



Adaptive Management of the North Carolina Striped Mullet Stock

Presented to: Marine Fisheries Commission

DEPARTMENT OF ENVIRONMENTAL QUALITY

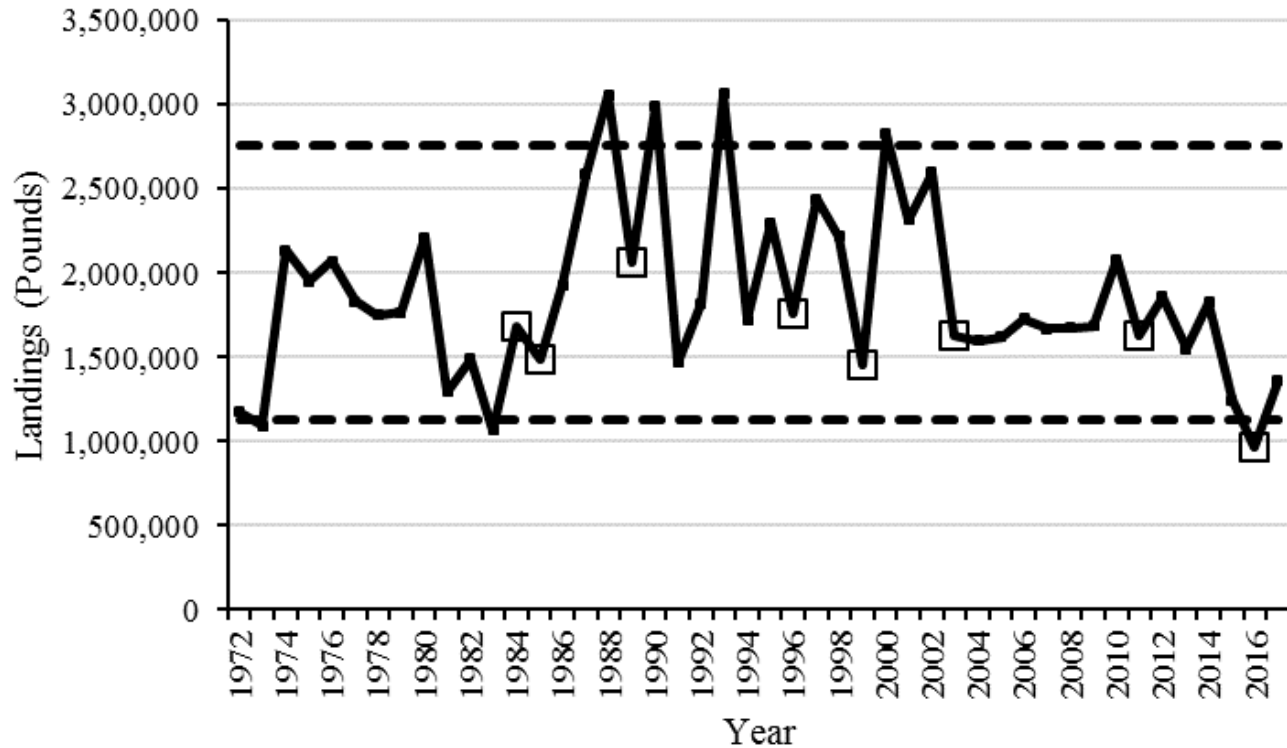
Marine Fisheries

Marine Fisheries Commission | Daniel Zapf and Tracey Bauer | August 16, 2018



Commercial Landings Trigger – Amendment 1

- Minimum (1.13 million) and maximum (2.76 million) commercial landings triggers



□ years with major hurricanes

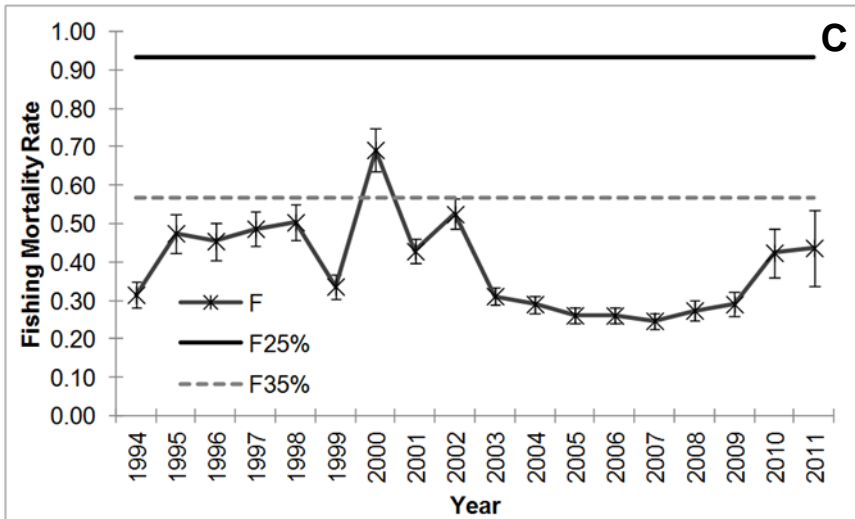
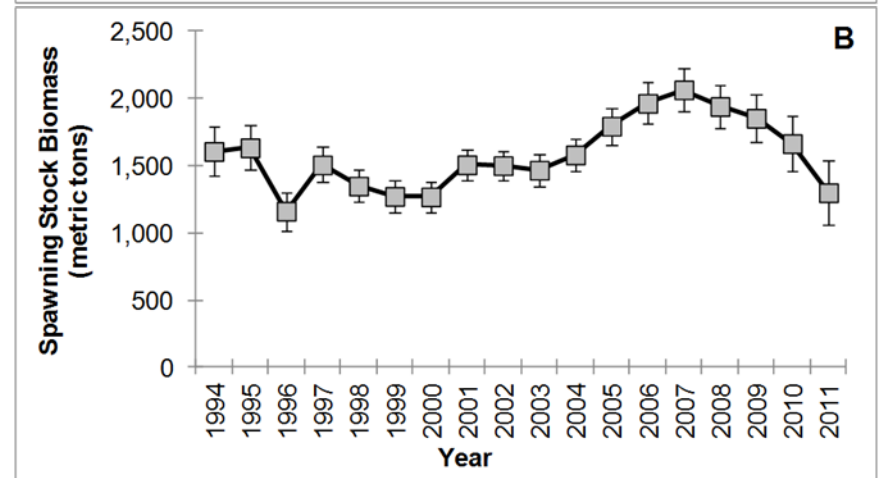
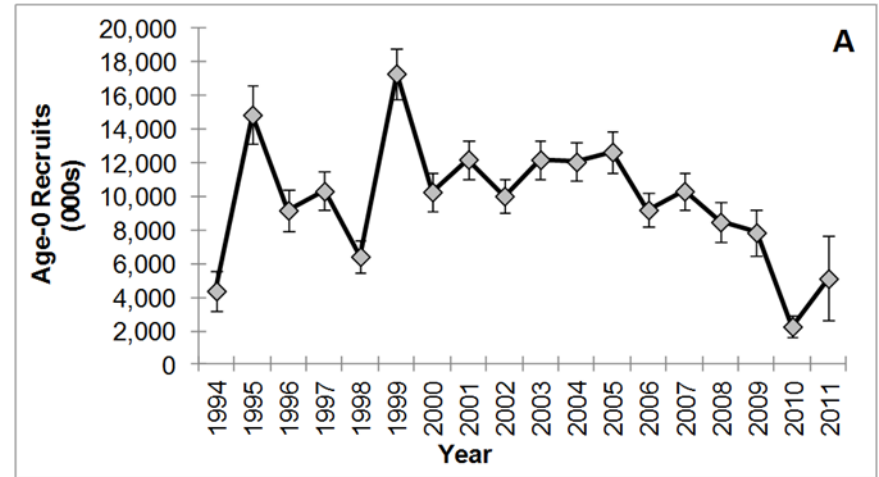
Timeline - Review

- July 2017: Stock Overview report
- August 2017: Presented Stock Overview
- November 2017: Preliminary data and recommendations
- February 2018: Updated data and recommendations
- May 2018: Stock assessment update with data through 2017
- June 2018: Development of management options and division recommendation
- July 2018: Finfish, Southern, Northern advisory committees
- August 2018: Recommendations to Commission



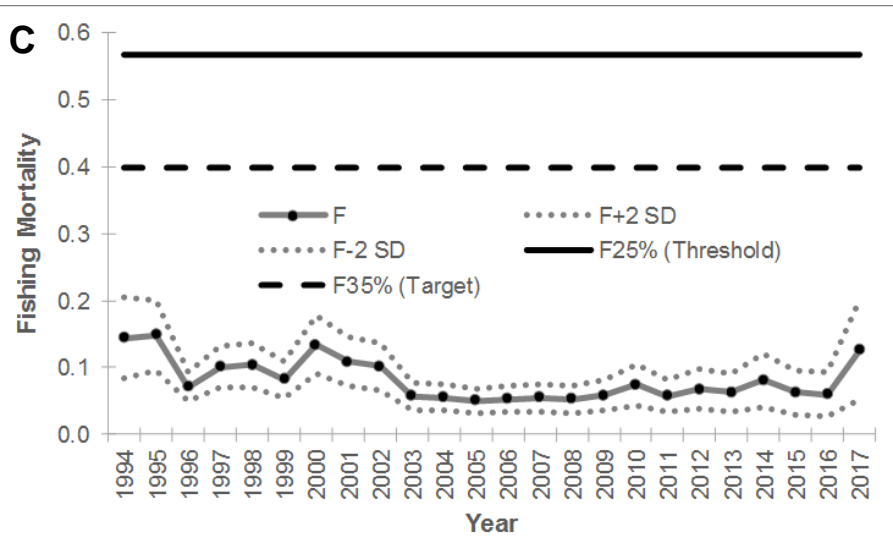
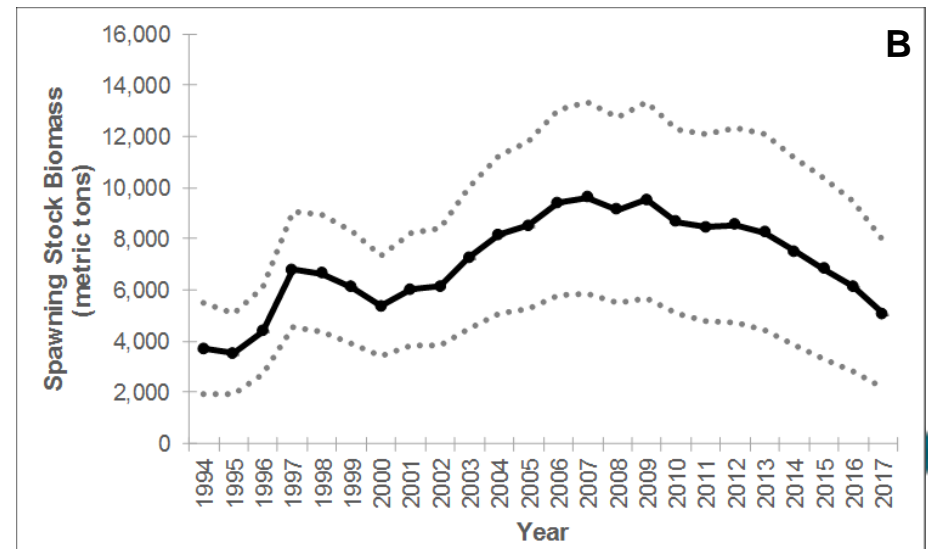
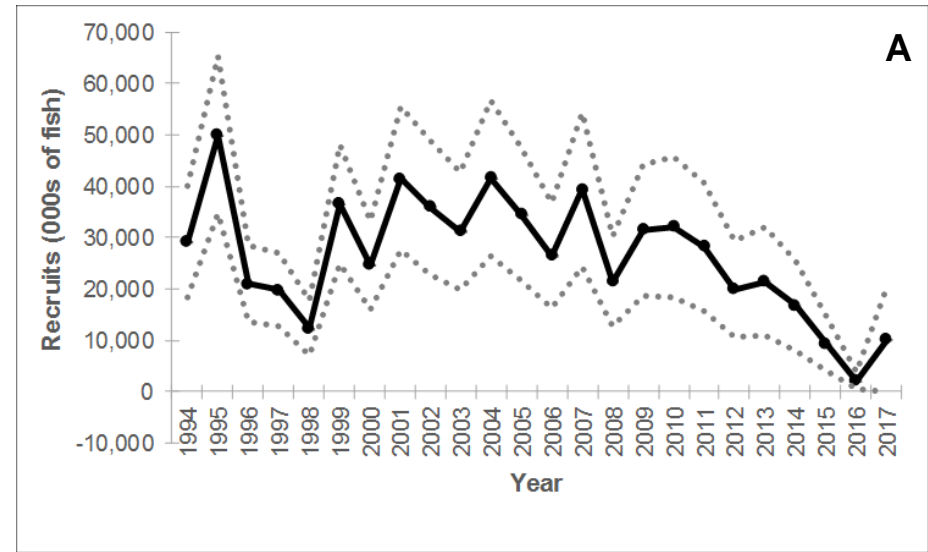
Benchmark Stock Assessment Amendment 1

- Stock assessment 2013 (1994-2011)
- No overfishing, overfished status not determined
- Amendment 1 (2015)



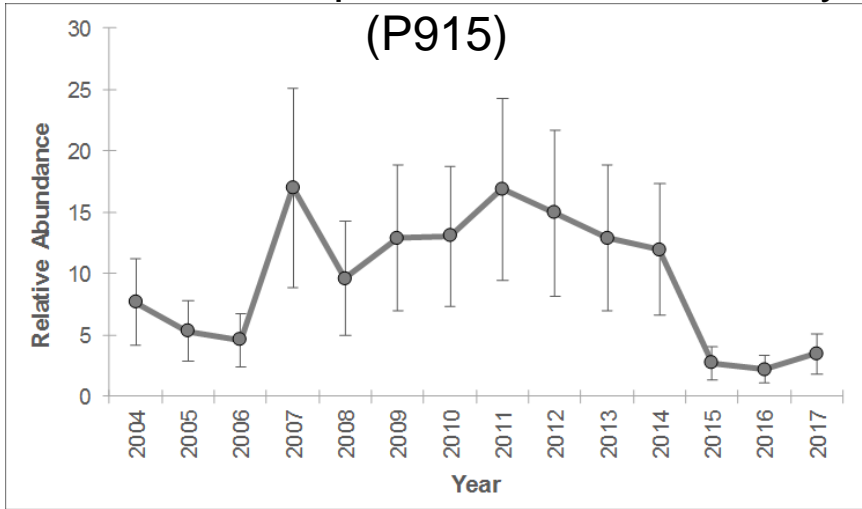
Updated 2018 Stock Assessment

- Not overfishing (Figure C)
- Limited adjustments could be made to model parameters
- Technical issues with stock assessment inputs and model increase uncertainty
- Roe fishery

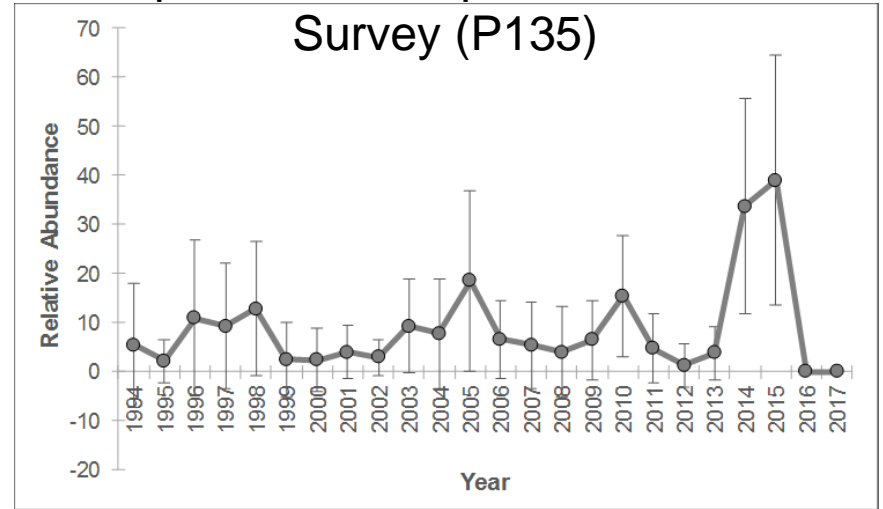


Fishery-Independent Indices

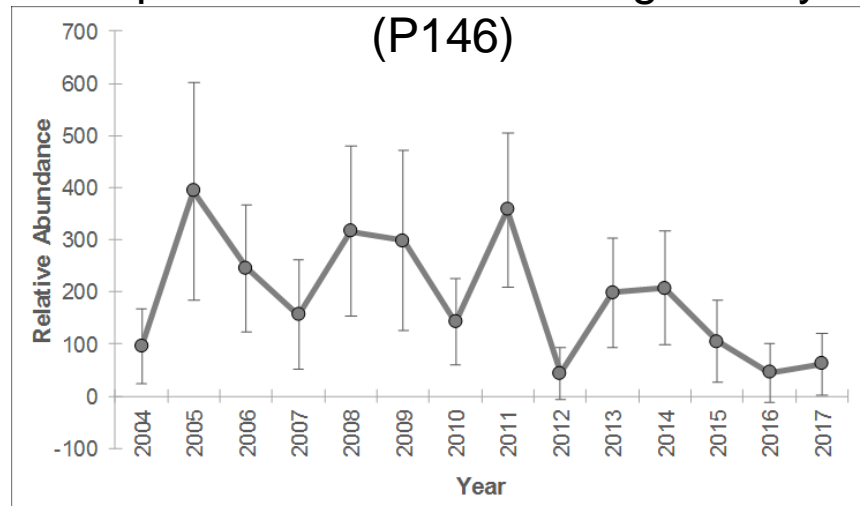
Fisheries-Independent Gill-Net Survey (P915)



Striped Bass Independent Gill-Net Survey (P135)



Striped Mullet Electrofishing Survey



Current Regulations

- Commercial: None
- Recreational: 200 mullet (white and striped) daily possession limit



Adaptive Management

- Review of FMP scheduled for 2020
- Commission consider management strategies
 - No additional management action
 - Additional management measures



No Additional Management Action

- + No additional restrictions on fishing practices
- + No additional enforcement responsibilities for Marine Patrol
- + Aligns with results of stock assessment
- Continue fishery at a level that may result in more restrictive harvest reduction strategies in the future
- Continue unregulated harvest of mature female striped mullet which could lead to recruitment overfishing



Additional Management Measures

- + Could prevent future overfishing
- + Proactive response to negative trends
- Additional restrictions on fishing practices
- Not necessary to end overfishing
- Additional enforcement responsibilities for Marine Patrol



Additional Management Measures: Season Closure

Closure Period	Approximate Increase in Percent Escapement		
	1994-2017	2003-2017	2015-2017
September	8	8	9
October	36	34	23
November	22	23	33
December	4	4	6
October 15 - November 15	45	45	39
October 1 - October 15 AND November 15 - November 30	14	15	18
November 15 - December 31	10	11	21

Additional Management Measures: Season Closure

- + Framework and resources for implementation already exist
- + No additional reporting burden for dealers
- + Could reduce effort from current level
- + Reduces harvest on mature females
- Effort may increase during the open season reducing the effectiveness of the closure
- May adversely affect some part of fishery more than others
- Effort shift to other fisheries, like spotted seatrout
- Weather may prevent fishing during open periods
- Increase enforcement responsibilities for Marine Patrol
- Create regulatory discards during the closed season



Additional Management Measures: Other Options

- + May reduce fishing mortality
- May not increase escapement of mature female striped mullet to the ocean to spawn
- Increase regulatory burden on fishery
- Increase enforcement responsibilities for Marine Patrol
- Create regulatory discards
- May shift harvest to larger or smaller fish
- May shift harvest from one sector of the fishery to another



Division Recommendation

- Retain FMP schedule review for 2020
- Given results of the stock assessment update indicate overfishing is not occurring, the division recommends no additional management action
- Division will continue to monitor trends in the striped mullet fishery and trends in fishery-independent indices annually



Advisory Committee Recommendations

- Finfish – Support Division Position
 - 8-0
- Southern – Support Division Position
 - 8-0, 1 abstention
- Northern – Support Division Position
 - 6-1



Questions?

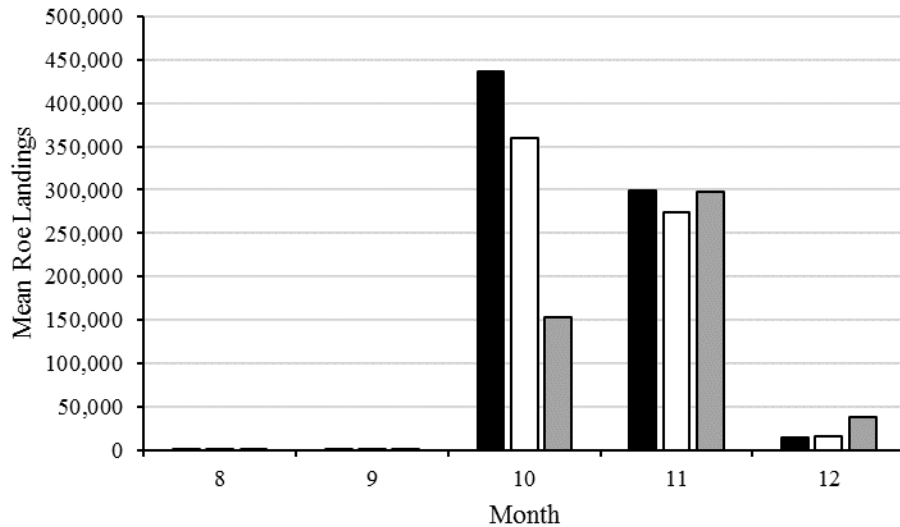


Department of Environmental Quality



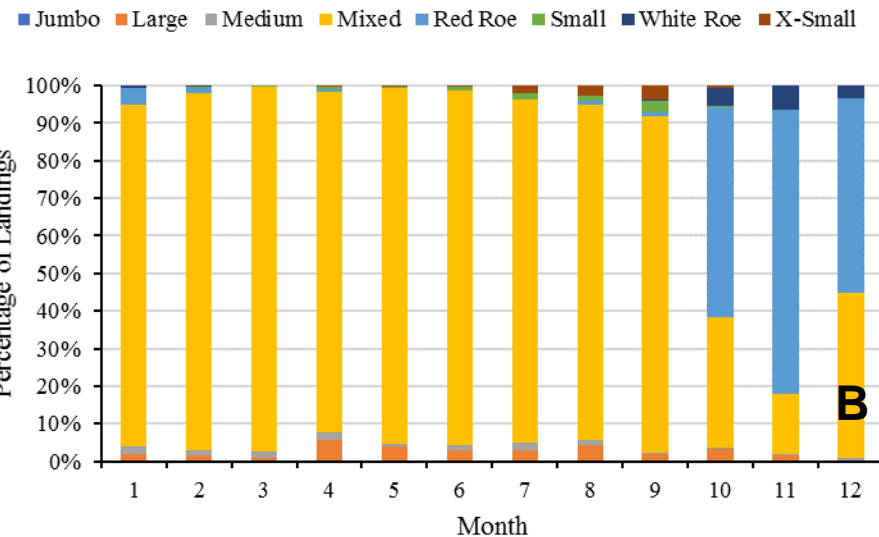
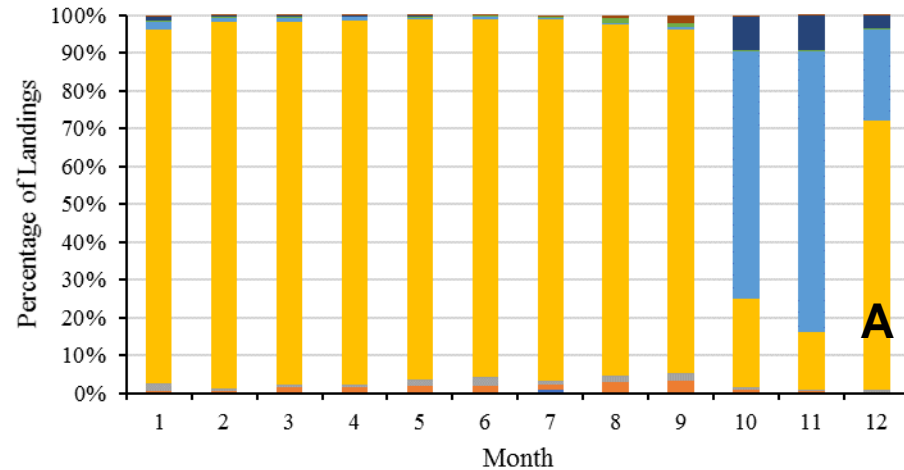


Additional Management Measures: Season Closure

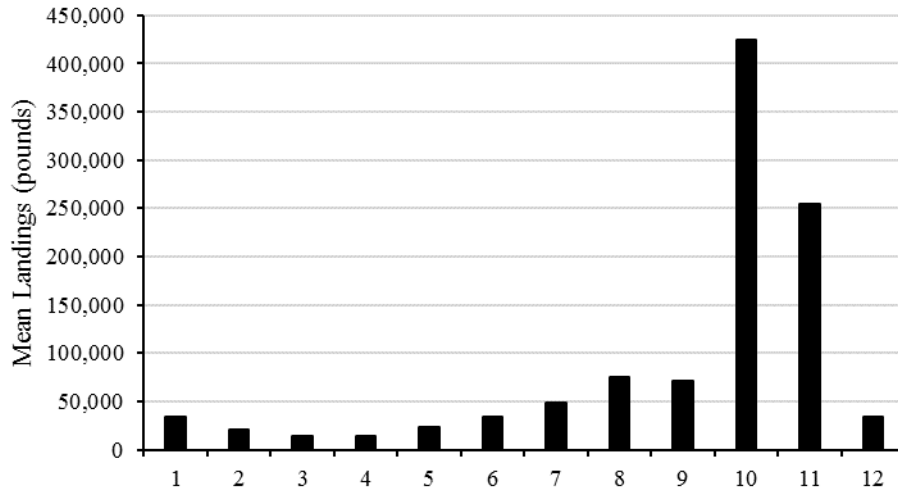


Mean commercial landings of striped mullet graded as “red roe” using 1994-2017 (black), 2003-2017 (white) and 2015-2017 (gray) reference periods.

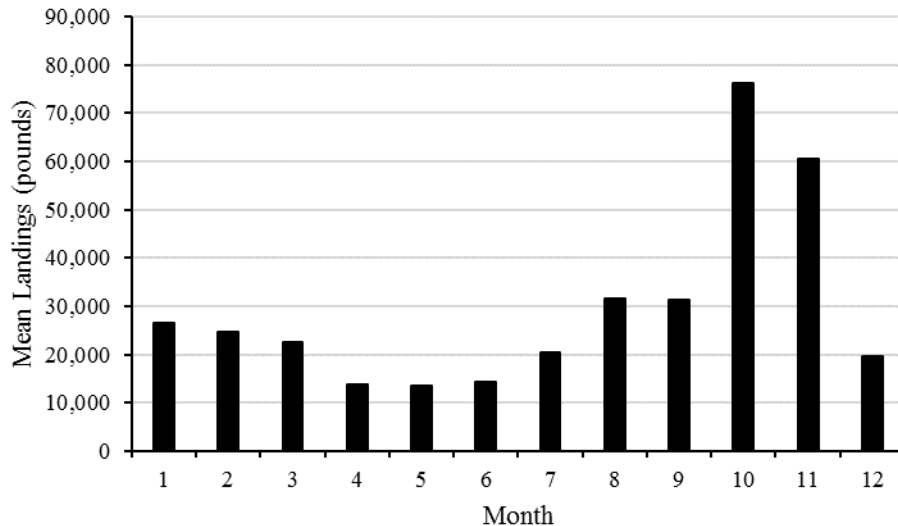
Percentage of striped mullet commercial landings by market grade using a 2003-2017 reference period (A) and a 2015-2017 reference period (B)



Additional Management Measures: Season Closure



Mean commercial landings from the runaround gill net fishery by month, 2004-2017



Mean commercial landings from the set gill net fishery by month, 2004-2017

