

Stock Assessment of Spotted Seatrout 2014

Presentation to the
N.C. Marine Fisheries Commission
May 21, 2015



Life History

- Range from Massachusetts to Florida and the Gulf of Mexico
- Demersal (bottom-dwelling)
- Maximum length: 40 inches
- Maximum age: 9 years



Previous Assessment

- Stock assessment covered 1991 through 2008 time period
- Concluded stock was overfished and overfishing was occurring in all years
- Original N.C. fishery management plan adopted in 2012



Current Assessment Data

- North Carolina and Virginia
- Year defined as March 1 through Feb. 28
- Time series: 1991 (March 1991) through 2012 (Feb. 2013)

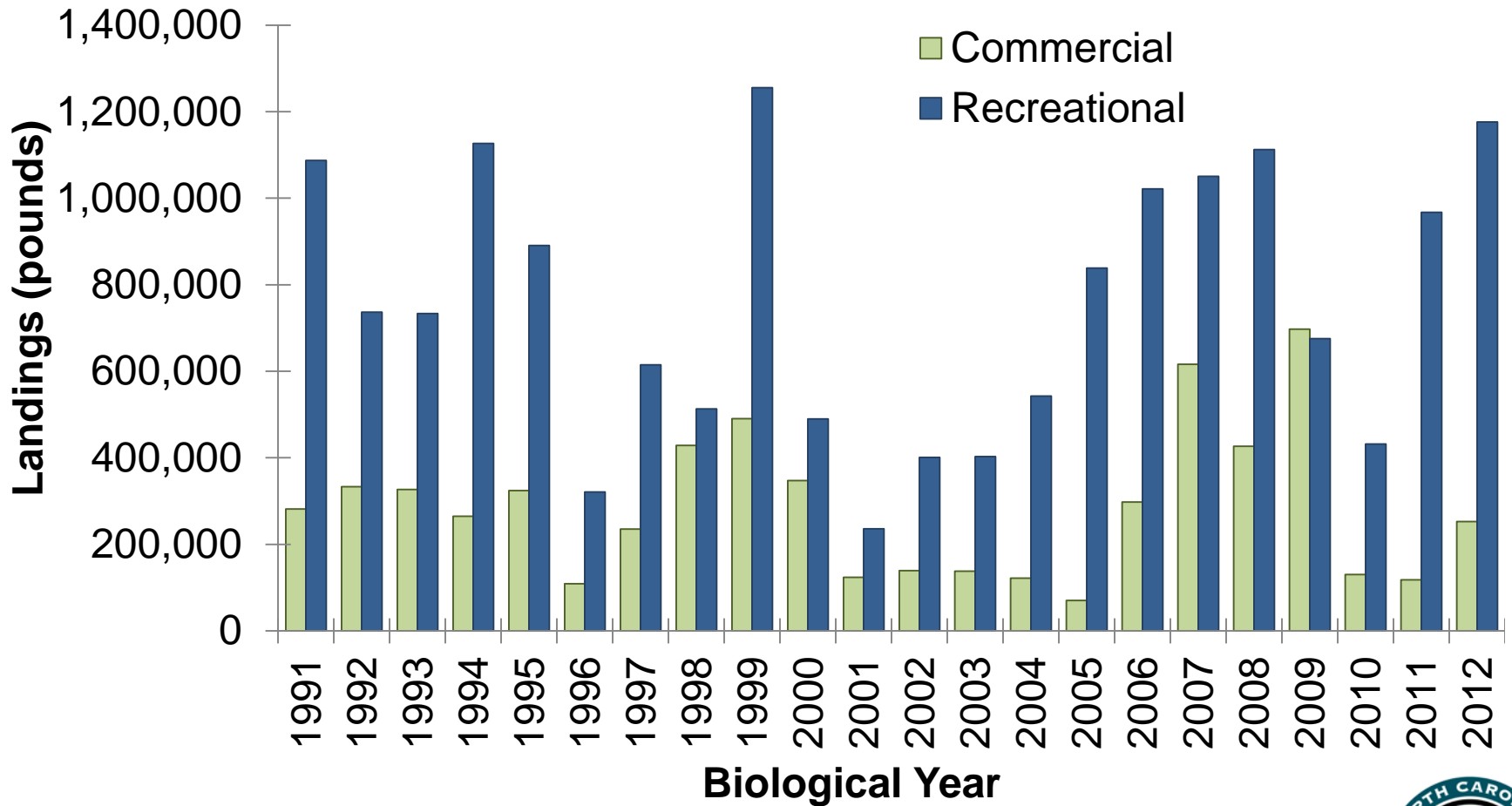


Fisheries

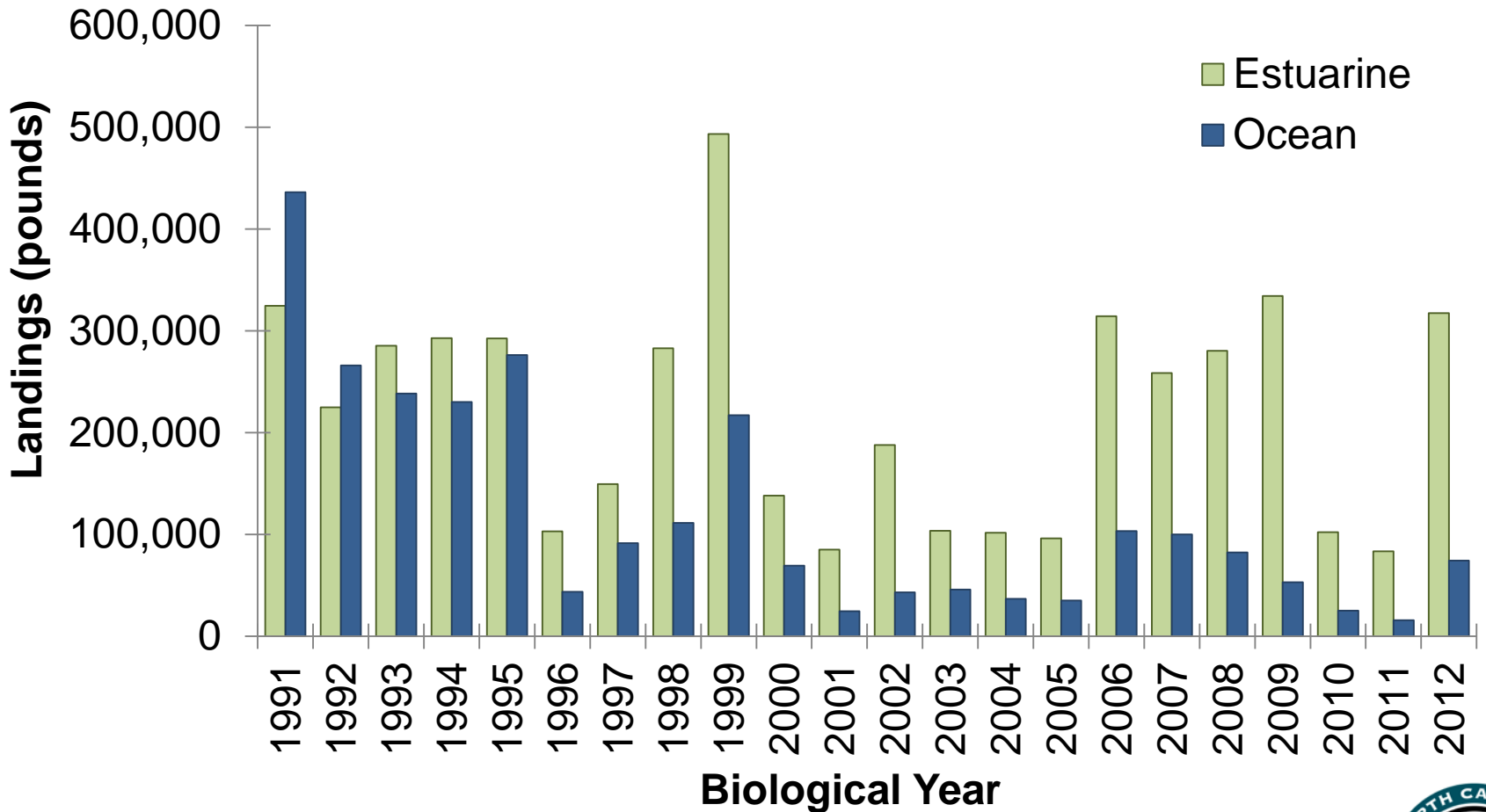
- Commercial estuarine
- Commercial ocean
- Recreational



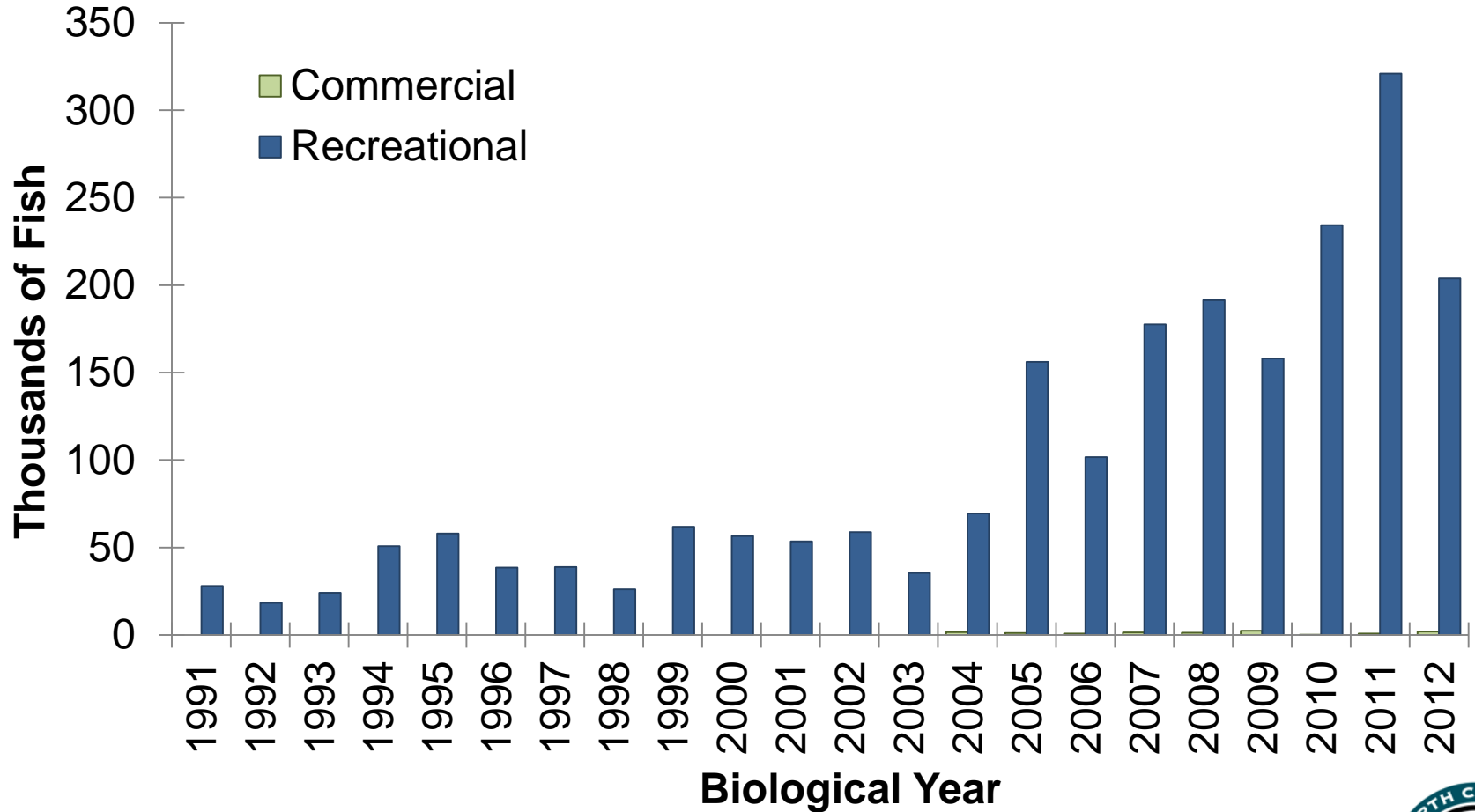
Total Landings



Commercial Landings



Total Discards (Dead)



Fisheries-Independent Surveys

- Estuarine Trawl Survey (Program 120)
- Fisheries-Independent Gill-Net Survey (Program 915)

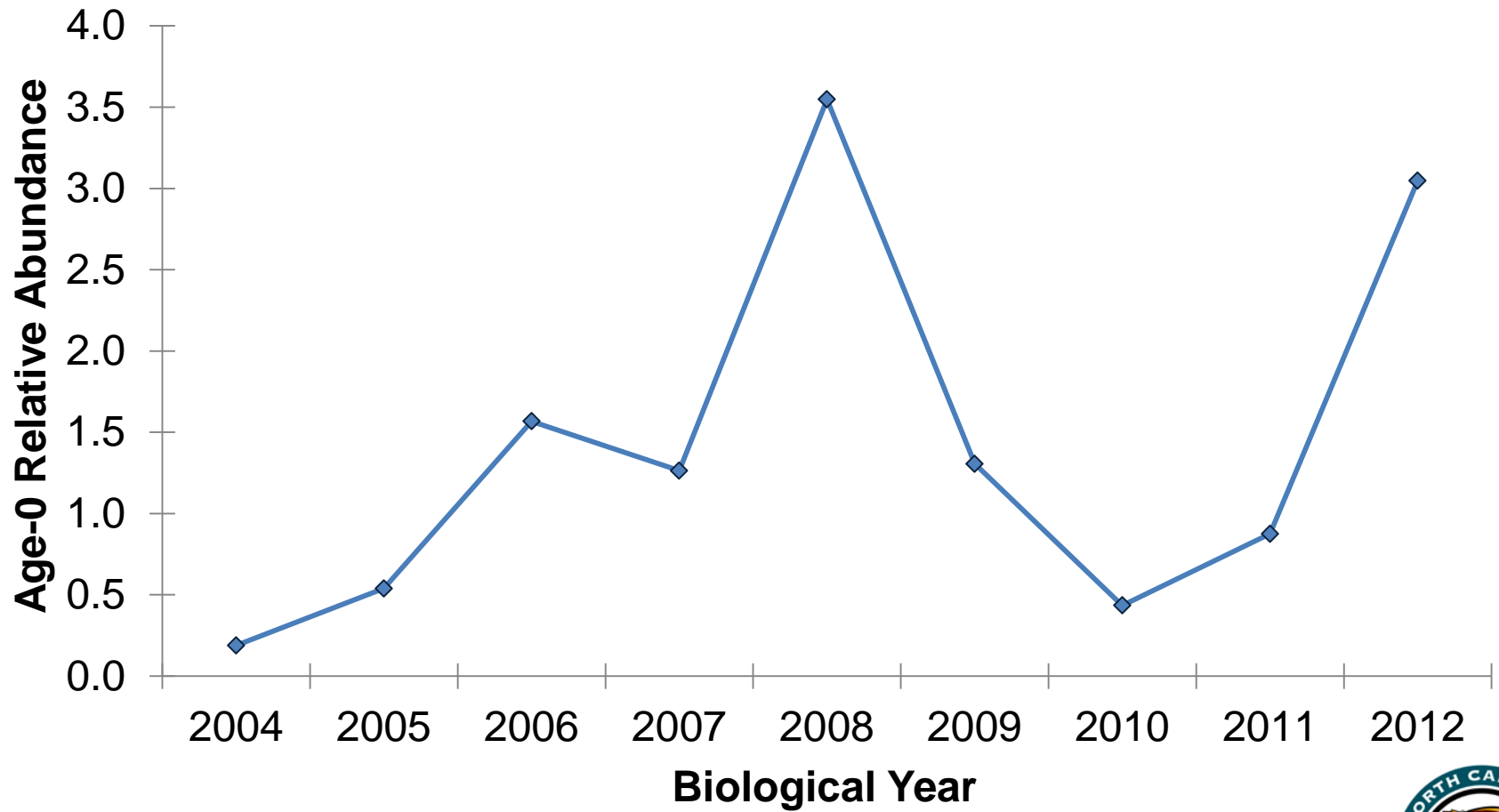


Estuarine Trawl Survey

- Program 120
- Started in 1971 to identify nursery areas and monitor recruitment for economically important species
- Shallow-water survey
- Used to develop juvenile index



Estuarine Trawl Survey

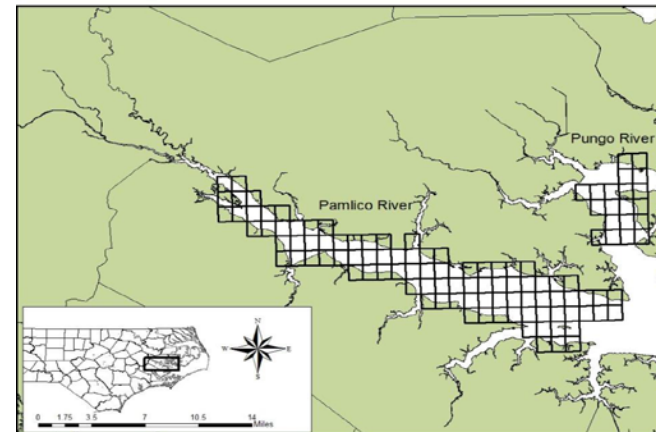
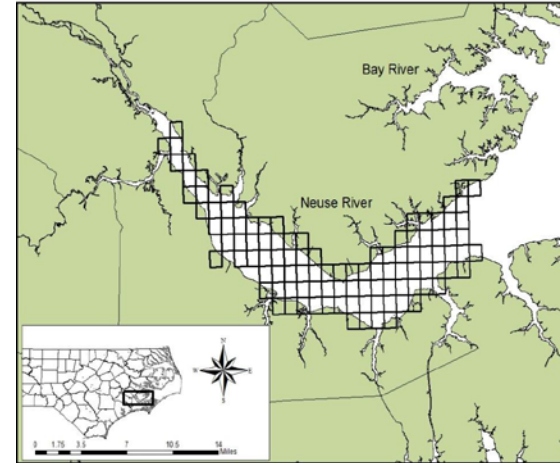
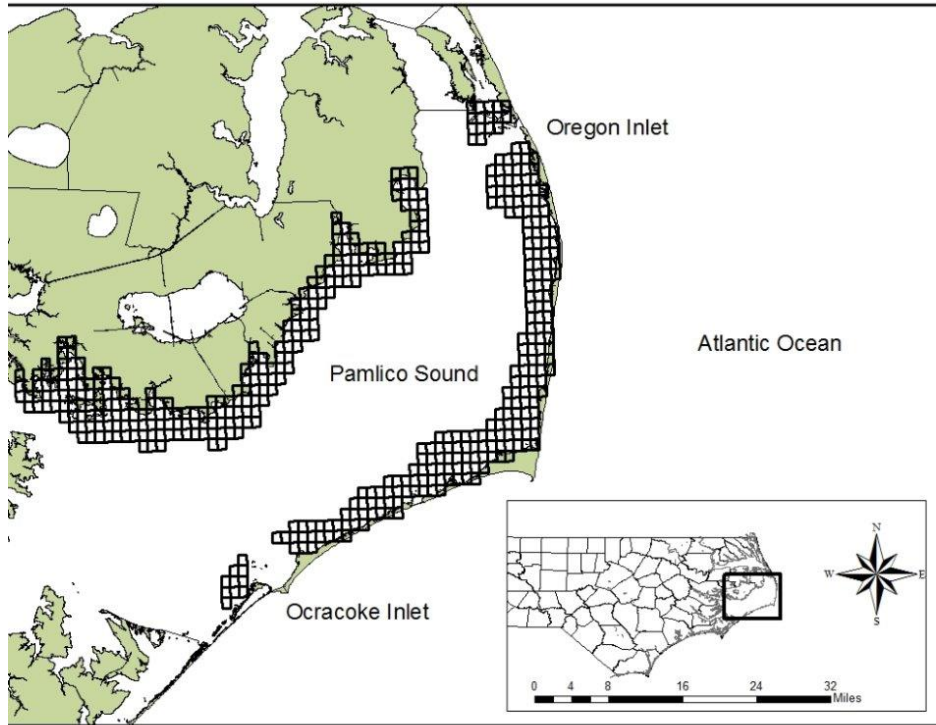


Fisheries-Independent Gill-Net Survey

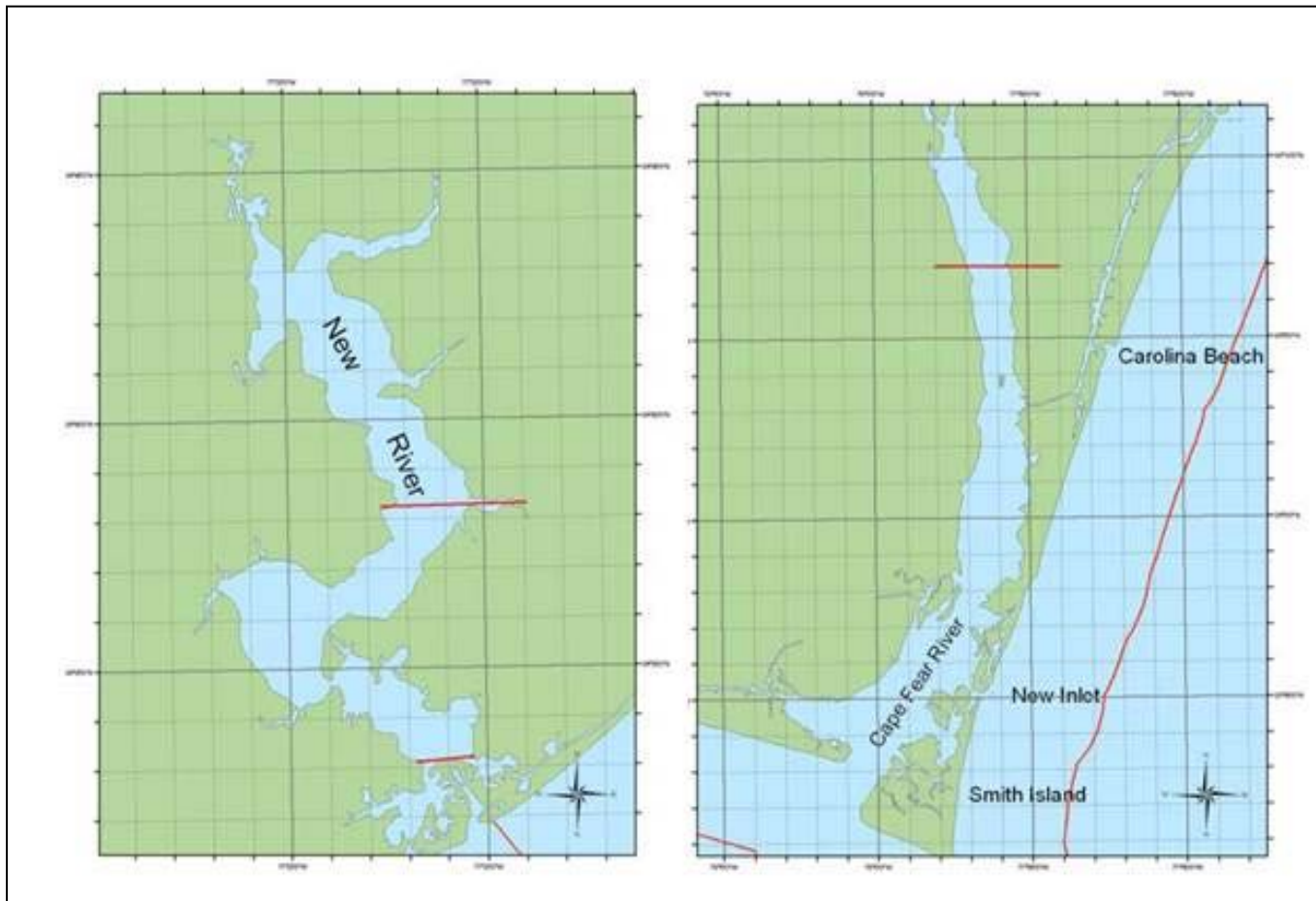
- Program 915
- Initiated in 2001 to supplement finfish data needed for fishery management plans
- Sampling in Pamlico Sound (2001); Neuse, Pamlico, and Pungo rivers (2003); southern district areas (2008)



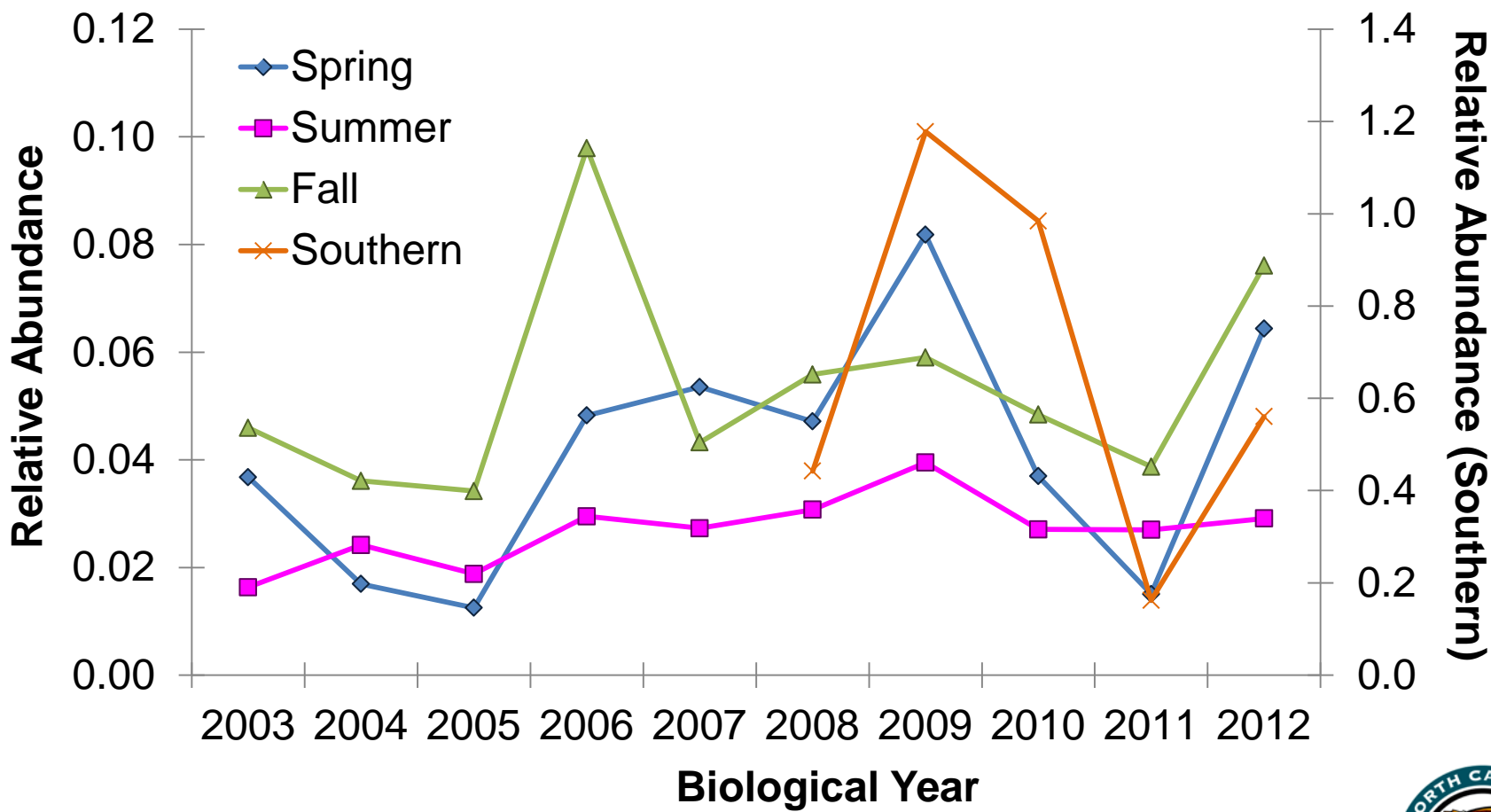
Fisheries-Independent Gill-Net Survey



Fisheries-Independent Gill-Net Survey

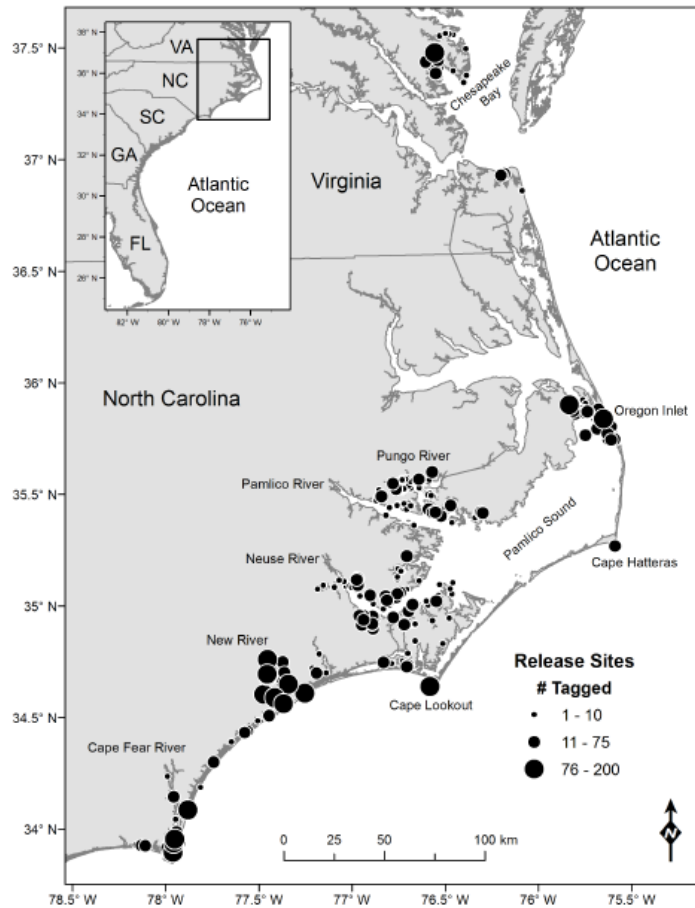


Fisheries-Independent Gill-Net Survey

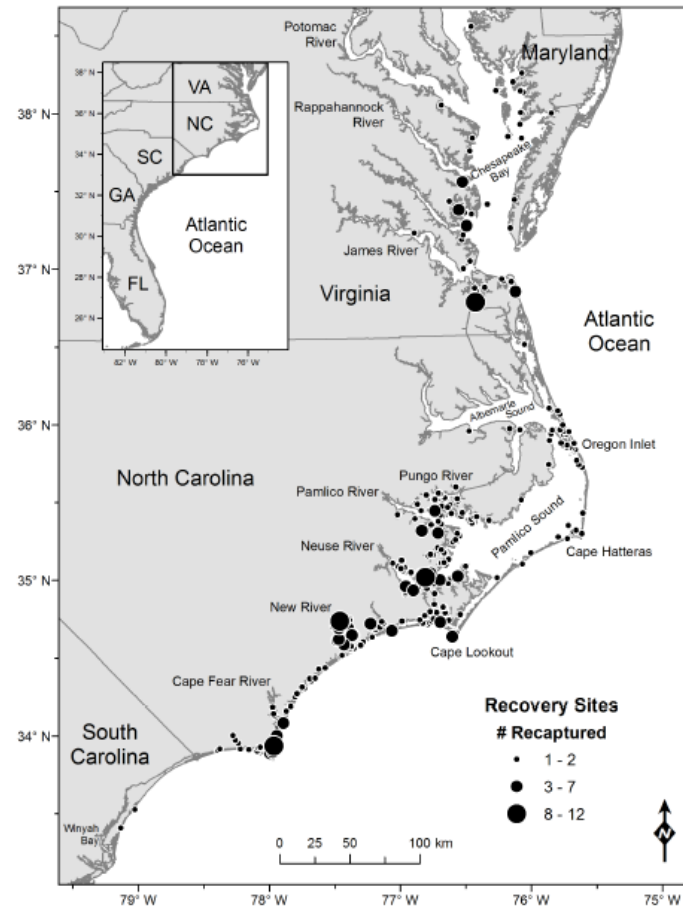


Tagging Data

Releases



Returns



Tagging Data

Year	Number Released
2008	818
2009	975
2010	2,006
2011	2,209
2012	574

Fleet	Number Returned				
	2008	2009	2010	2011	2012
Commercial Estuarine	6	36	14	33	38
Commercial Ocean		1		3	4
Recreational	16	61	76	115	126



Assessment Model

Stock Synthesis

- State-of-the-art
- Integrated model
- Extremely flexible

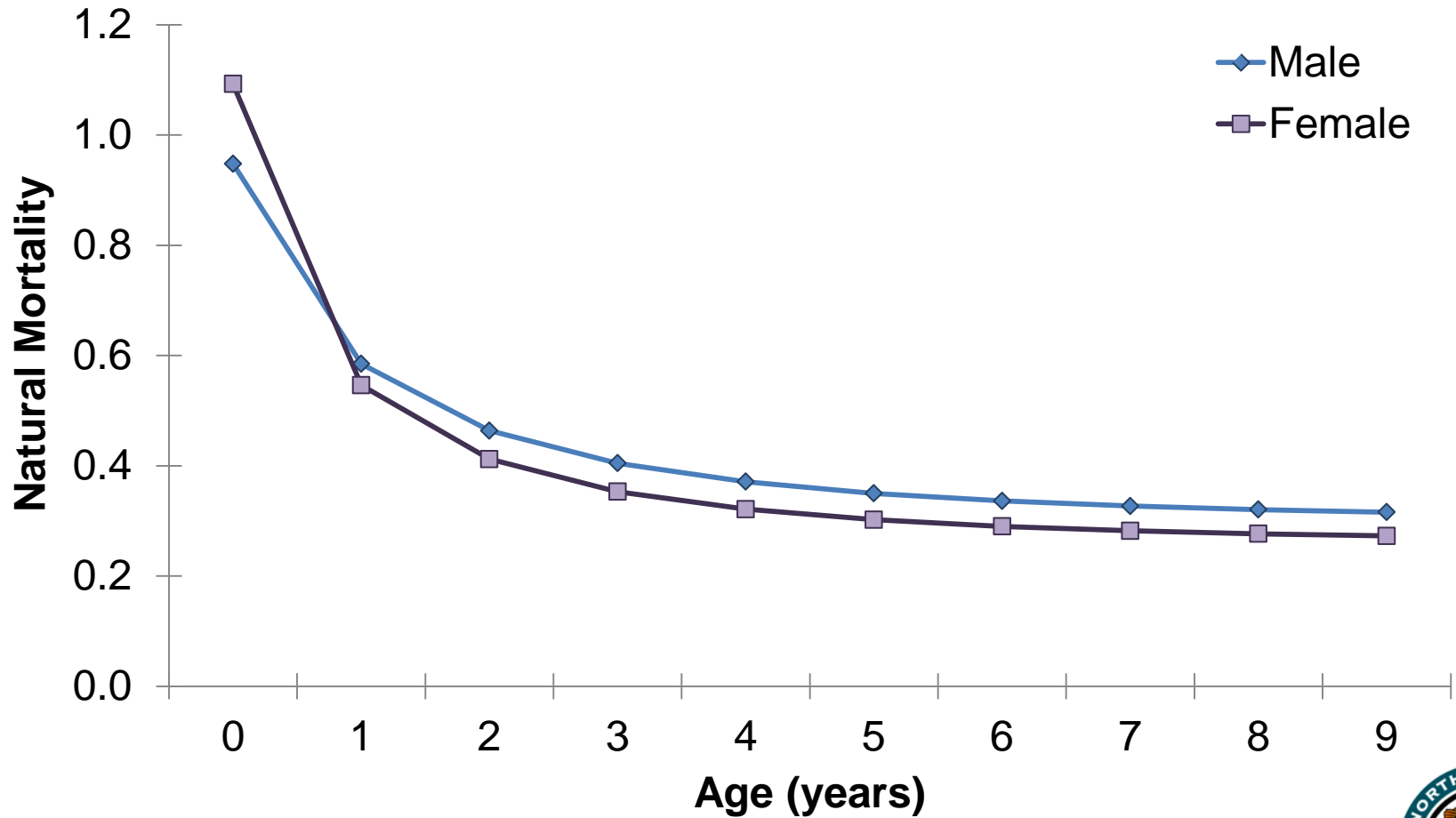


Model Assumptions

- March 1 birth date
- Single season, single area model
- Maximum age 9; age-6 plus group
- Sex-specific growth and mortality



Natural Mortality



Major Differences from Previous Assessment

2009 Assessment

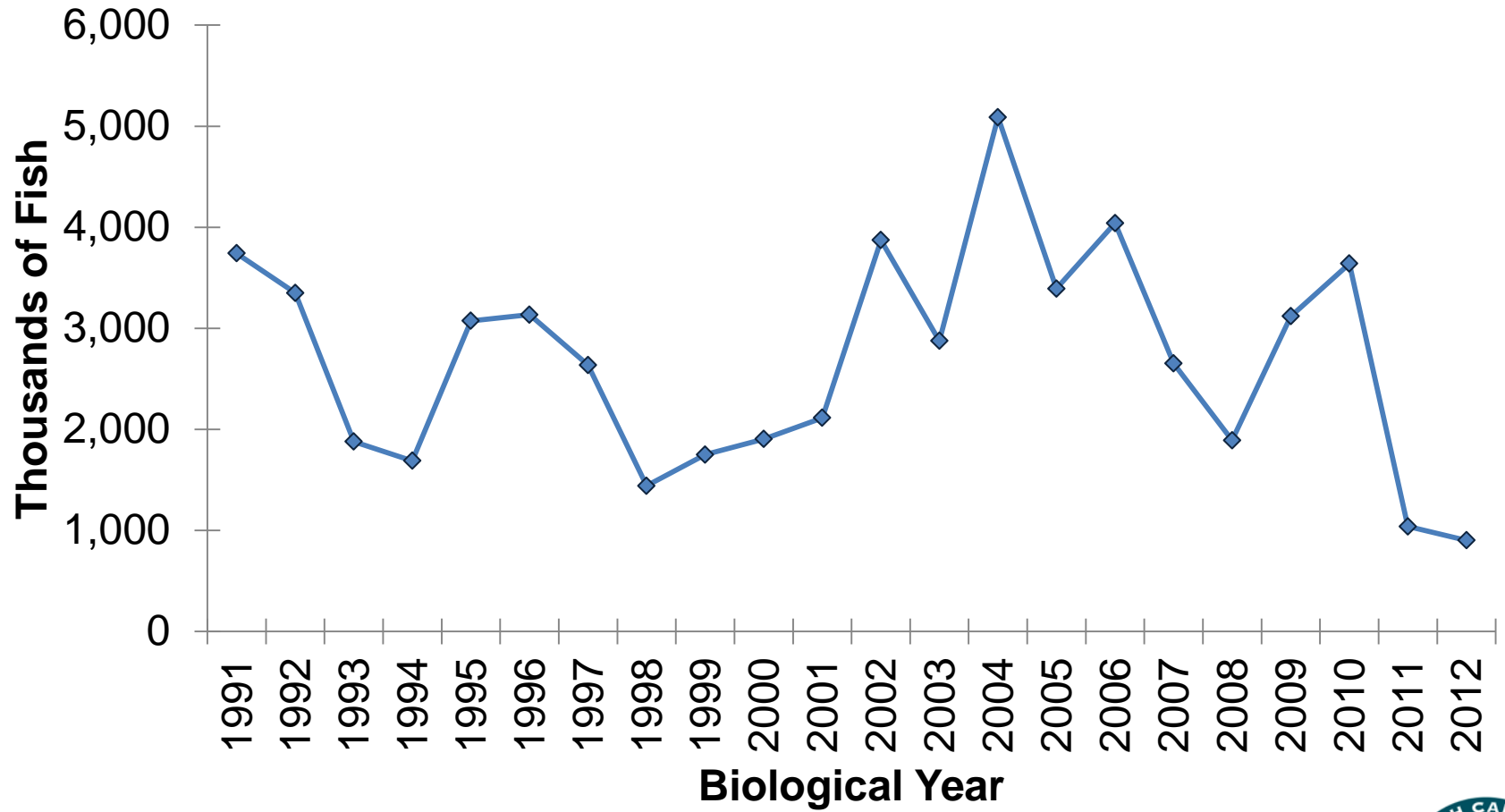
- Jan. 1 birth date
- No juvenile index
- Included fisheries-dependent indexes
- No Virginia age data
- Maximum age 12
- Age-Structured Assessment Program (ASAP) model
- No tagging data

Current Assessment

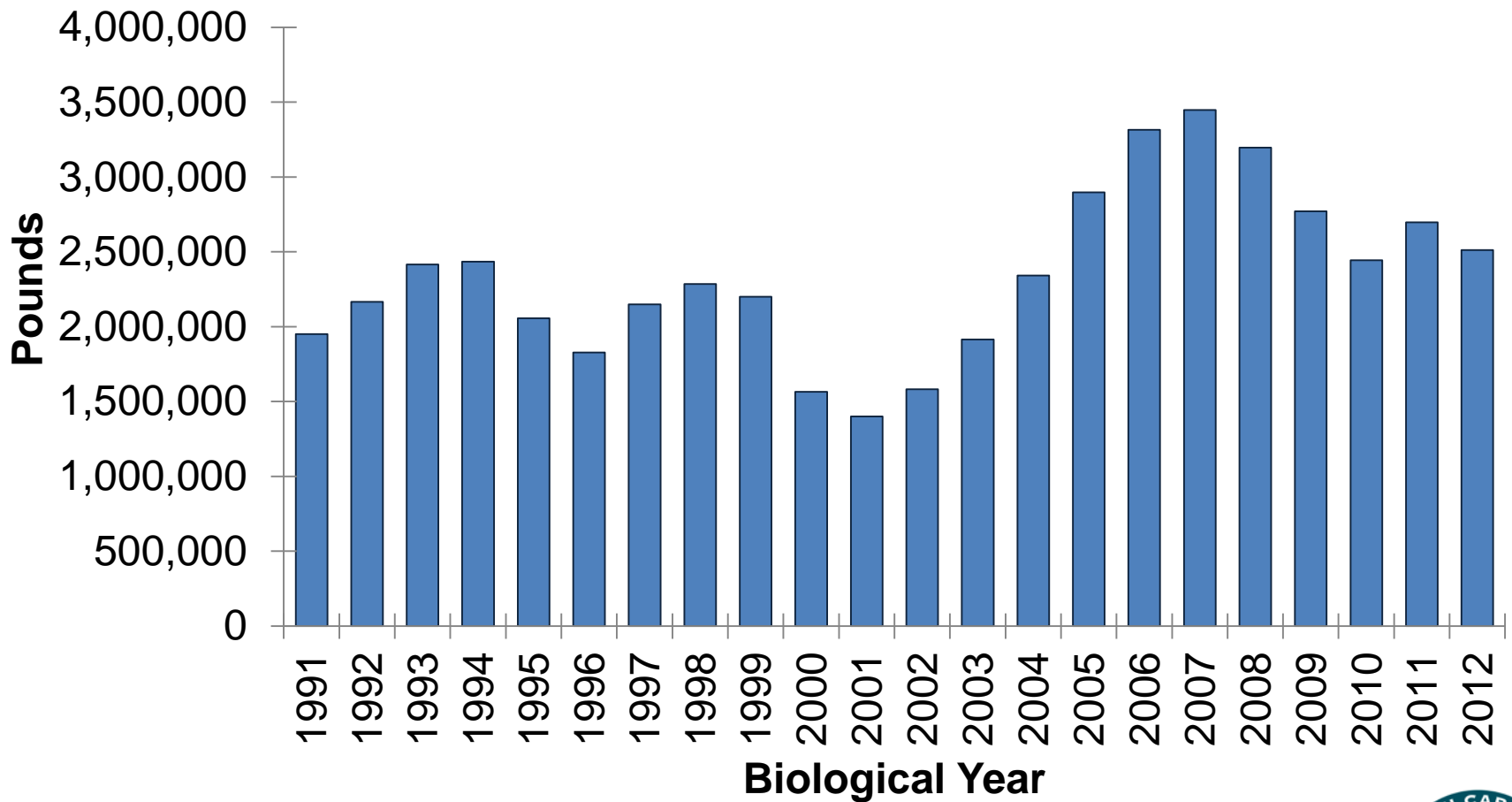
- March 1 birth date
- Juvenile index
- All indexes fisheries-independent
- Includes Virginia age data
- Maximum age 9
- Stock Synthesis model
- Incorporates tagging data



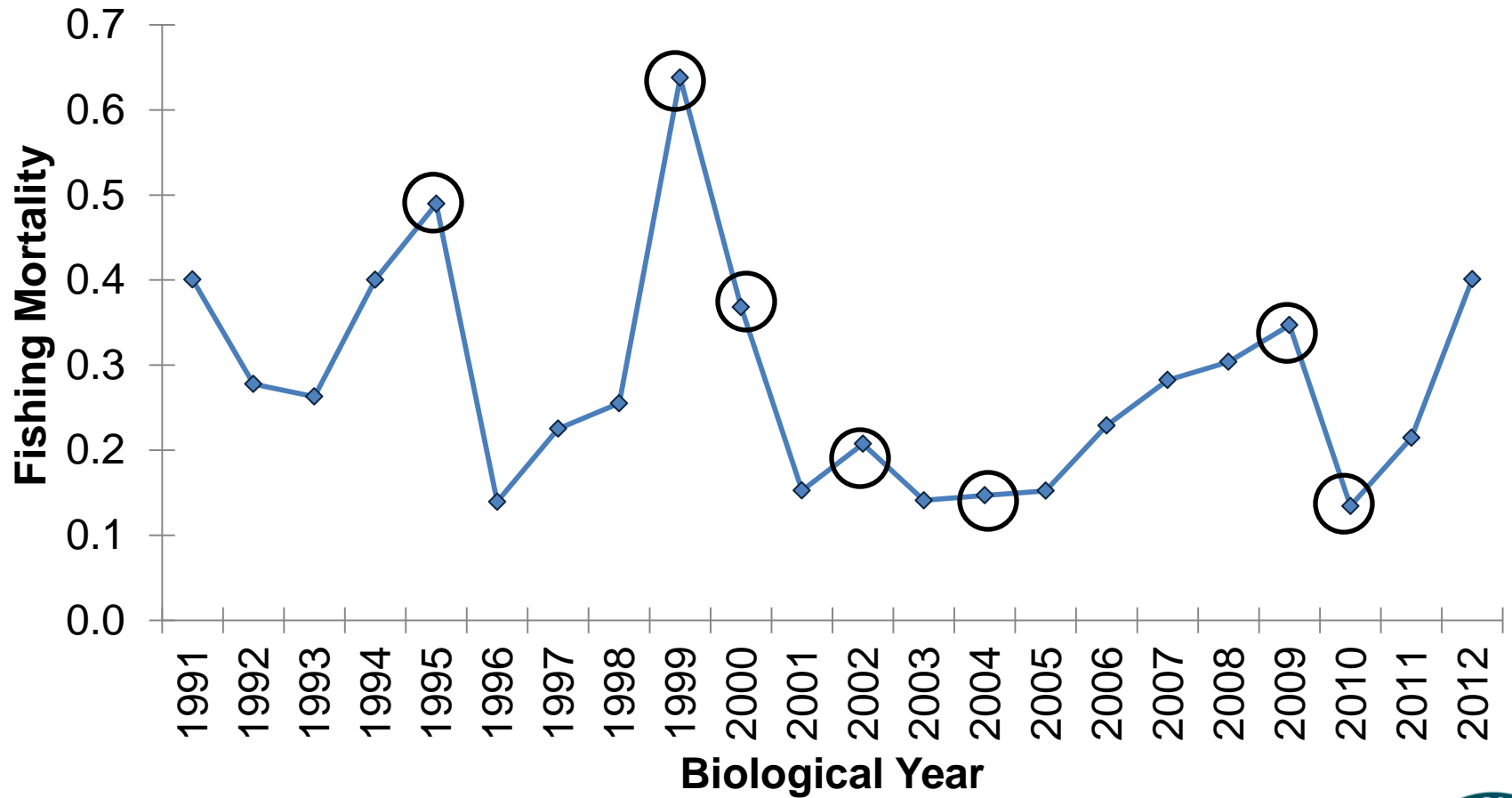
Recruitment



Spawning Stock Biomass



Fishing Mortality

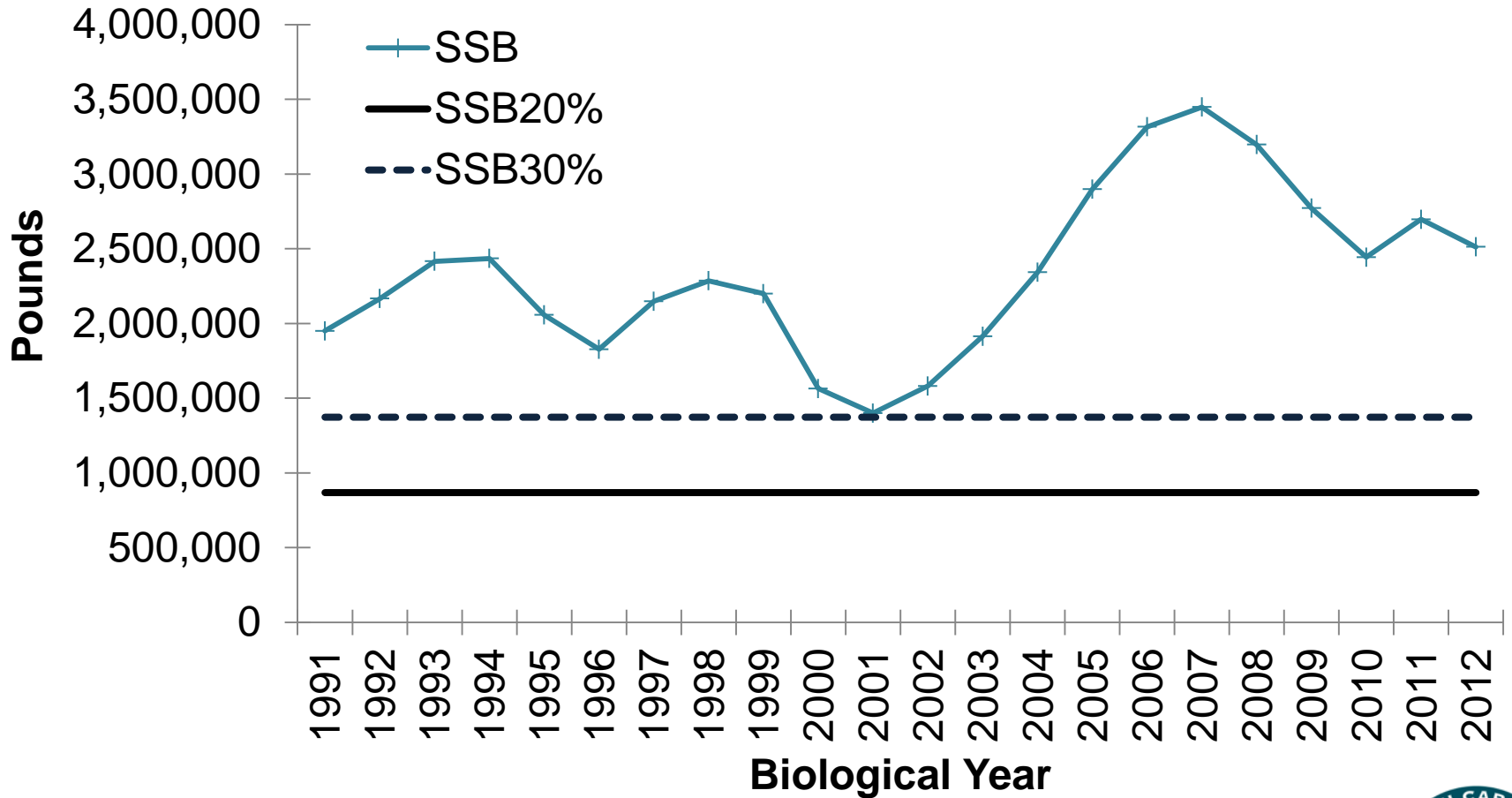


Reference Points

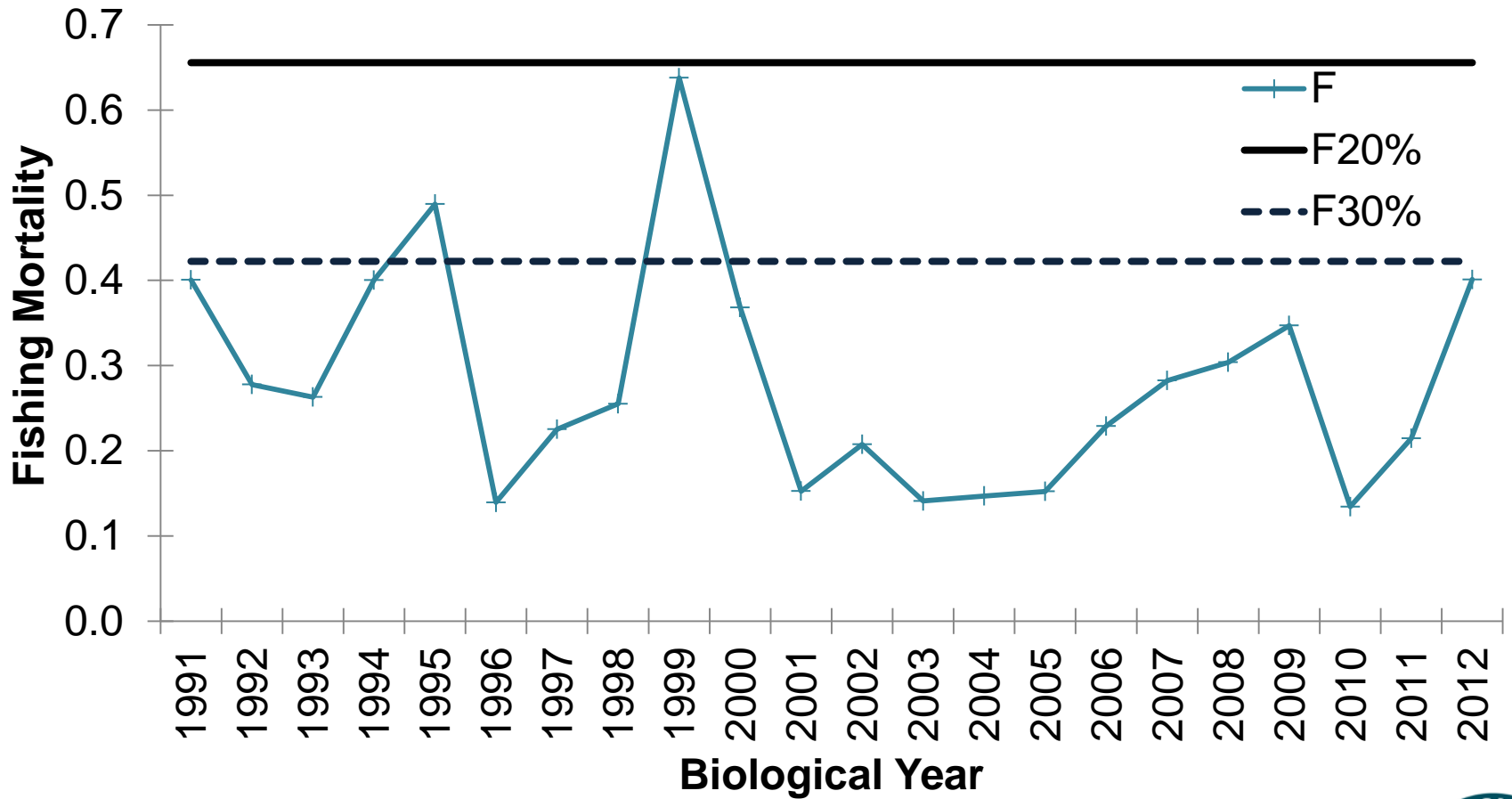
- Spawning Stock Biomass
 - $SSB_{\text{Threshold}} = SSB_{20\%} = 868,621$ pounds
 - $SSB_{\text{Target}} = SSB_{30\%} = 1,373,480$ pounds
 - $SSB_{2012} = 2,513,270$ pounds
- Fishing Mortality
 - $F_{\text{Threshold}} = F_{20\%} = 0.66$
 - $F_{\text{Target}} = F_{30\%} = 0.42$
 - $F_{2012} = 0.40$



Spawning Stock Biomass



Fishing Mortality



Stock Status

- Not overfished
- Overfishing not occurring



Selected Research Recommendations

- Develop a custom model that allows for incorporation of variable natural mortality rates
- Histological maturity
- Continue and expand tagging studies for estimating natural and fishing mortality, understanding stock structure, and examining migration
- Conduct further studies to identify appropriate unit stock



Next Step

Two options

1. Proceed with a review of the 2012 Spotted Seatrout Fishery Management Plan as scheduled, on a three-year basis
2. Revise the N.C. Marine Fisheries Commission's annual Fishery Management Plan schedule at its August business meeting for the review of the 2012 Spotted Seatrout Fishery Management Plan to begin in 2017 for a total of five years between reviews



Division of Marine Fisheries

Recommendation

- Revise the N.C. Marine Fisheries Commission's annual Fishery Management Plan schedule at its August business meeting for the review of the 2012 Spotted Seatrout Fishery Management Plan to begin in 2017 for a total of five years between reviews
- Recommendation based on:
 - Declining spawning stock biomass since 2007
 - 2012 fishing mortality, 0.40, is very near the target of 0.42
 - Cold stun event in 2014 – resulted in a fishery closure
 - Cold stun event in 2015



Questions?

