management Options

- A majority of public comment were in favor of option 1, status quo for the following reasons
  - Concern over the data used in the TLA
  - Cyclical nature of abundance for both species
  - Proposed Management Measures
    - Impact on the fishery

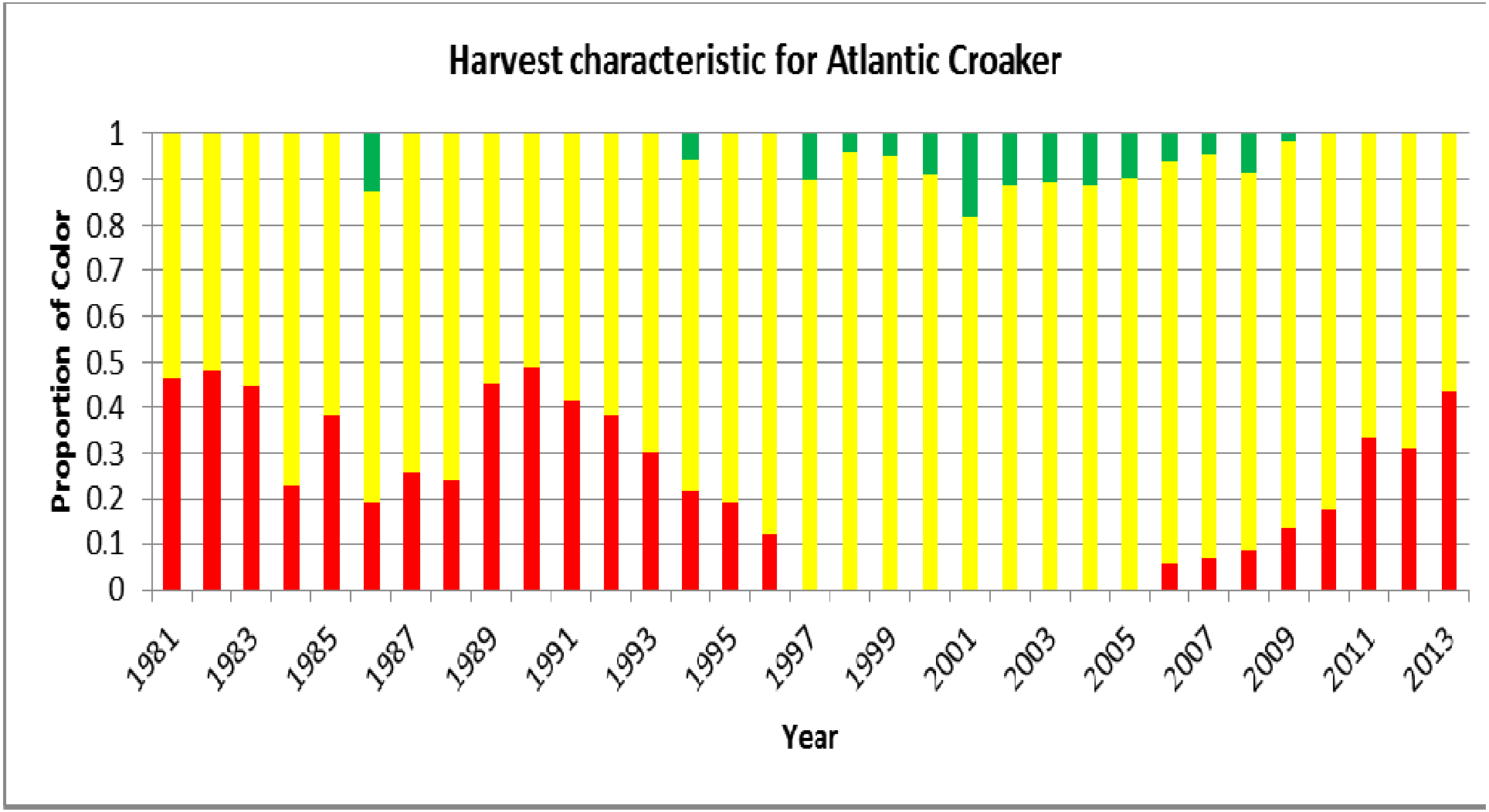
Public Comment Summary

Atlantic Croaker & Spot Management Options

- Those in favor of the management options utilizing the TLA gave the following reasons:
  - State-by-state approach
    - Flexibility
    - Local context
  - Multiple population characteristics
    - More information=better decisions

Questions ?

Traffic Light Analysis (TLA) Update



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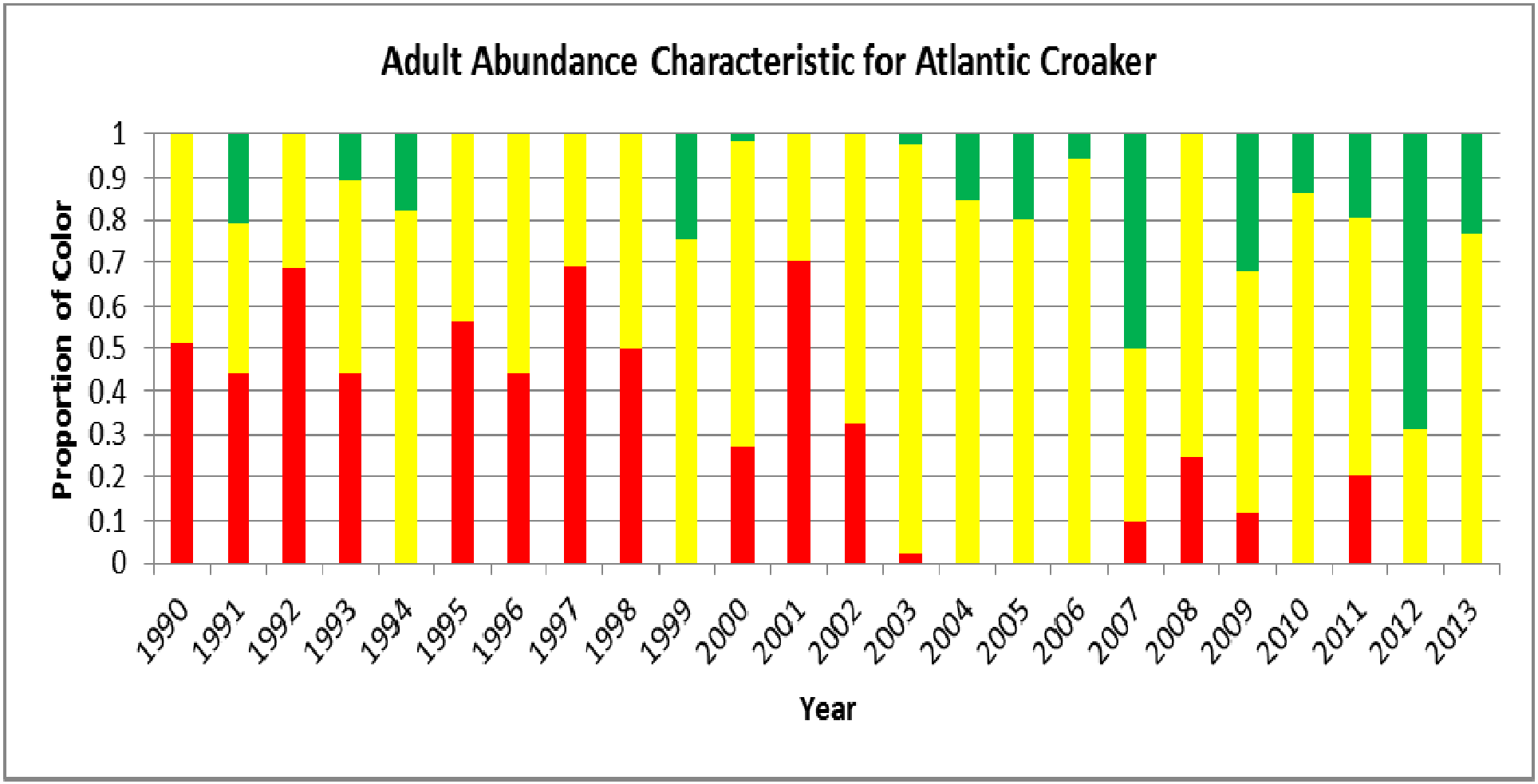
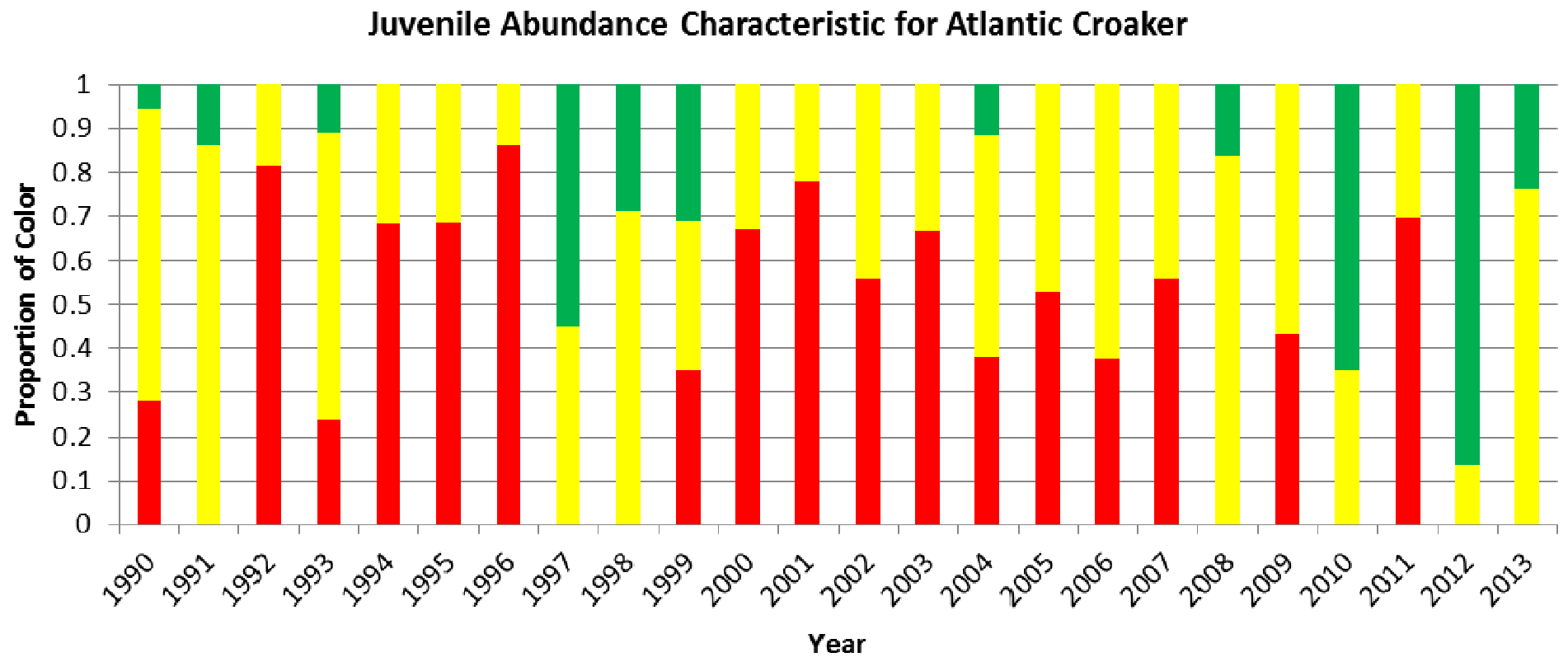
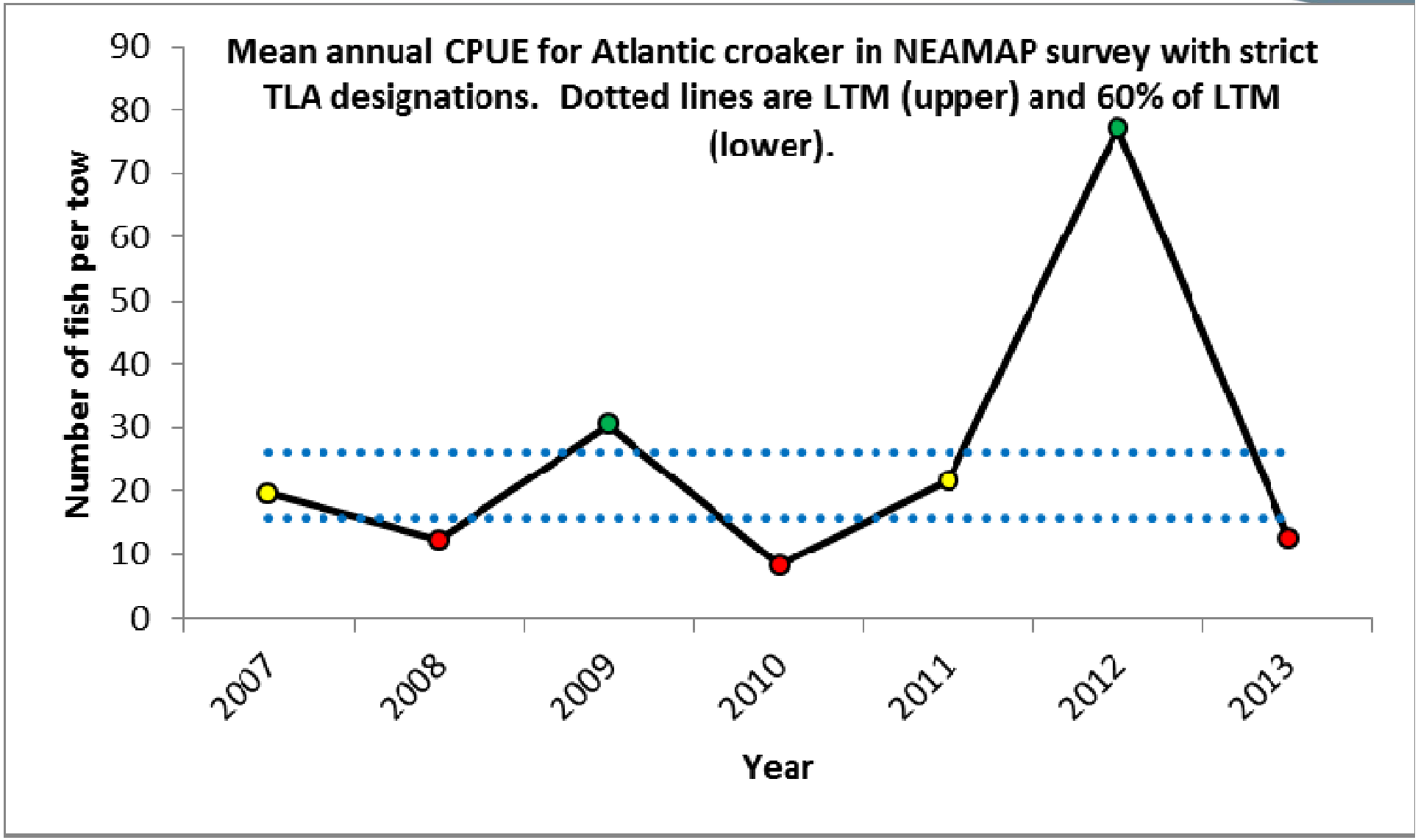


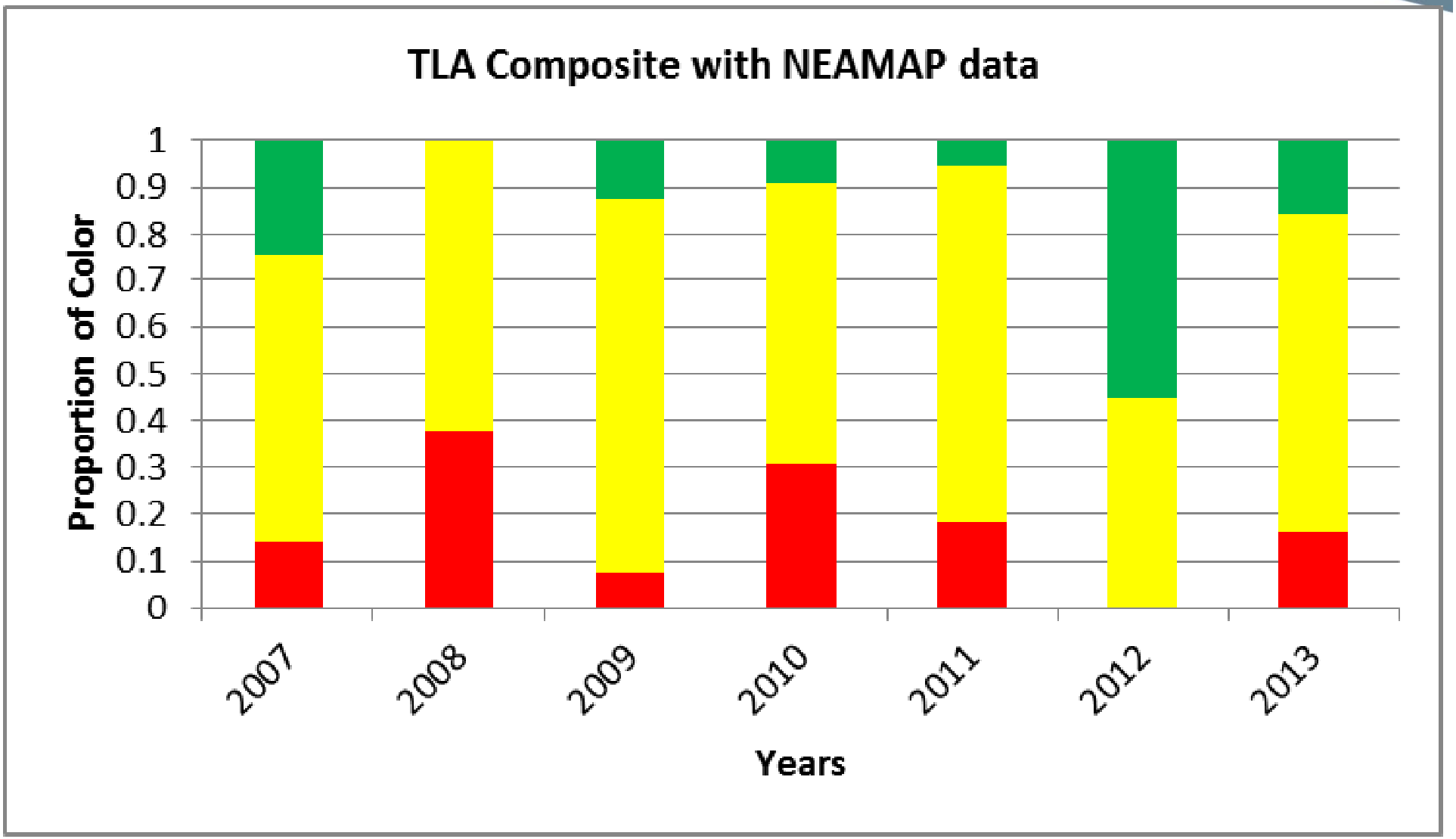
Traffic Light Analysis (TLA) Update



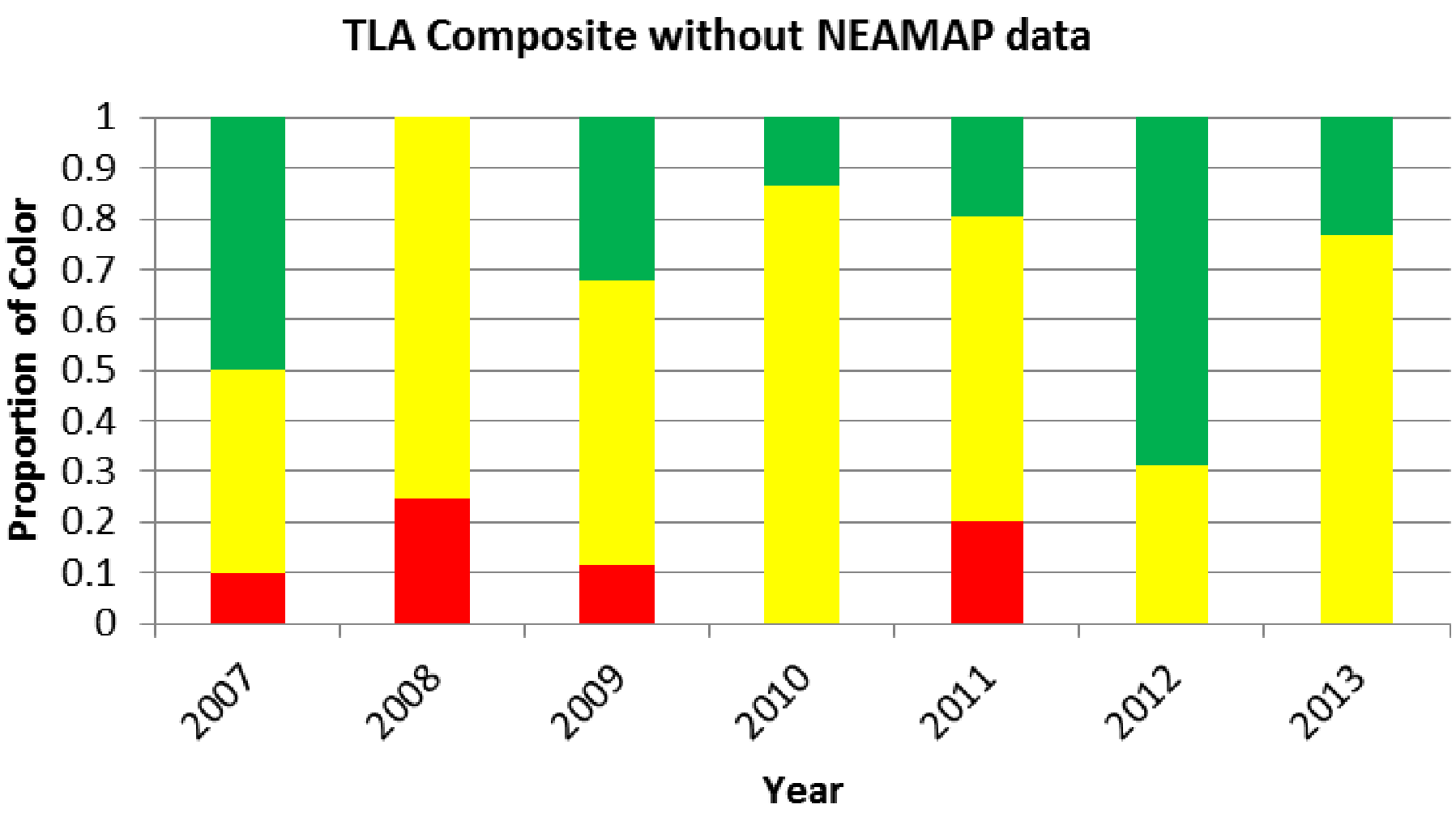
NEAMAP


Mean annual CPUE for Atlantic croaker in NEAMAP survey with strict TLA designations. Dotted lines are LTM (upper) and 60% of LTM (lower).
Number of fish per tow
90
80
70
60
50
40
30
20
10
0
2007
2008
2009
2010
2011
2012
2013
Year

NEAMAP


TLA Composite with NEAMAP data
Proportion of Color
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
2007
2008
2009
2010
2011
2012
2013
Years

NEAMAP


TLA Composite without NEAMAP data
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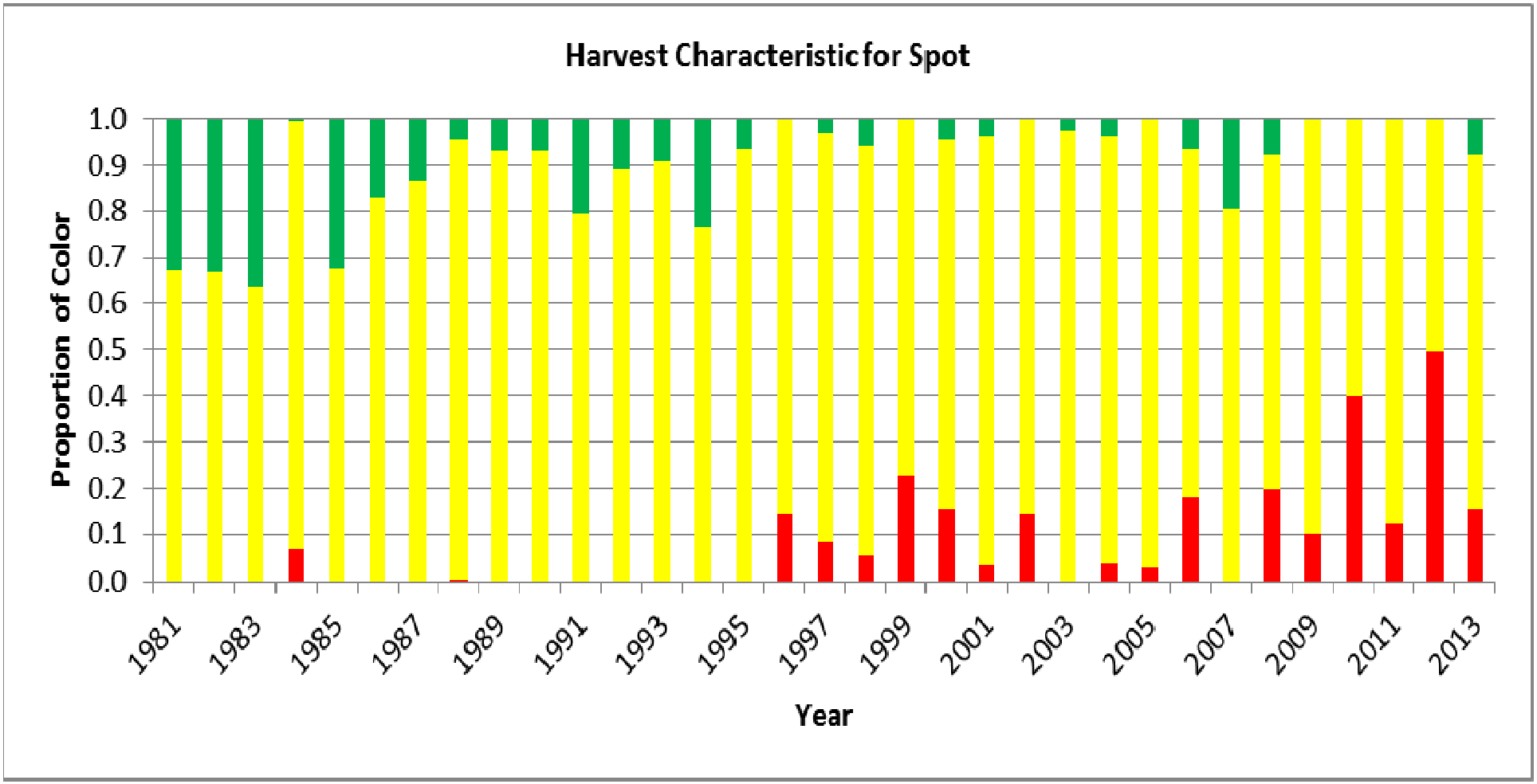
Traffic Light Analysis (TLA) Update



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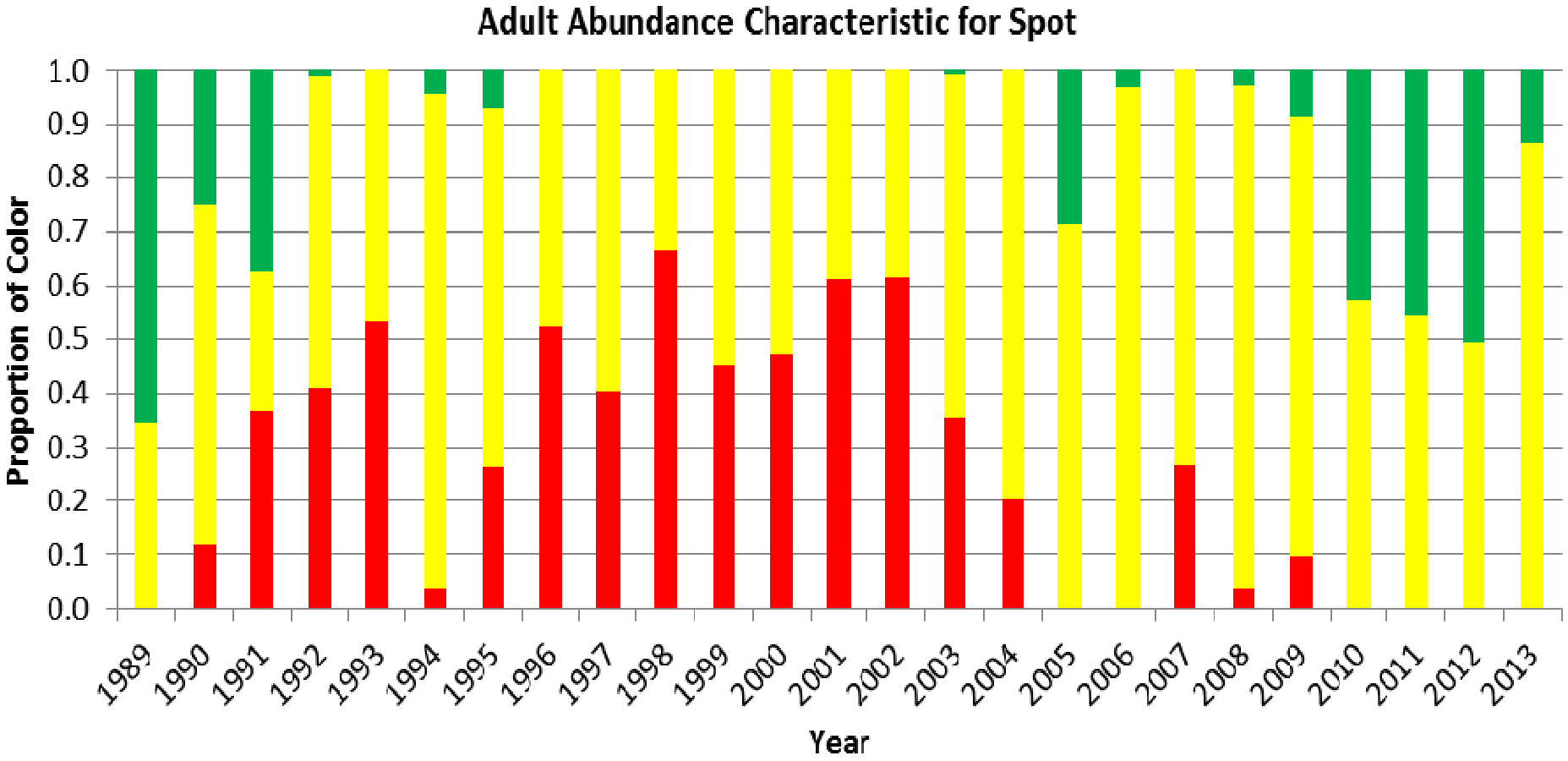

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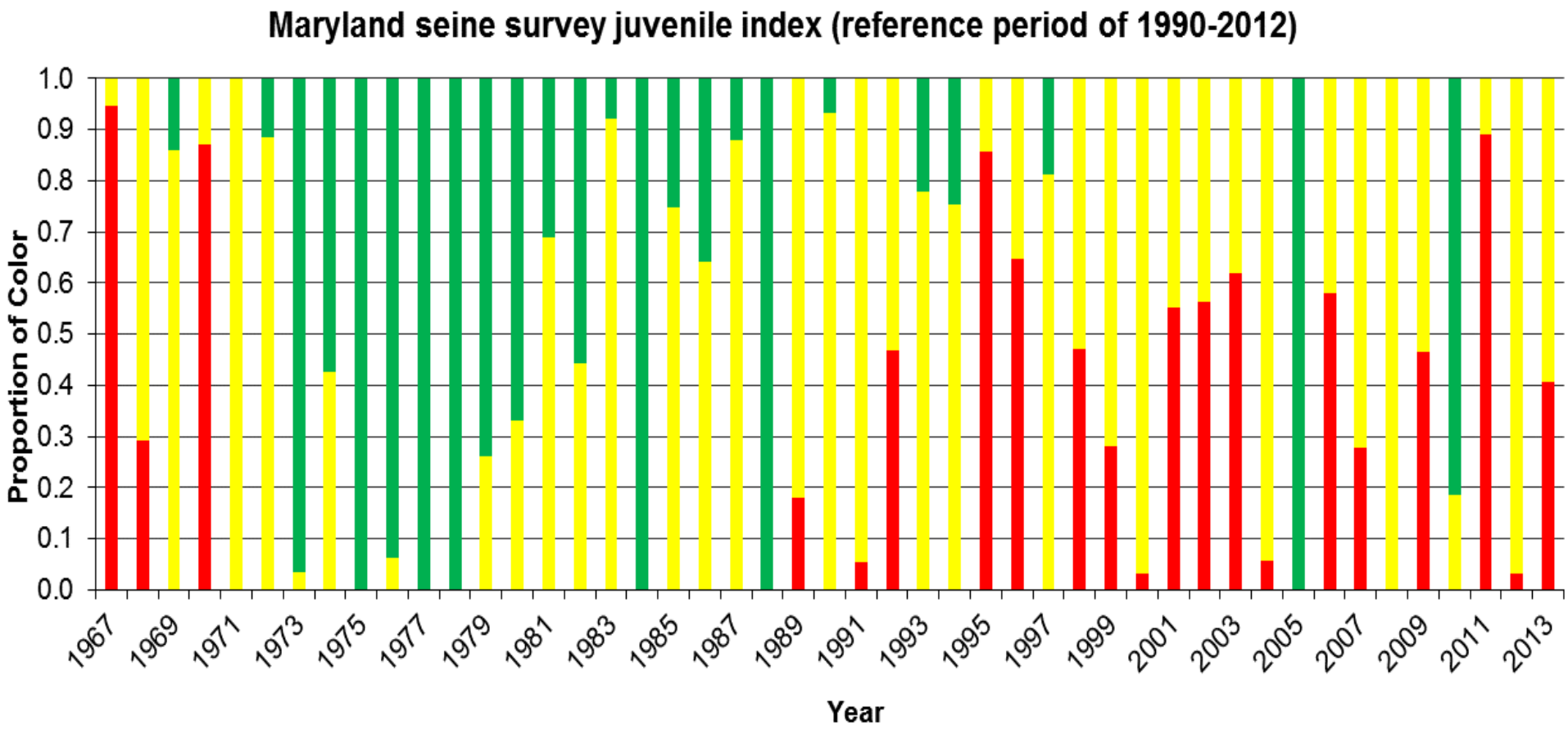
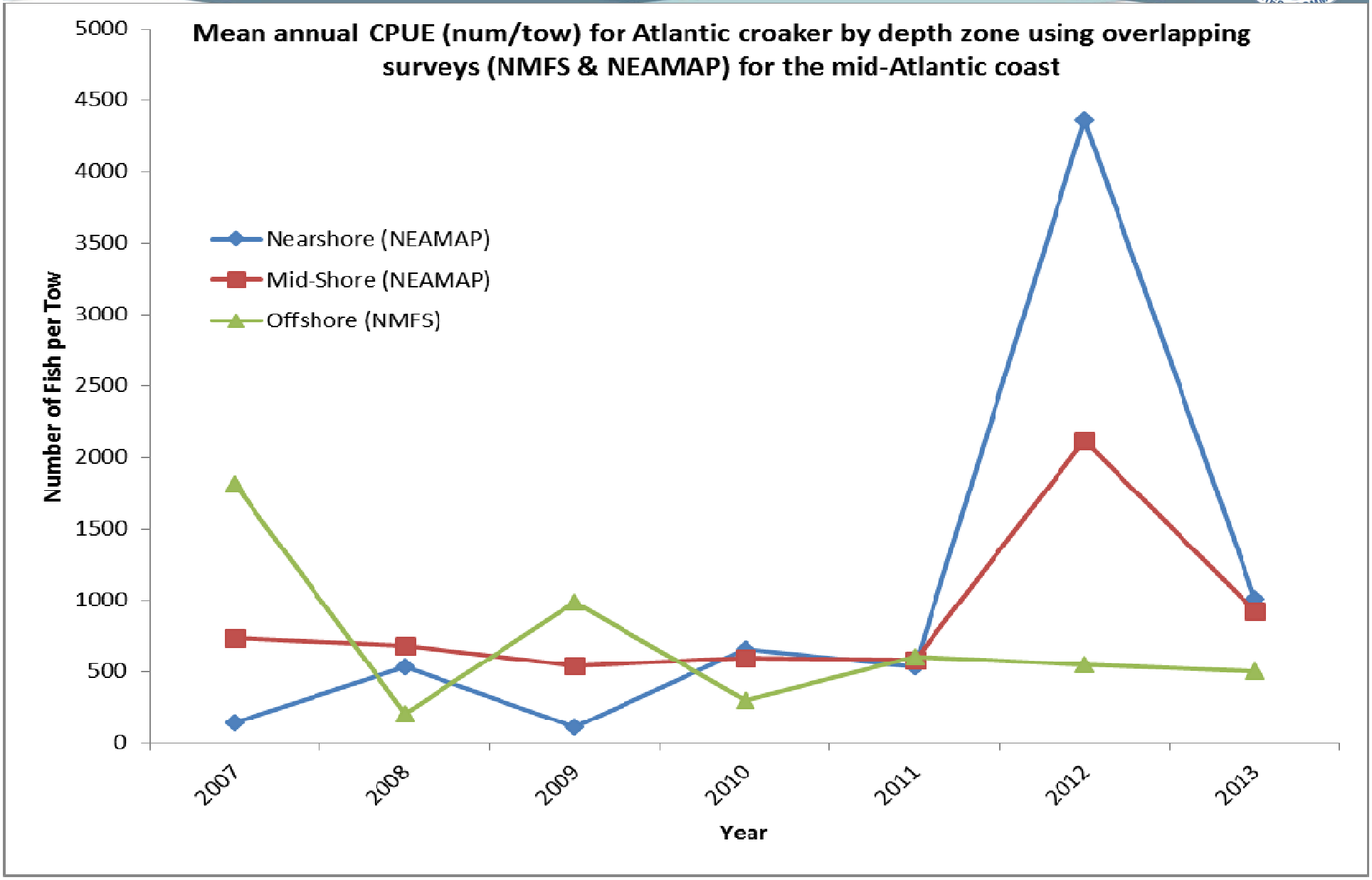
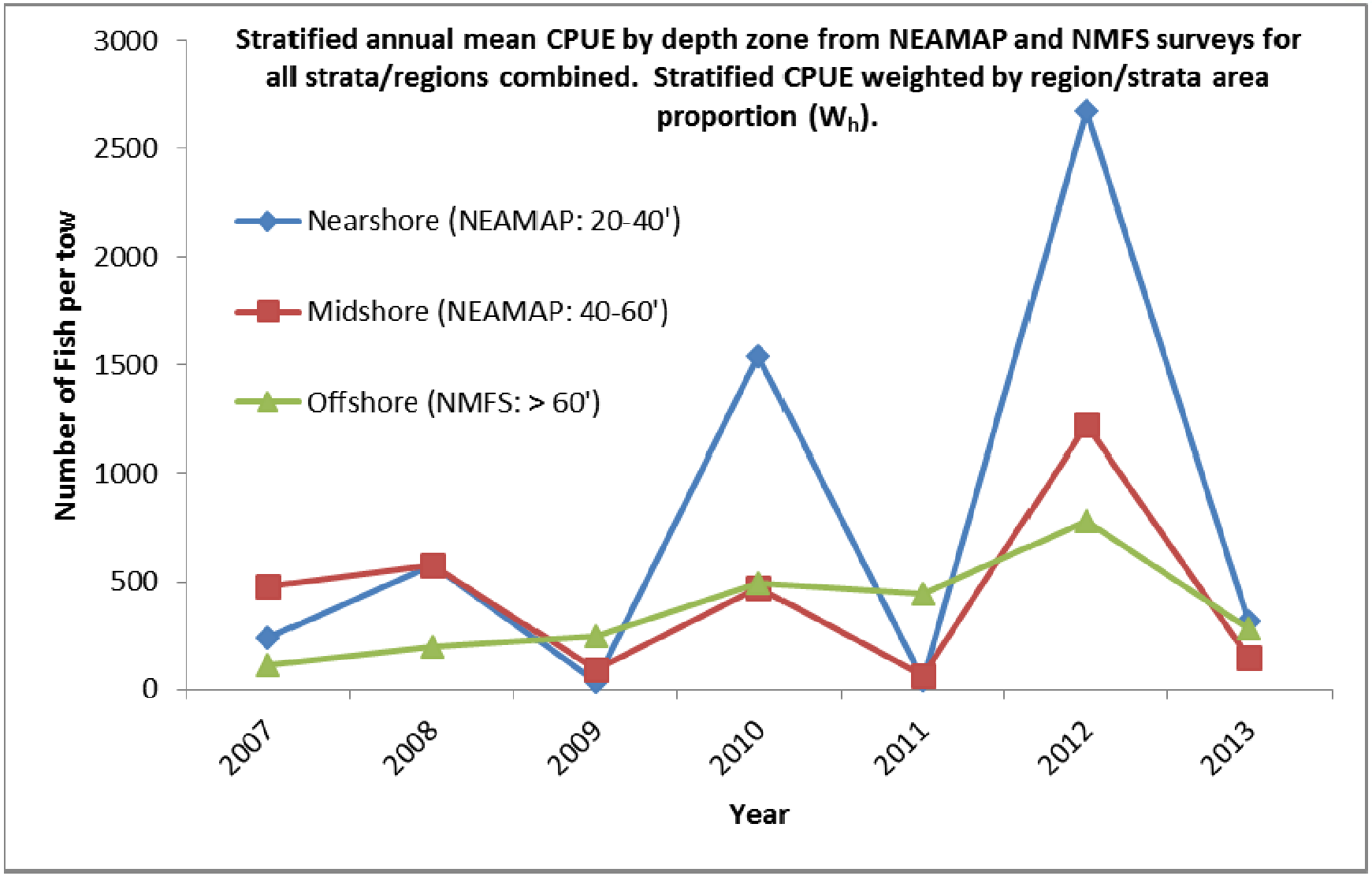


Questions?

NMFS VS. NEAMAP: Atlantic Croaker



NMFS VS. NEAMAP: Spot

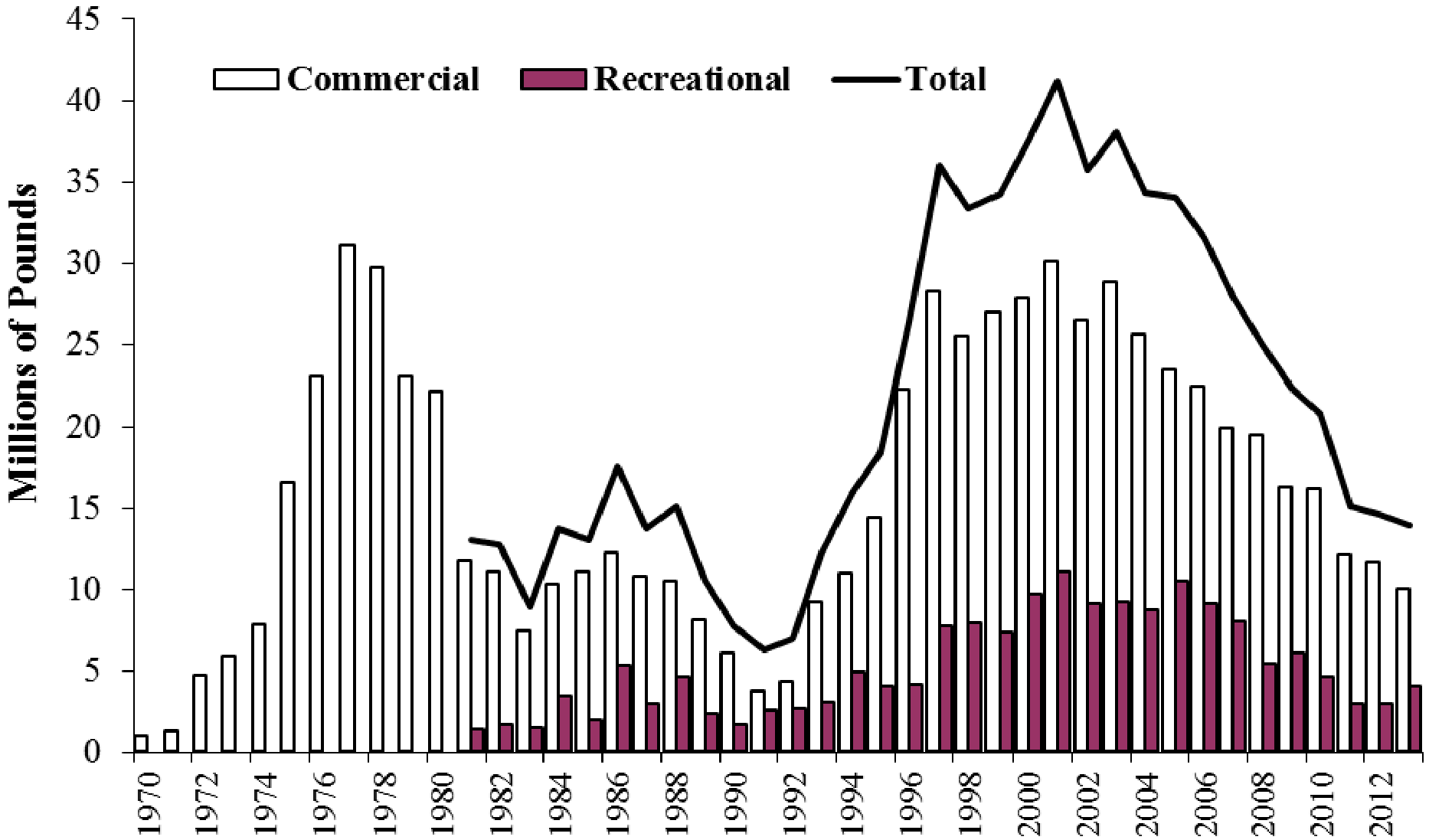


Atlantic Croaker
Fishery Management Plan Review

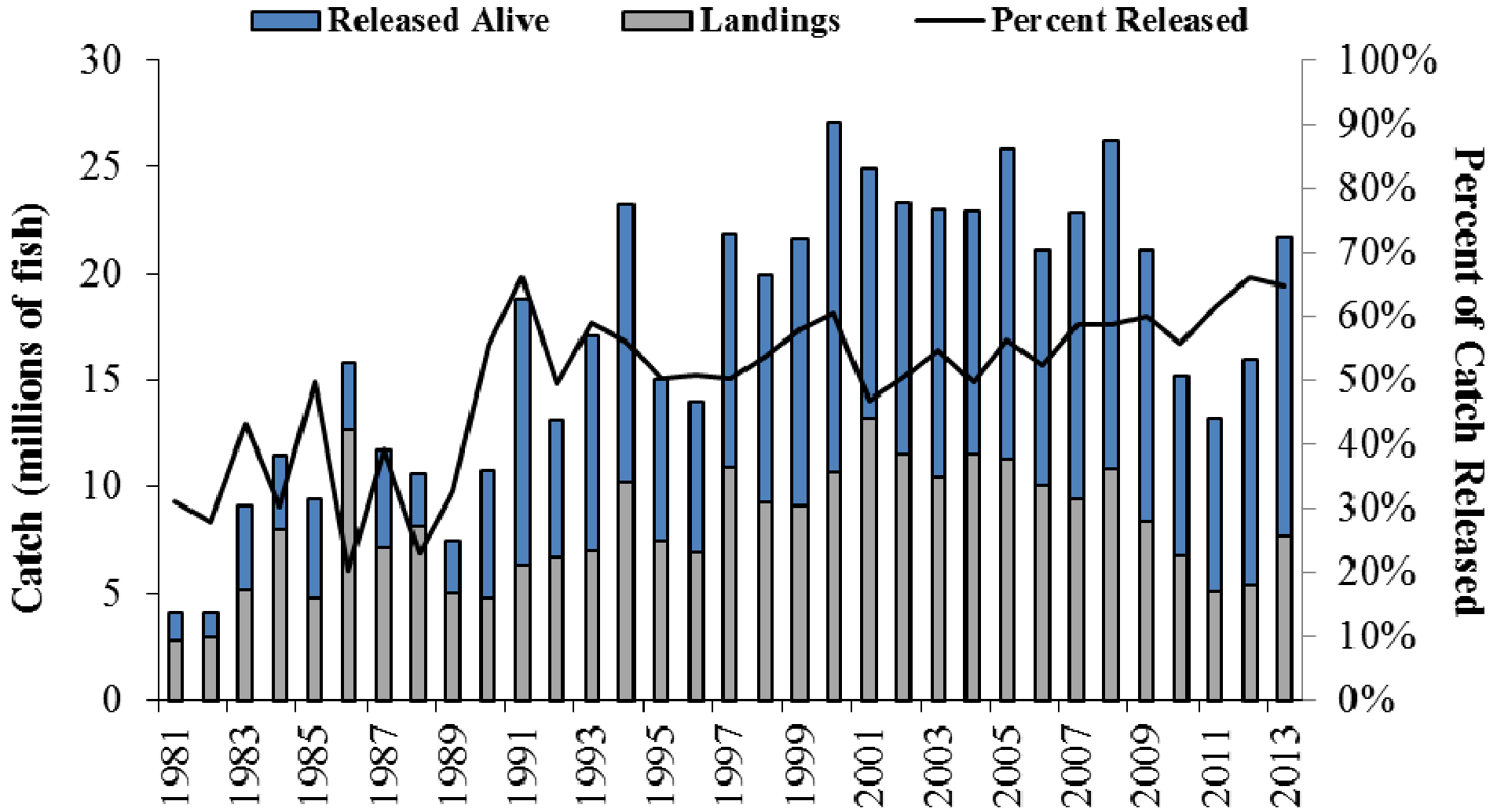
South Atlantic State/Federal Management Board

August 7, 2014

Status of the Fishery



Status of the Fishery



State Compliance and *De minimis*

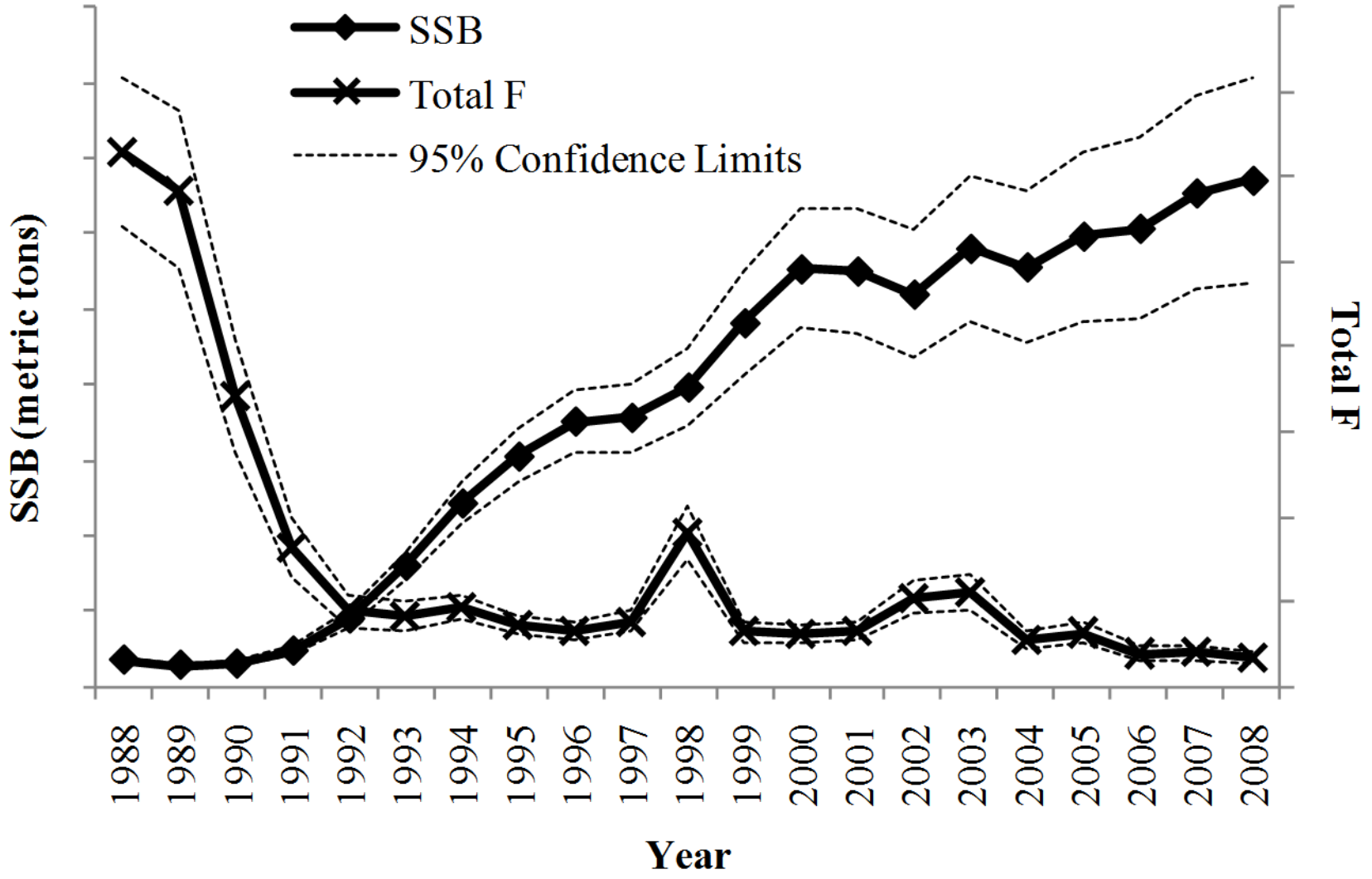
- PRT finds that all states have fulfilled the requirements of Amendment 1
- *De minimis*
  - Criteria: either fishery, 3-year average, 1%
  - Requests: DE (com), SC (com), GA (com & rec), FL (com)
  - All qualify for *de minimis*
  - Status does not exempt states from any compliance requirements

Questions?

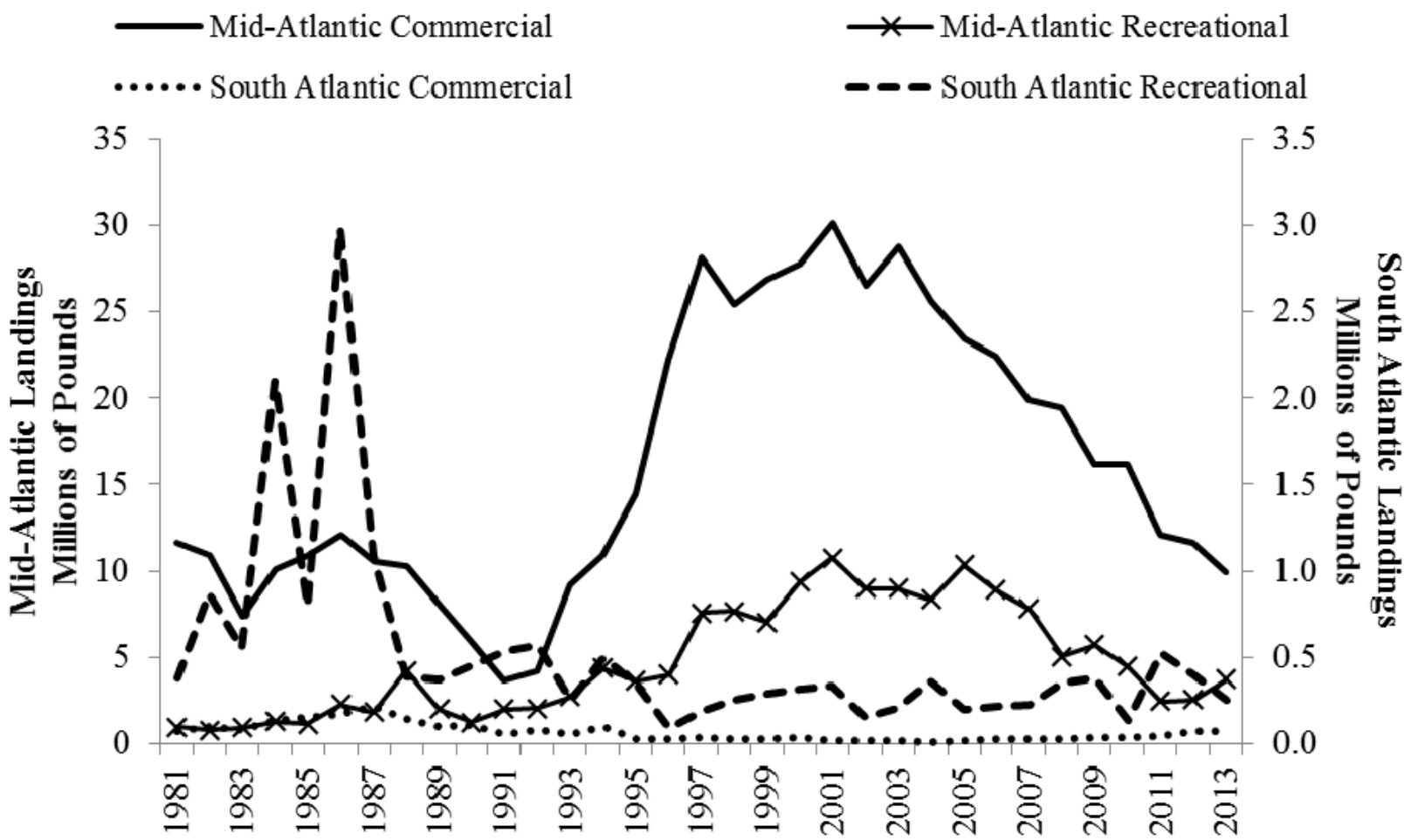
Status of Management

- Amendment 1 (implemented 2006)
  - Defined two management areas
  - Established BRPs
  - No specific regulations
  - Requirement for compliance: annual reporting
- Addendum I (implemented 2011)
  - Combined management regions
  - Revised BRPs consistent with 2010 stock assessment

Status of the Stock



Status of the Fishery

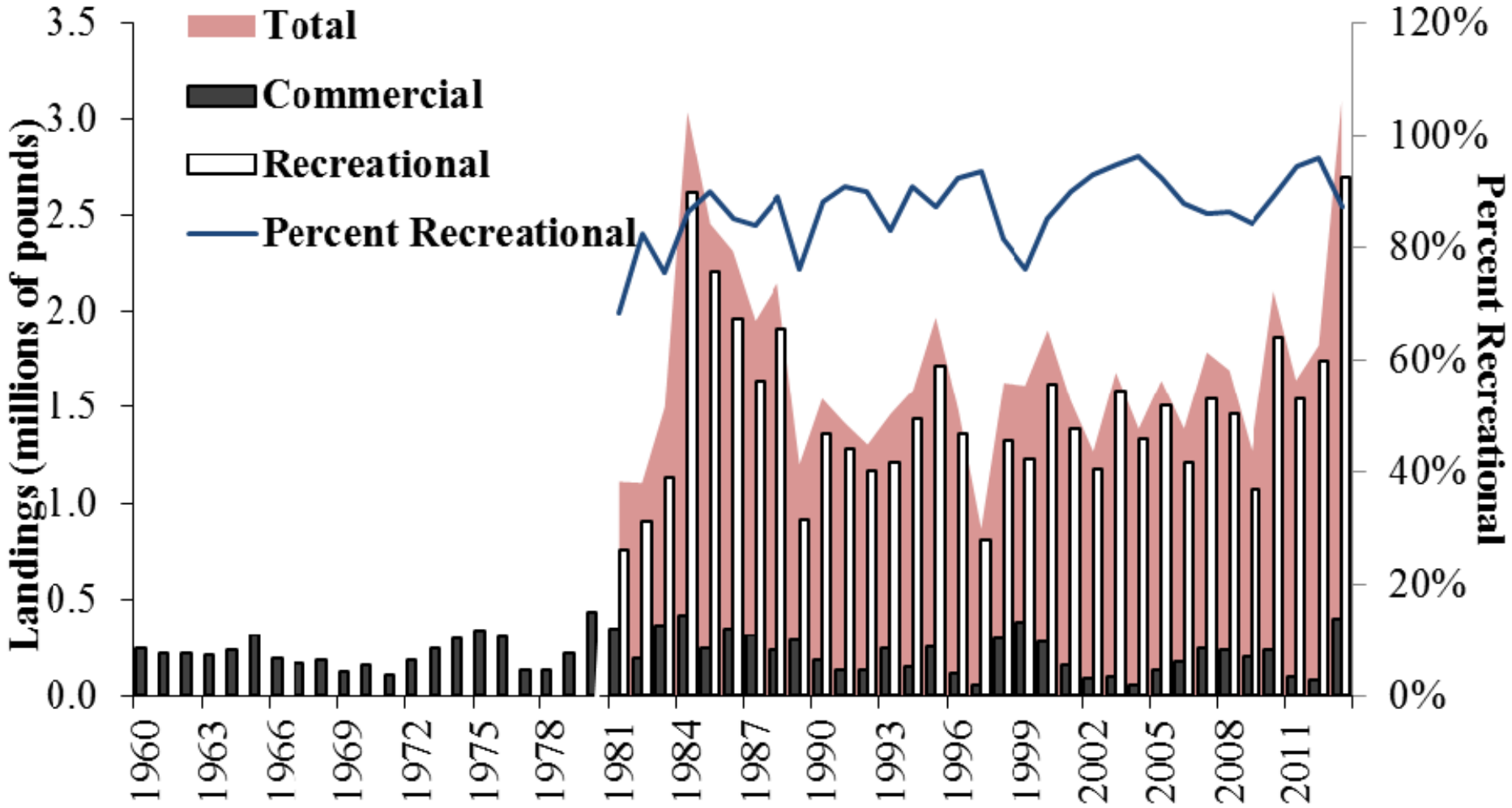


Red Drum
Fishery Management Plan Review

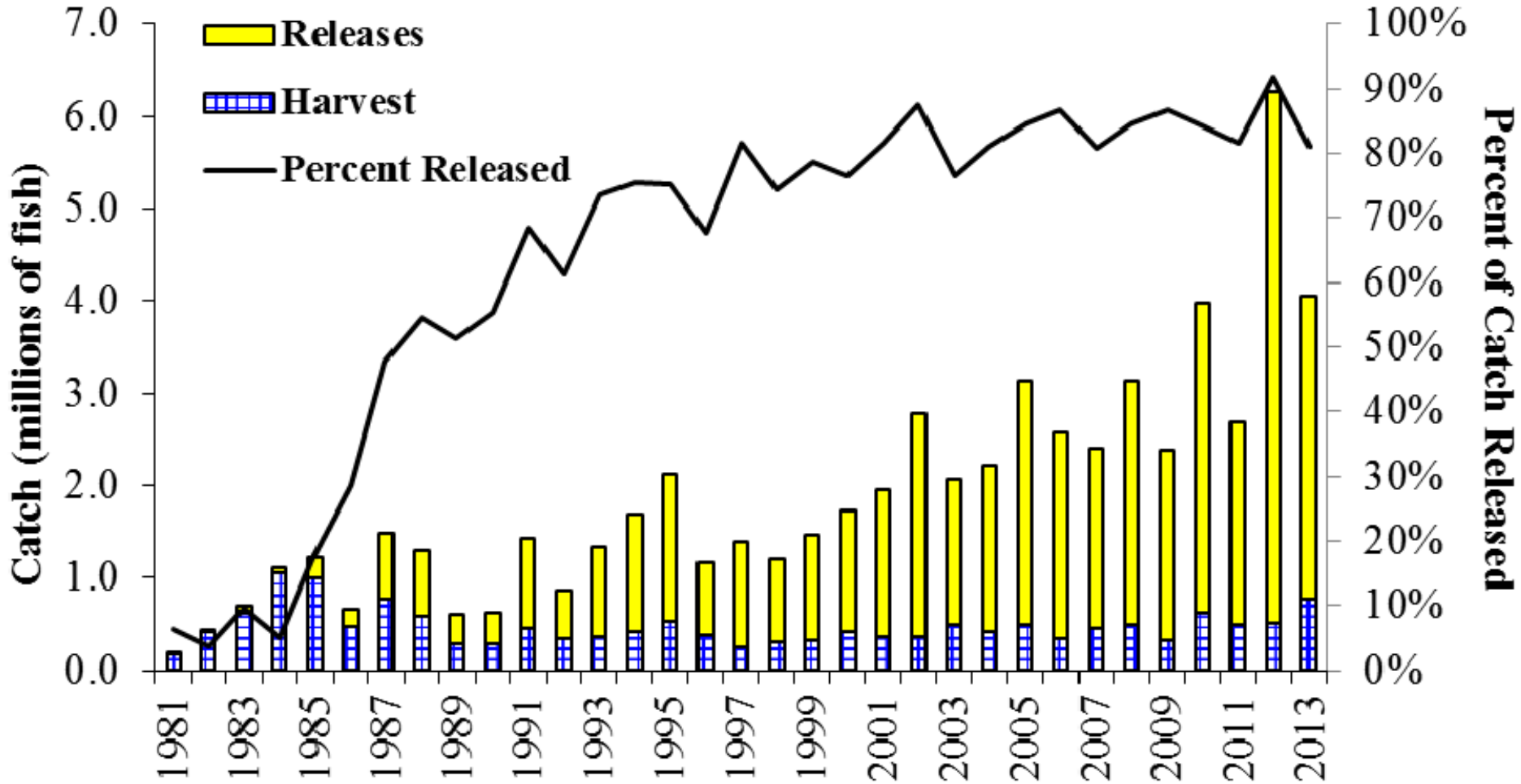
South Atlantic State/Federal Management Board

August 7, 2014

Status of the Fishery



Recreational Fishery



State Compliance and *De minimis*

- De minimis
  - No specific criteria defined
  - Requests from NJ and DE
  - PRT compared states' two-year (2011-2012) average total landings to coastwide
    - NJ – 0%, DE – 0.17%
  - Status does not exempt states from any compliance requirements
- North Carolina
  - Reduction in 2014/2015 for 2013/2014 overage

Recommendations

- Support a continued moratorium in the EEZ
- Consider *de minimis* requests from NJ and DE
- Review Prioritized Research Monitoring Recommendations

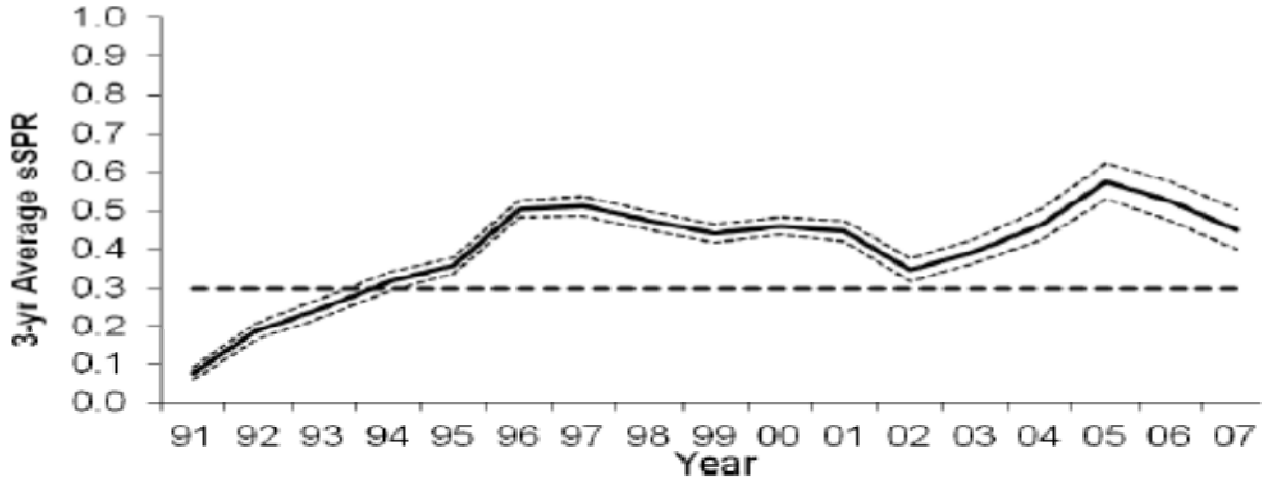
Questions?

Status of Management

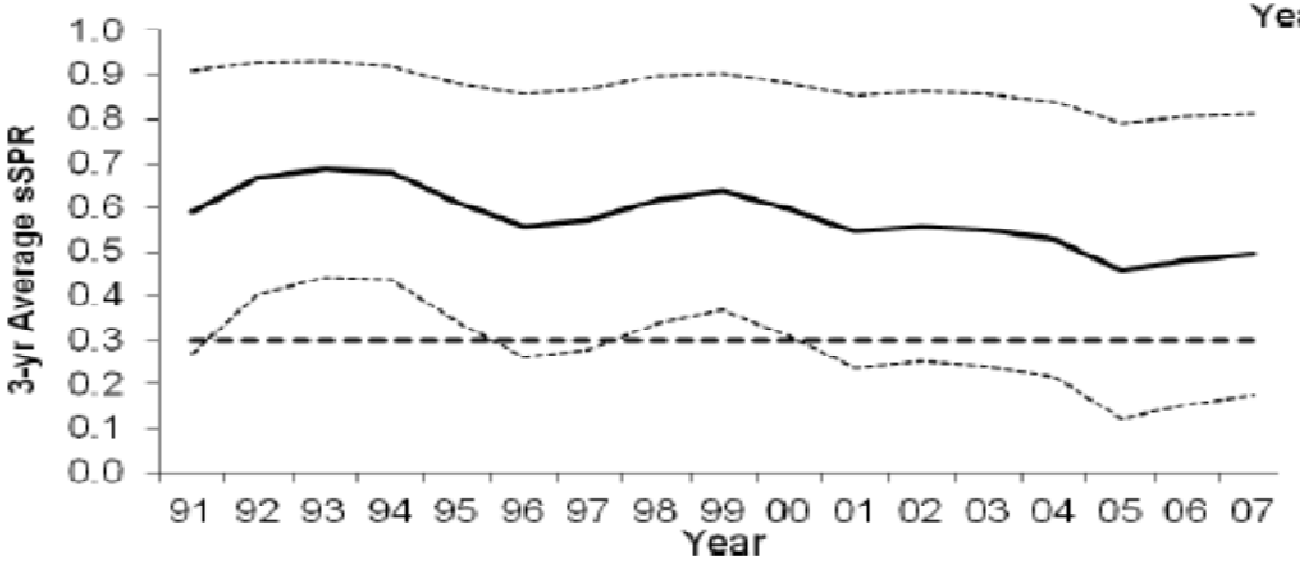
- Amendment 2 (implemented 2003)
  - Altered the overfishing definition
  - Appropriate recreational bag/size limits
  - Maintain current commercial limits
- No amendments or addenda under development
- Transfer of Authority: October 6, 2008
- GA: changed to Gamefish in 2013

Status of the Stock

Northern region



Southern region



Red Drum Benchmark Stock Assessment Terms of Reference and Timeline

August 7, 2014

Terms of Reference

- Terms of Reference to guide stock assessment and SEDAR peer review
- Developed by the Red Drum Technical Committee and Stock Assessment Subcommittee

TERMS OF REFERENCE FOR STOCK ASSESSMENT

TOR #1: Stock Assessment

1. If possible, identify and prepare new data that could be used to inform the assessment of adult and/or spawning stock trends.

TOR #2: Stock Assessment

2. Characterize precision and accuracy of fishery-dependent and fishery-independent data considered for the assessment, including the following but not limited to:

- Provide descriptions of each data source (e.g., geographic location, sampling methodology, potential explanation for outlying or anomalous data).
- Describe calculation and potential standardization of abundance indices.
- Discuss trends and associated estimates of uncertainty (e.g., standard errors).
- Justify inclusion or elimination of available data sources.
- Discuss the effects of data strengths and weaknesses (e.g., temporal and spatial scale, gear selectivities, ageing accuracy, sample size) on model inputs and outputs.

TOR #3: Stock Assessment

3. Define and justify definition of stock structure.

TOR #4: Stock Assessment

4. Review recreational fishing estimates and PSEs. Compare historical and current data collection and estimation procedures and describe data caveats that may affect the assessment.

TOR #5: Stock Assessment

5. Estimate discards and size composition of discards in recreational and commercial fisheries where possible.

TOR #6: Stock Assessment

6. Evaluate the effects of stock enhancement program contributions on data inputs.

TOR #7: Stock Assessment

7. Develop models used to estimate population parameters (e.g., F, biomass, abundance) and biological reference points, and analyze model performance.

- Describe stability of model (e.g., ability to find a stable solution, invert Hessian)
- Assess estimated selectivity and discuss effects on population parameters.
- Justify choice of CVs, effective sample sizes, or likelihood weighting schemes.
- Perform sensitivity analyses for starting parameter values, priors, etc. and conduct other model diagnostics as necessary.
- Clearly and thoroughly explain model strengths and limitations.
- Briefly describe history of model usage, its theory and framework, and document associated peer-reviewed literature. If using a new model, test using simulated data.
- If model structure differs from the model structure used in the previous assessment, preform a continuity run of the previous model and compare estimates. Discuss potential causes of any observed discrepancies.
- If multiple models were considered, justify the choice of preferred model and the explanation of any differences in results among models.

TOR #8: Stock Assessment

8. State assumptions made for all models and explain the likely effects of assumption violations on synthesis of input data and model outputs. Examples of assumptions may include (but are not limited to):

- Choice of stock-recruitment function.
- Choice to use (or estimate) constant or time-varying M and catchability.
- Choice of a plus group.
- Constant ecosystem (abiotic and trophic) conditions.

TOR #9: Stock Assessment

9. Characterize uncertainty of model estimates and biological or empirical reference points.

TOR #10: Stock Assessment

10. Perform retrospective analyses, assess magnitude and direction of retrospective patterns detected, and discuss implications of any observed retrospective pattern for uncertainty in population parameters (e.g., F, SSB), reference points, and/or management measures.

TOR #11: Stock Assessment

11. Recommend stock status as related to reference points (if available). For example:

Is the sSPR above or below the 30% sSPR threshold?

TOR #12: Stock Assessment

12. Other potential scientific issues:

- If possible, assess any temporal changes in distribution or stock structure. Discuss potential causes of any changes.
- Compare reference points derived in this assessment with what is known about the general life history of the exploited stock. Explain any inconsistencies.

TOR #13: Stock Assessment

13. If a minority report has been filed, explain majority reasoning against adopting approach suggested in that report. The minority report should explain reasoning against adopting approach suggested by the majority.

TOR #14: Stock Assessment

14. Develop detailed short and long-term prioritized lists of recommendations for future research, data collection, and assessment methodology. Highlight improvements to be made by next benchmark review.

TOR #15: Stock Assessment

15. Recommend timing of next benchmark assessment and intermediate updates, if necessary, relative to biology and current management of red drum.

TERMS OF REFERENCE FOR PEER REVIEW

TOR #1: Peer Review

1. Evaluate the thoroughness of data collection and the presentation and treatment of fishery-dependent and fishery-independent data in the assessment, including the following but not limited to:

- Presentation of data source variance (e.g., standard errors).
- Justification for inclusion or elimination of available data sources.
- Consideration of data strengths and weaknesses (e.g., temporal and spatial scale, gear selectivities, aging accuracy, sample size).
- Calculation and/or standardization of abundance indices.
- Estimation of discards and size composition of discards.

TOR #2: Peer Review

2. Evaluate the definition of stock structure used in the assessment. Is the definition appropriate given the biology and management of red drum?

TOR #3: Peer Review

3. Evaluate the methods and models used to estimate population parameters (e.g., F, biomass, abundance) and biological reference points, including but not limited to:

- Evaluate the choice and justification of the preferred model(s). Was the most appropriate model (or model averaging approach) chosen given available data and life history of red drum?
- If multiple models were considered, evaluate the analysts' explanation of any differences in results.
- Evaluate model parameterization and specification (e.g., choice of CVs, effective sample sizes, likelihood weighting schemes, calculation/specification of M, stock-recruitment relationship, choice of time-varying parameters, plus group treatment).

TOR #4: Peer Review

4. Evaluate the diagnostic analyses performed, including but not limited to:

- Sensitivity analyses to determine model stability and potential consequences of major model assumptions
- Retrospective analysis

TOR #5: Peer Review

5. Evaluate the methods used to characterize uncertainty in estimated parameters. Ensure that the implications of uncertainty in technical conclusions are clearly stated.

TOR #6: Peer Review

6. If a minority report has been filed, review minority opinion and any associated analyses. If possible, make recommendation on current or future use of alternative assessment approach presented in minority report.

TOR #7: Peer Review

7. Recommend best estimates of stock biomass, abundance, and exploitation from the assessment for use in management, if possible, or specify alternative estimation methods.

TOR #8: Peer Review

8. Evaluate the choice of reference points and the methods used to estimate them. Recommend stock status determination from the assessment, or, if appropriate, specify alternative methods/measures.

TOR #9: Peer Review

9. Review the research, data collection, and assessment methodology recommendations provided by the TC and make any additional recommendations warranted. Clearly prioritize the activities needed to inform and maintain the current assessment, and provide recommendations to improve the reliability of future assessments.

TOR #10: Peer Review

10. Recommend timing of the next benchmark assessment and updates, if necessary, relative to the life history and current management of red drum.

TOR #11: Peer Review

11. Prepare a peer review panel terms of reference and advisory report summarizing the panel's evaluation of the stock assessment and addressing each peer review term of reference. Develop a list of tasks to be completed following the workshop. Complete and submit the report within 4 weeks of workshop conclusion.

STOCK ASSESSMENT TIMELINE

- Data Submission Planning Call (TC) – May 7, 2014
- Assessment Planning Call (TC & SAS) – June 12, 2014
- Data Submission Deadline – August 1, 2014
- Data Workshop (TC & SAS) – October 14-17, 2014

- Assessment Workshop (TC Chair & SAS) – Jan or Feb 2015

- Assessment Report Deadline – August 1, 2015

- SEDAR Review Workshop (TC Chair & SAS) – August 25-27, 2015

- Assessment Reports Finalized – October 1, 2015