Assessment of the Albemarle Sound-Roanoke River (A-R) Striped Bass in North Carolina

DEPARTMENT OF ENVIRONMENTAL QUALITY

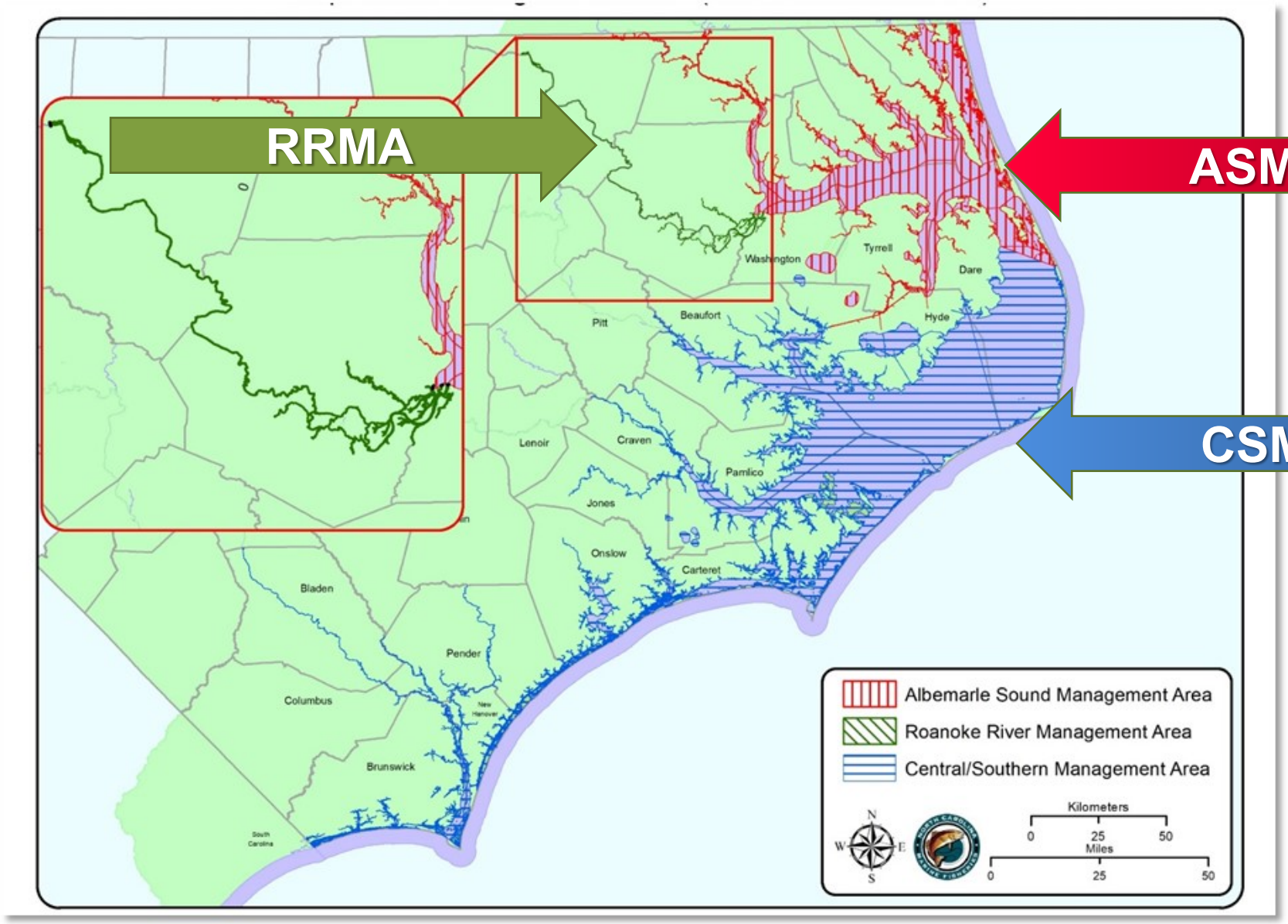
Marine Fisheries

N.C. Marine Fisheries Commission Meeting | Laura Lee & Charlton Godwin | Nov. 19, 2020

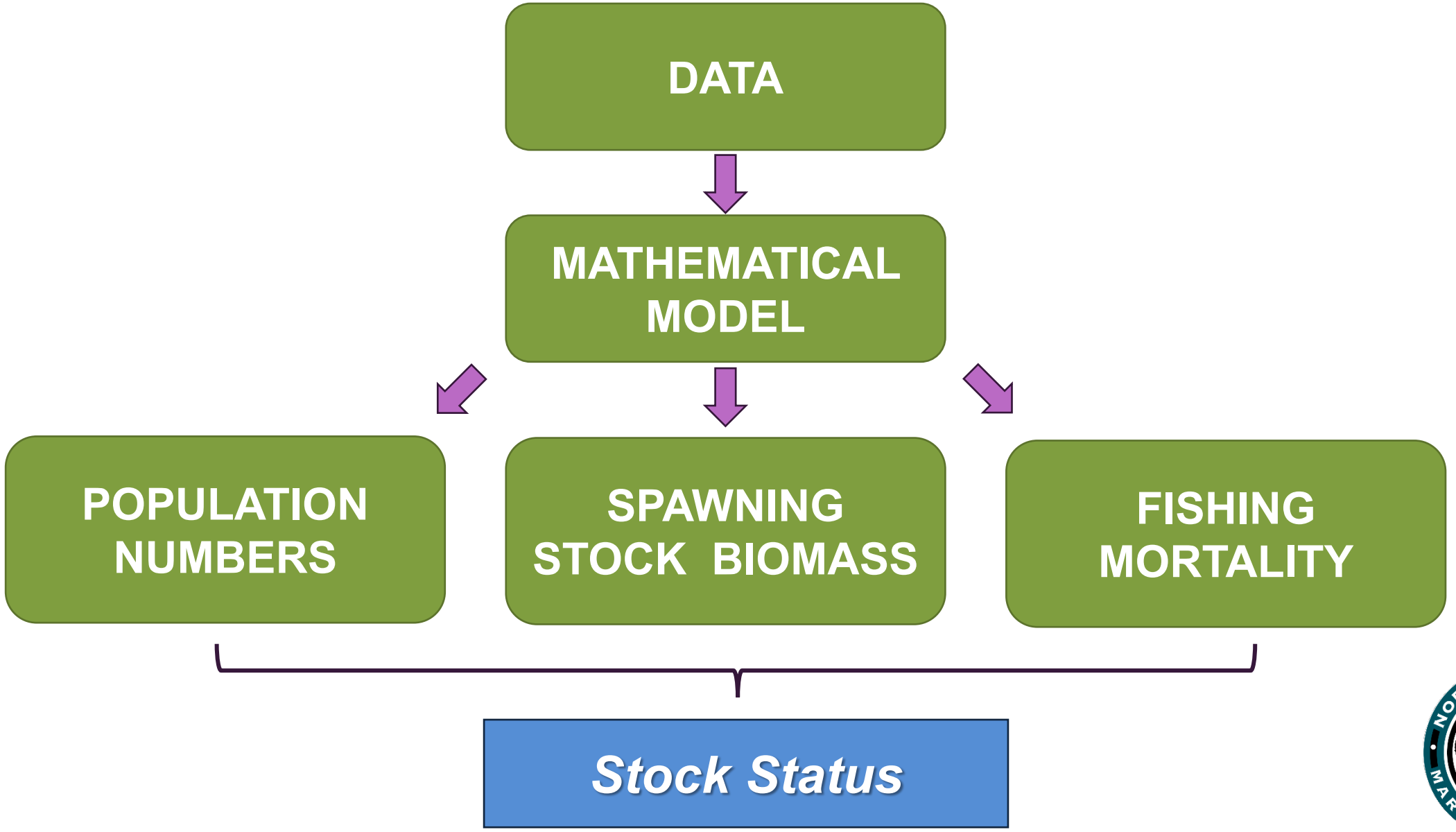
PRESENTATION OUTLINE

- Results of Albemarle-Roanoke (A-R) striped bass stock assessment
- Adaptive Management: 2020 Revision to Amendment 1 to the Striped Bass FMP
- Causes for the population decline
- Ongoing development of Amendment 2 to the Striped Bass FMP

Striped Bass Management Areas



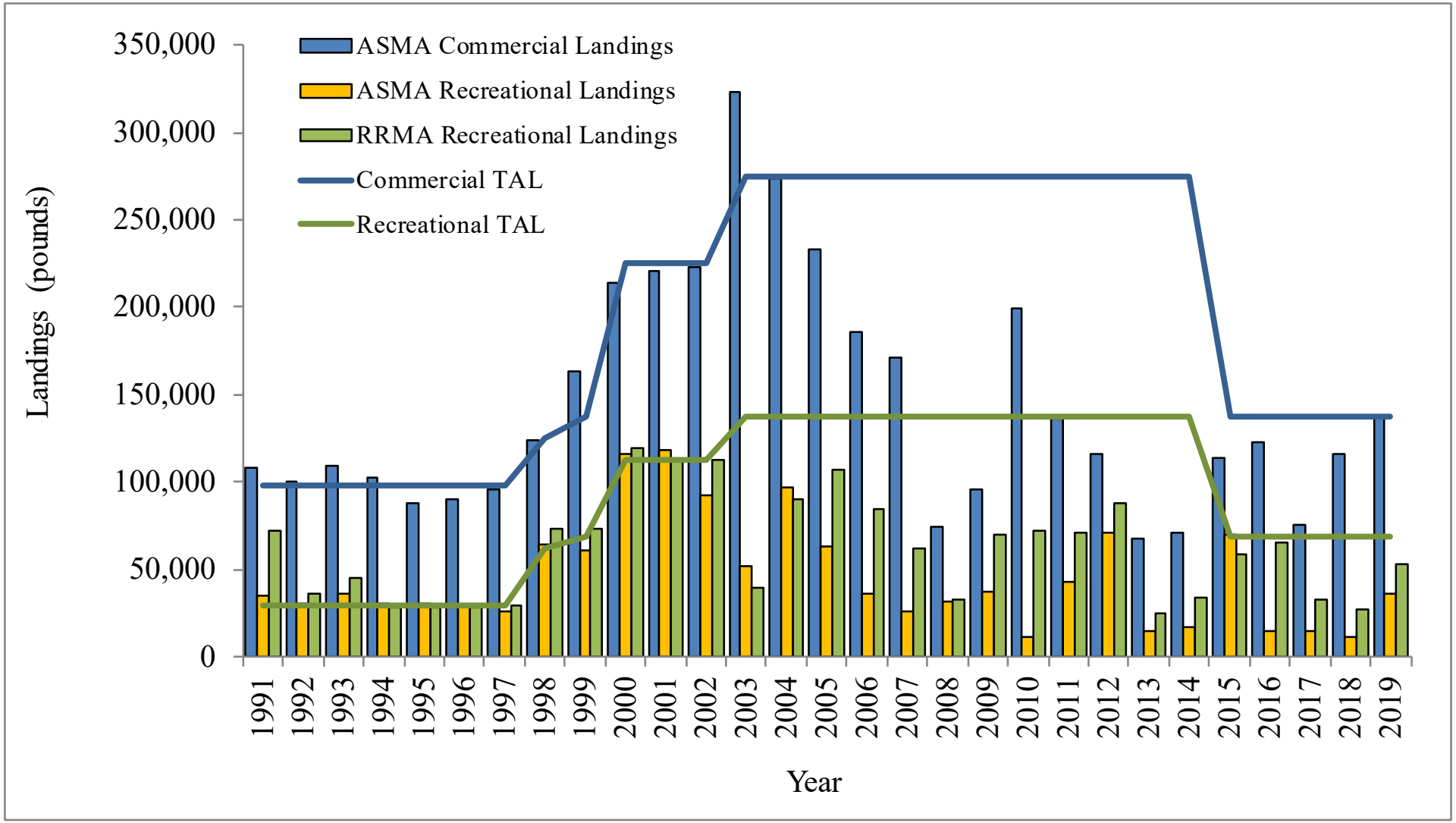
A-R STOCK ASSESSMENT



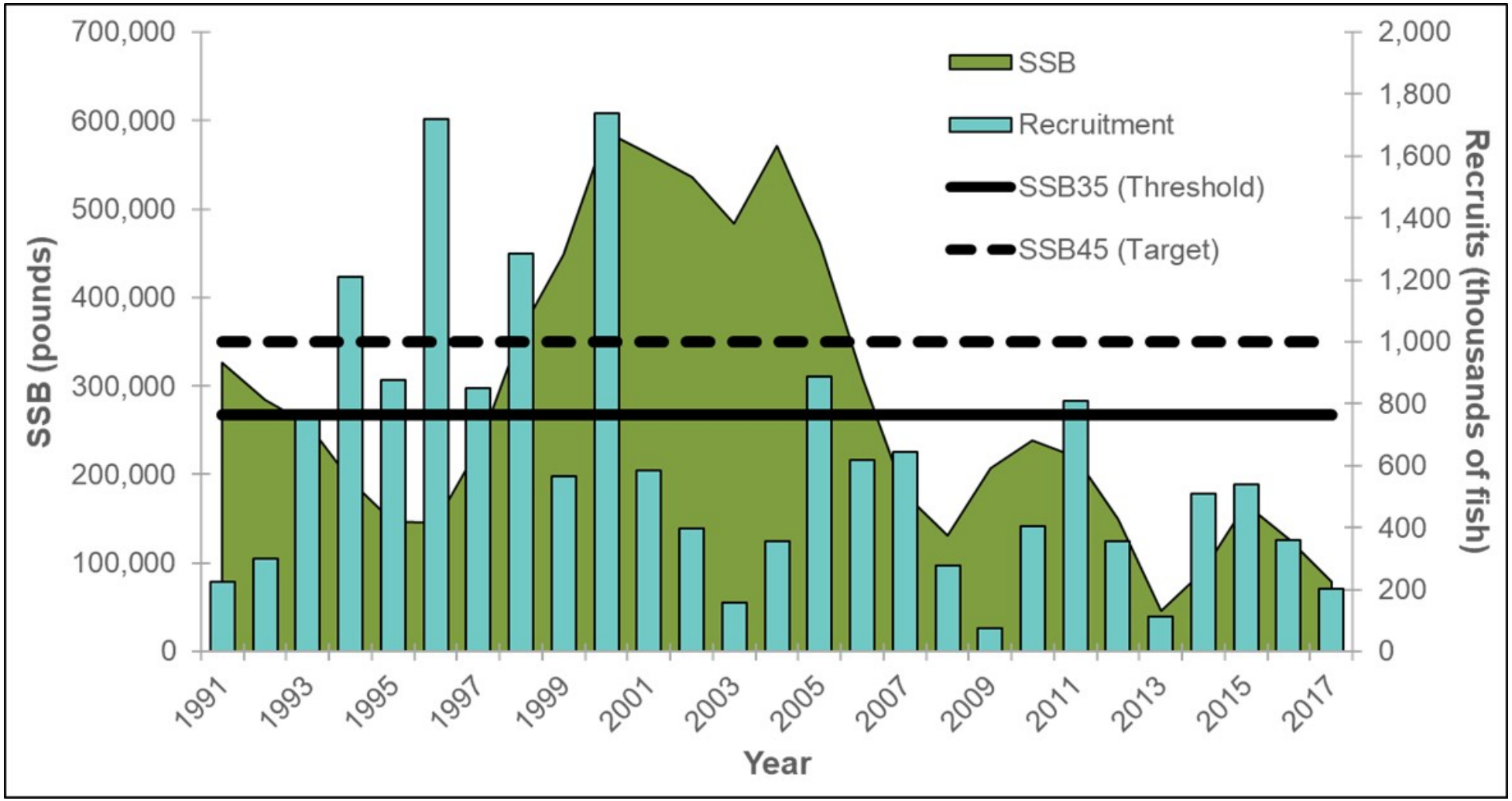
A-R STOCK ASSESSMENT
Data

- Time series: 1991 through 2017
- Fisheries-Dependent
  - Commercial landings and dead discards
  - Recreational harvest and dead discards
  - Biological samples (length, weight, age)
- Fisheries-Independent
  - Juvenile survey
  - Fall gill net survey
  - Spring gill net survey
  - Electrofishing survey
  - Biological samples (length, weight, age)

A-R STOCK ASSESSMENT
Data—Landings



A-R STOCK ASSESSMENT
Model—Spawning Stock Biomass (SSB) & Recruitment

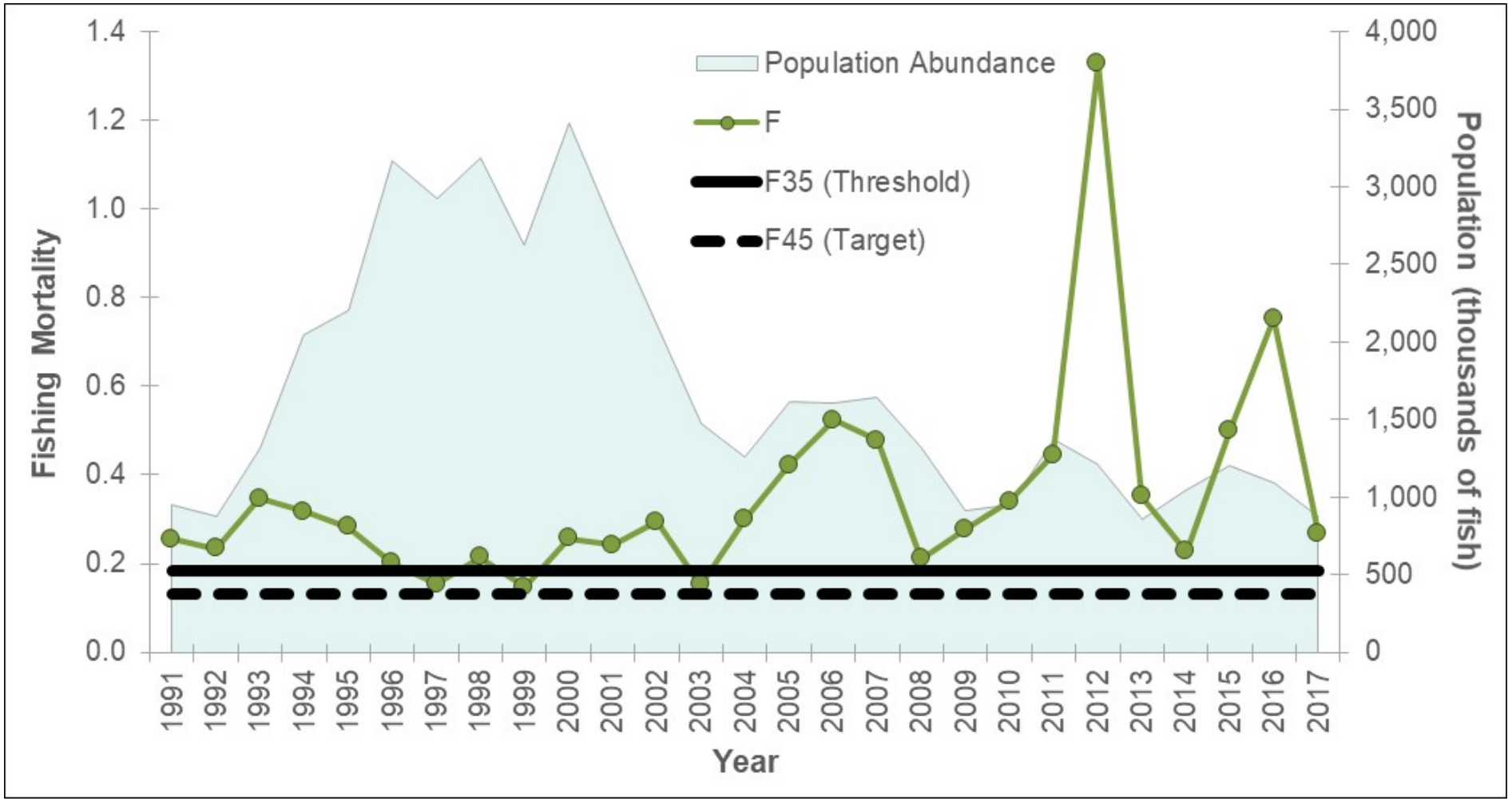


A-R STOCK ASSESSMENT
Stock Status 2017—Female Spawning Stock Biomass (SSB)

- SSB in the terminal year of the assessment is below the SSB Threshold, so the stock is overfished

Biological Reference Points		Terminal Year (2017) Estimate
SSB 45% Target	350,371 (lb)	78,576 (lb)
SSB 35% Threshold	267,390 (lb)	(Overfished)

A-R STOCK ASSESSMENT
Model—Fishing Mortality (F) & Population Abundance

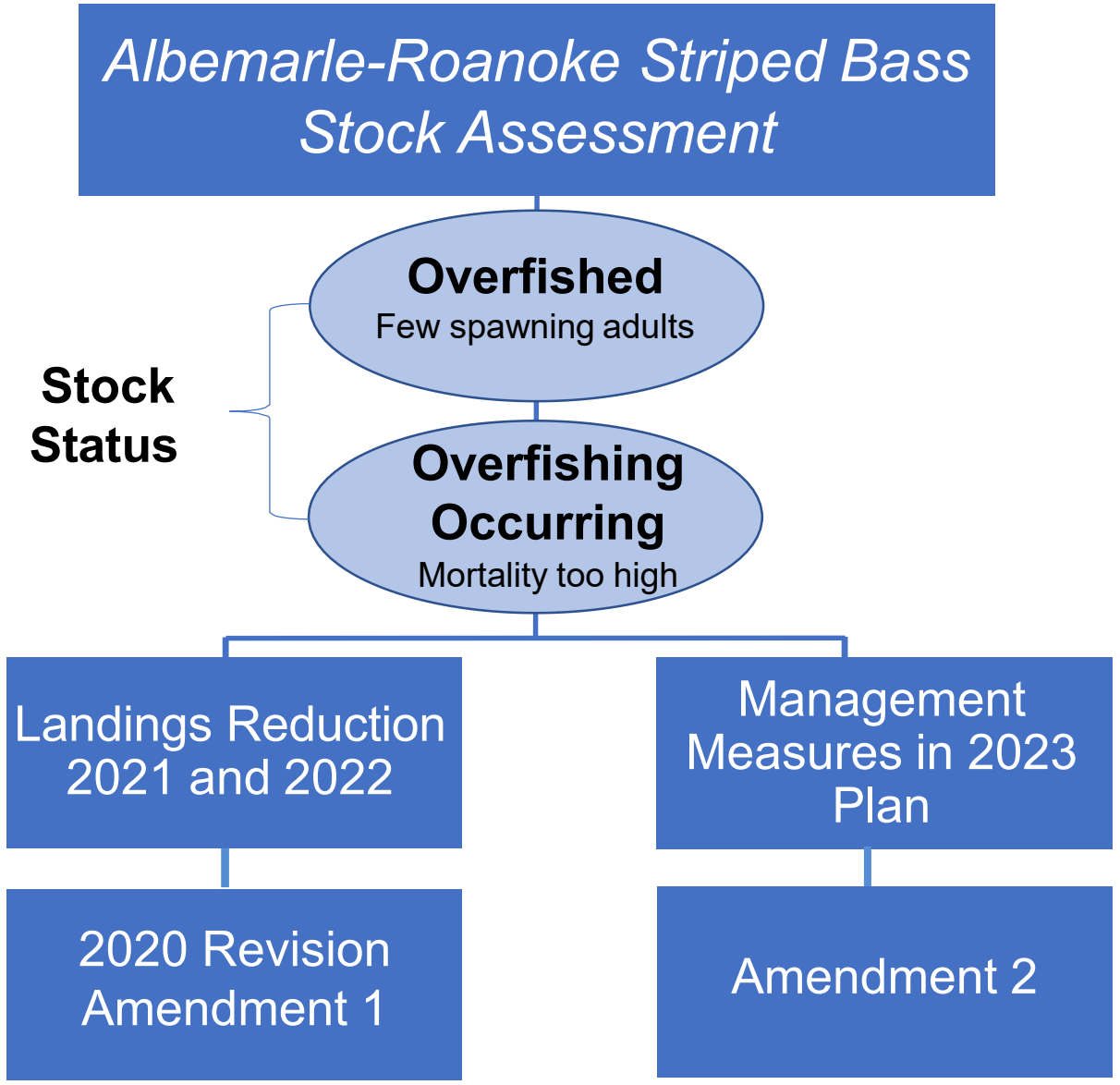


A-R STOCK ASSESSMENT
Stock Status 2017—Fishing Mortality

- Fishing mortality in the terminal year of the assessment is above the threshold, so overfishing is occurring

Biological Reference Points		Terminal Year (2017) Estimate
F 45% Target	0.13	0.27
F 35% Threshold	0.18	(Overfishing)

Amendment 1-Adaptive Management



Amendment 1—Adaptive Management

- 2020 Revision to Amendment 1 will lower the TAL in 2021 and 2022
- Based on the required reduction to lower F to the F Target
- Calculation involved reducing 2017 landings (119,244 lb) by 57%
- 2020 Revision will meet the Adaptive Management in Amendment 1 that states:

  "should the target F be exceeded, then restrictive measures will be imposed to reduce F to the target level"

Amendment 1—Adaptive Management

- 2021 and 2022 TAL for the Albemarle Sound and Roanoke River Management Areas:
  - ASMA Commercial 25,608 lb
  - ASMA Recreational 12,804 lb
  - RRMA Recreational 12,804 lb
- ASMA Commercial
  - close season when TAL is reached
- ASMA Recreational
  - Evaluate creel and harvest days reduction

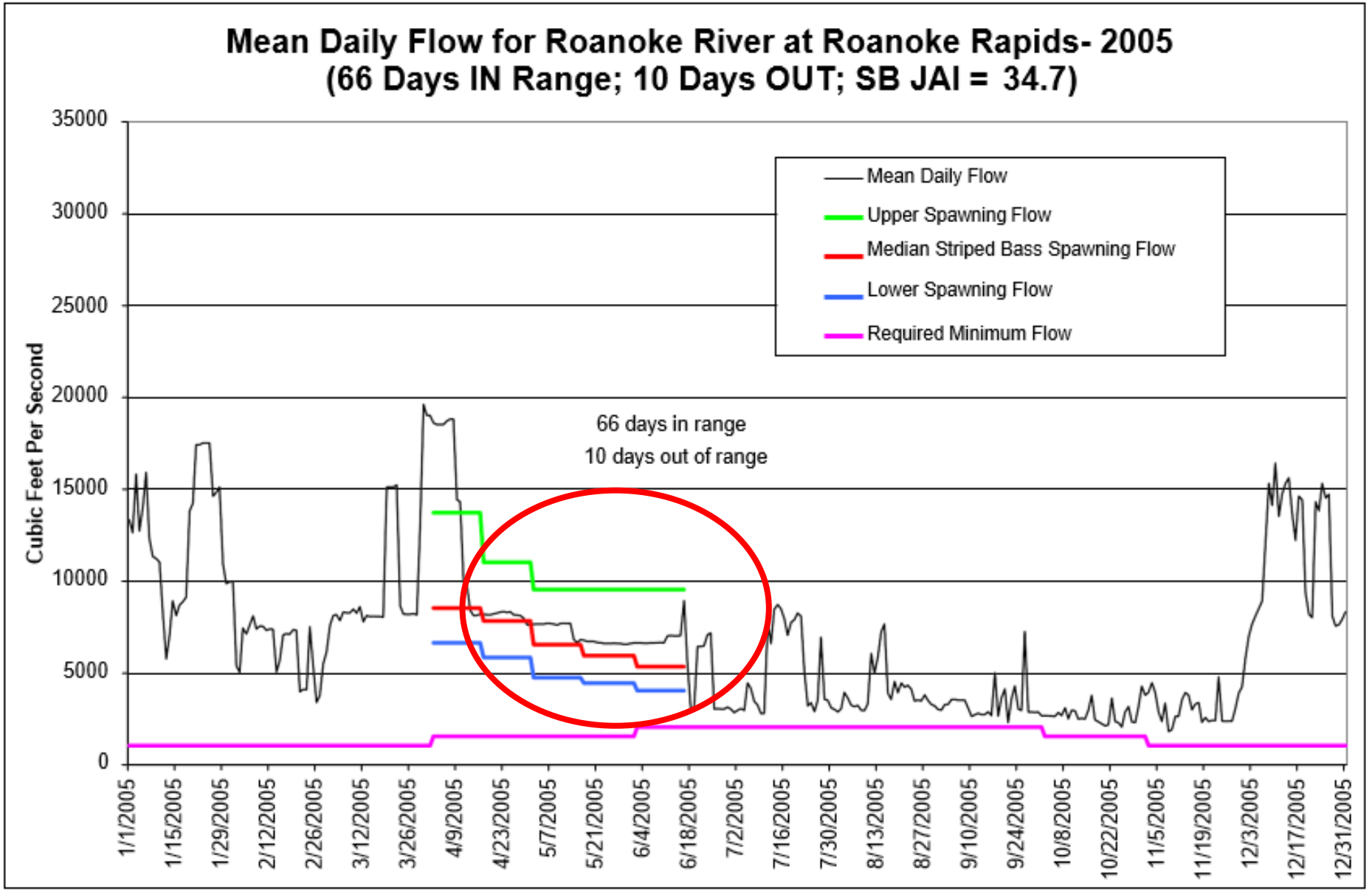
CAUSES FOR POPULATION DECLINE

- Poor recruitment is the primary reason for the population decline
- Many years of above-average recruitment (1993-2000) resulted in sharp increase in abundance
- Starting in 2001, several below-average recruitment years and some spawning failures (2003, 2004, 2009, 2013)
- And most recently very low recruitment in 2017, 2018, 2019, and 2020

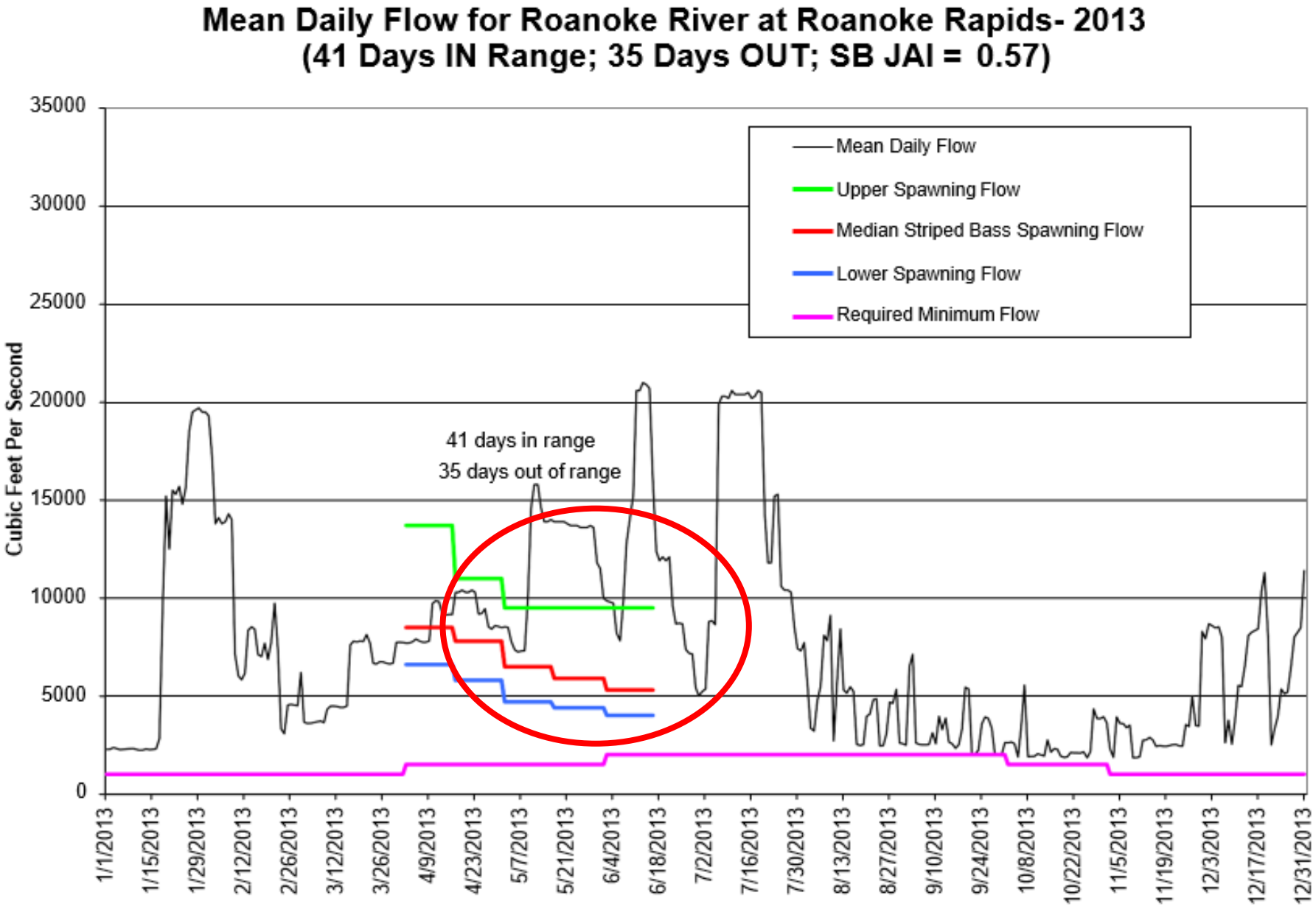
STREAM FLOW MANAGEMENT

- Roanoke Rapids and Gaston Dams
  - Dominion Energy
  - FERC License Agreement in 2004
  - No hydropeaking in spring
- John H. Kerr Dam
  - US Army Corps of Engineers
  - **Negotiated Flow Regime** provides beneficial flows for striped bass spawning
  - Flood Control up to 35,000 cfs

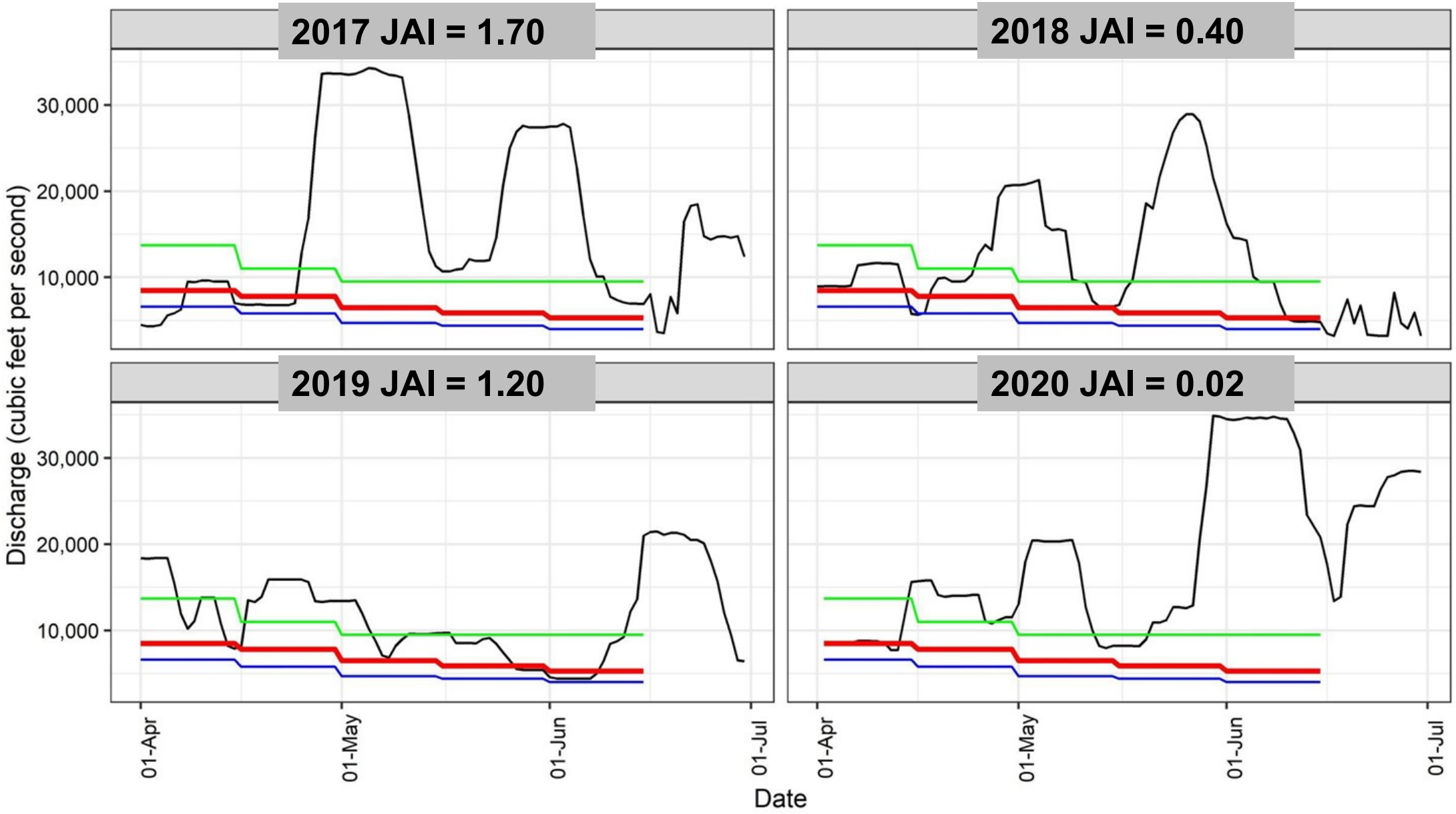
GOOD FLOW—GOOD RECRUITMENT YEAR



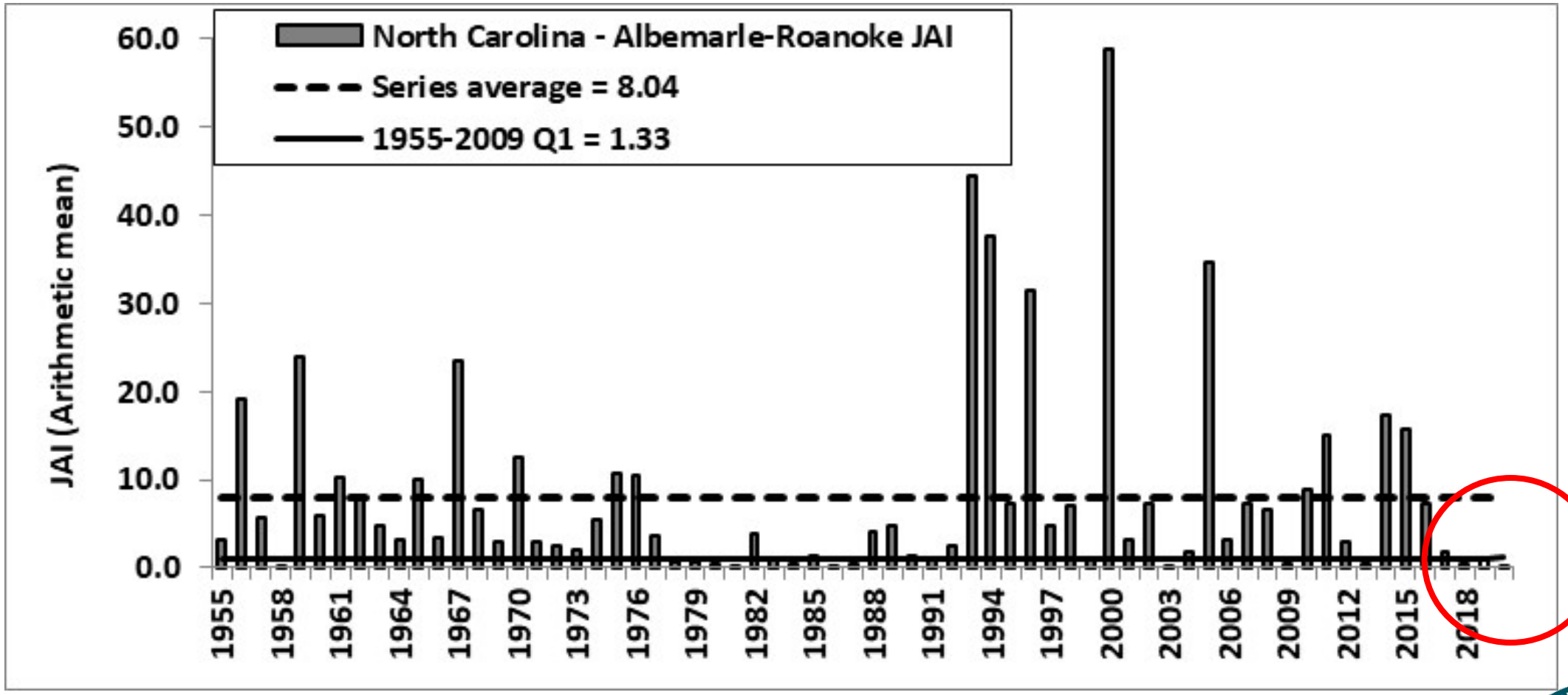
BAD FLOW—BAD RECRUITMENT YEAR



2017—2020; BAD FLOW—VERY LOW RECRUITMENT YEARS



2017—2020: ALL VERY LOW RECRUITMENT YEARS



NEXT STEPS IN AMENDMENT 2 DEVELOPMENT

Amendment 2

- Primary management strategy is long-term sustainable harvest
- Hot Topics page on division website
- Public scoping held Nov. 2-15 to solicit public comment
- At the February 2021 business meeting the MFC will:
  - ➢Receive results of the scoping period
  - ➢Vote on approval of draft goal and objectives of Amendment 2
  - ➢Provide input on proposed strategies and any additional management strategies

QUESTIONS?