



Temporary Management Measures to End Overfishing of the North Carolina Striped Mullet Stock

DEPARTMENT OF ENVIRONMENTAL QUALITY

Marine Fisheries

N.C. Marine Fisheries Commission | Daniel Zapf and Jeffrey Dobbs | Nov. 16-18, 2022

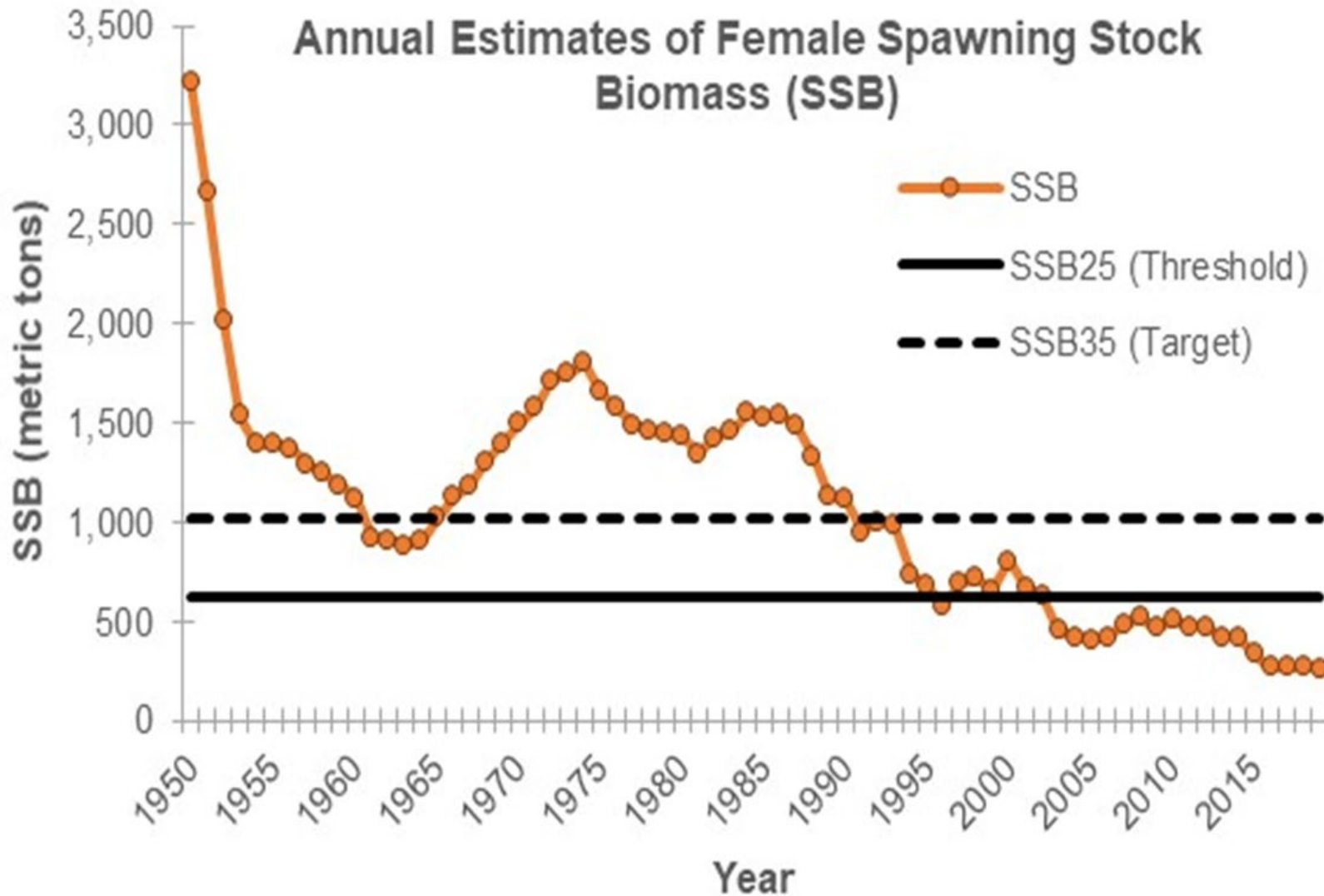


Outline

- Benchmark stock assessment results
- Need for temporary management measures
- Striped mullet life history
- Characterize fisheries
- Potential management
- DMF recommendation



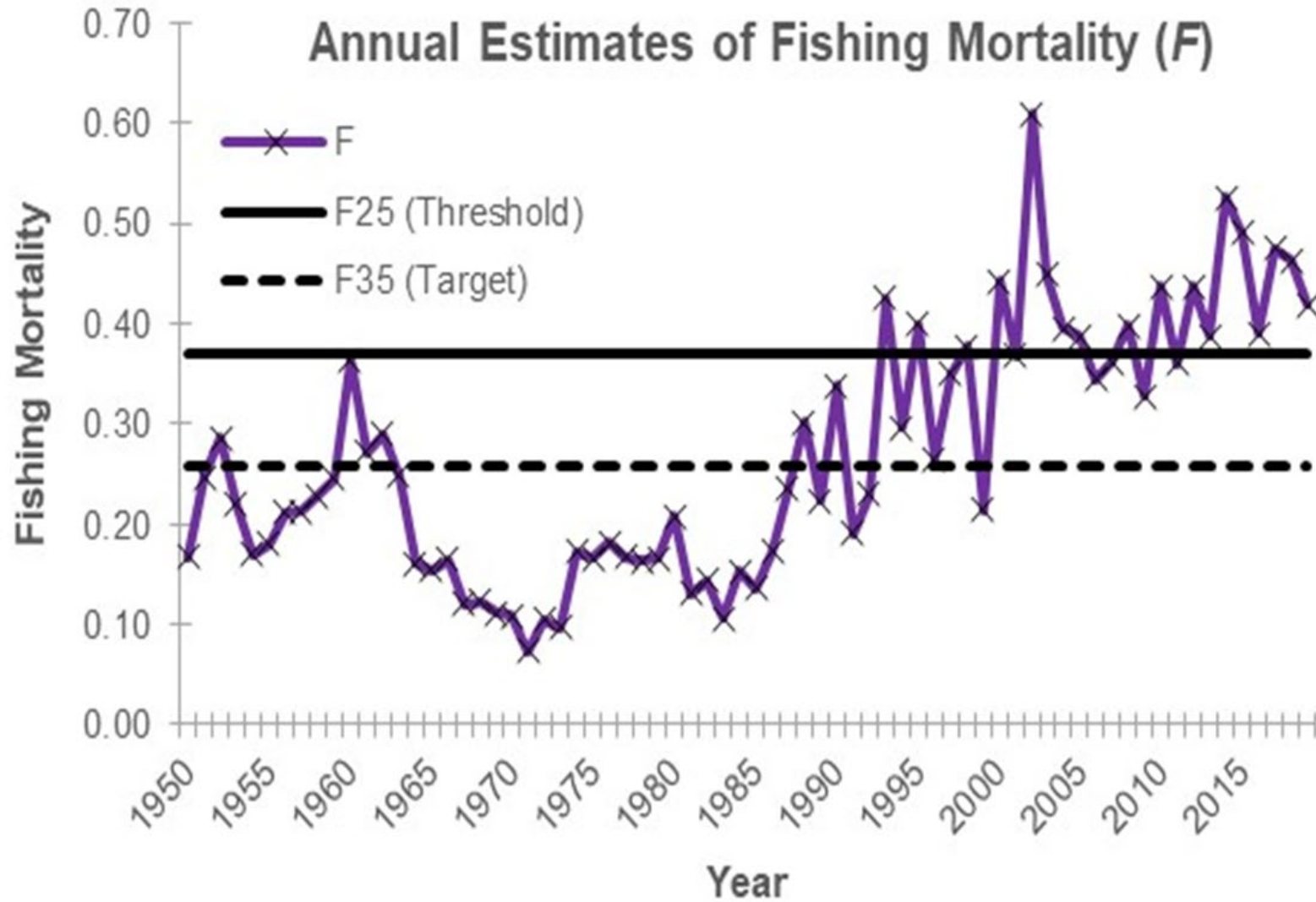
2022 Stock Assessment – Spawning Stock Biomass



- The North Carolina Striped Mullet stock is **overfished**
- The 2019 spawning stock biomass (SSB) was estimated at 263 mt, less than the 619 mt threshold



2022 Stock Assessment - Fishing Mortality



- **Overfishing** is occurring in the striped mullet fisheries.
- The 2019 fishing mortality (F) was estimated at 0.42, greater than the threshold of 0.37.



Supplement

- General Statute 113-182.1 provides a mechanism for the Commission to supplement FMP management when the DEQ Secretary determines it is in the interest of the long-term viability of the fishery
- Temporary management measures to END overfishing immediately
 - 9.3% reduction in total removals needed to reduce F to the threshold
 - 33% reduction in total removals needed to reduce F to the target
- NCMFC Rule 15A NCAC 03M .0502 provides the Director proclamation authority to implement restrictions in the taking of mullet



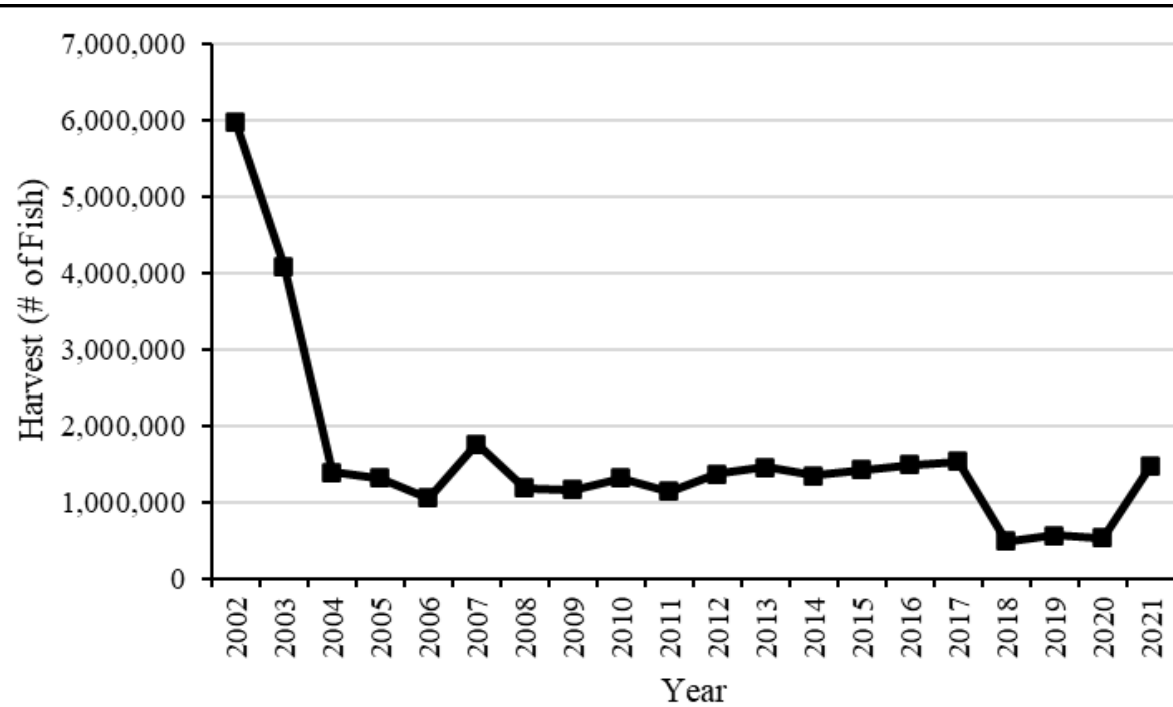
Striped Mullet Life History

- Juveniles and sub-adults found in lower salinity areas
- Form large schools in the fall
- Migrate to the ocean where they spawn offshore in large aggregations
- Highly fecund
 - Upwards of 4 million eggs for a large female
 - Egg production increases through the fall (October/November)

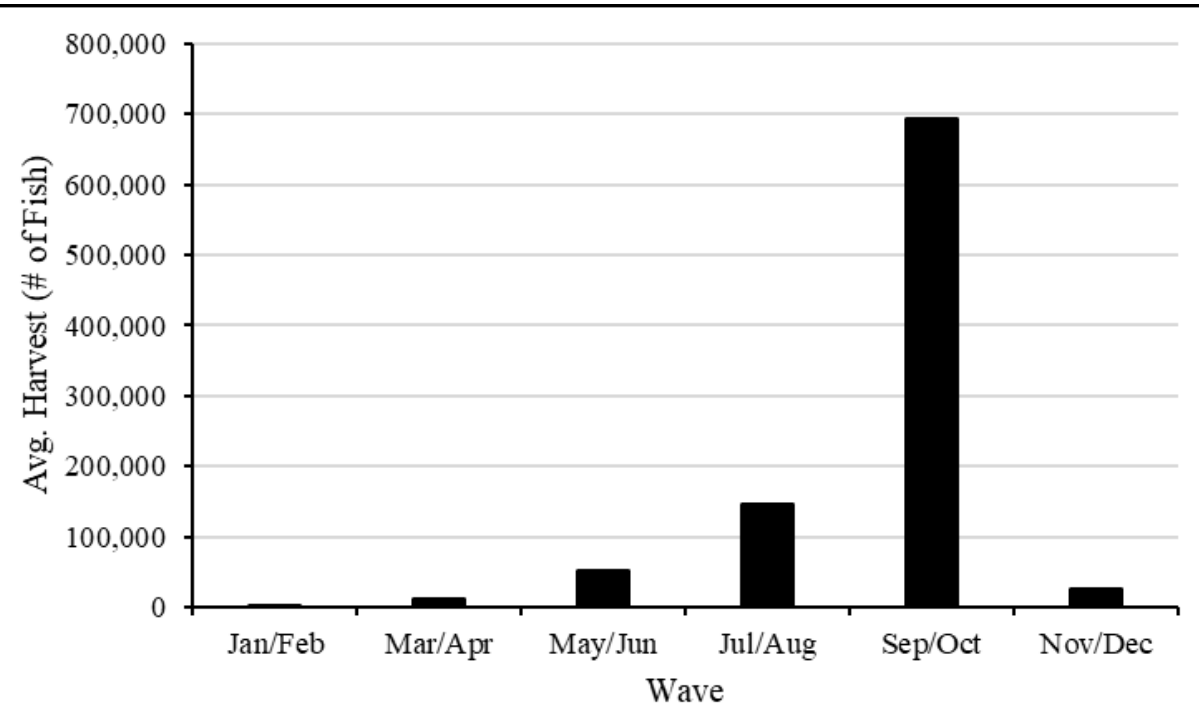


Recreational Fishery

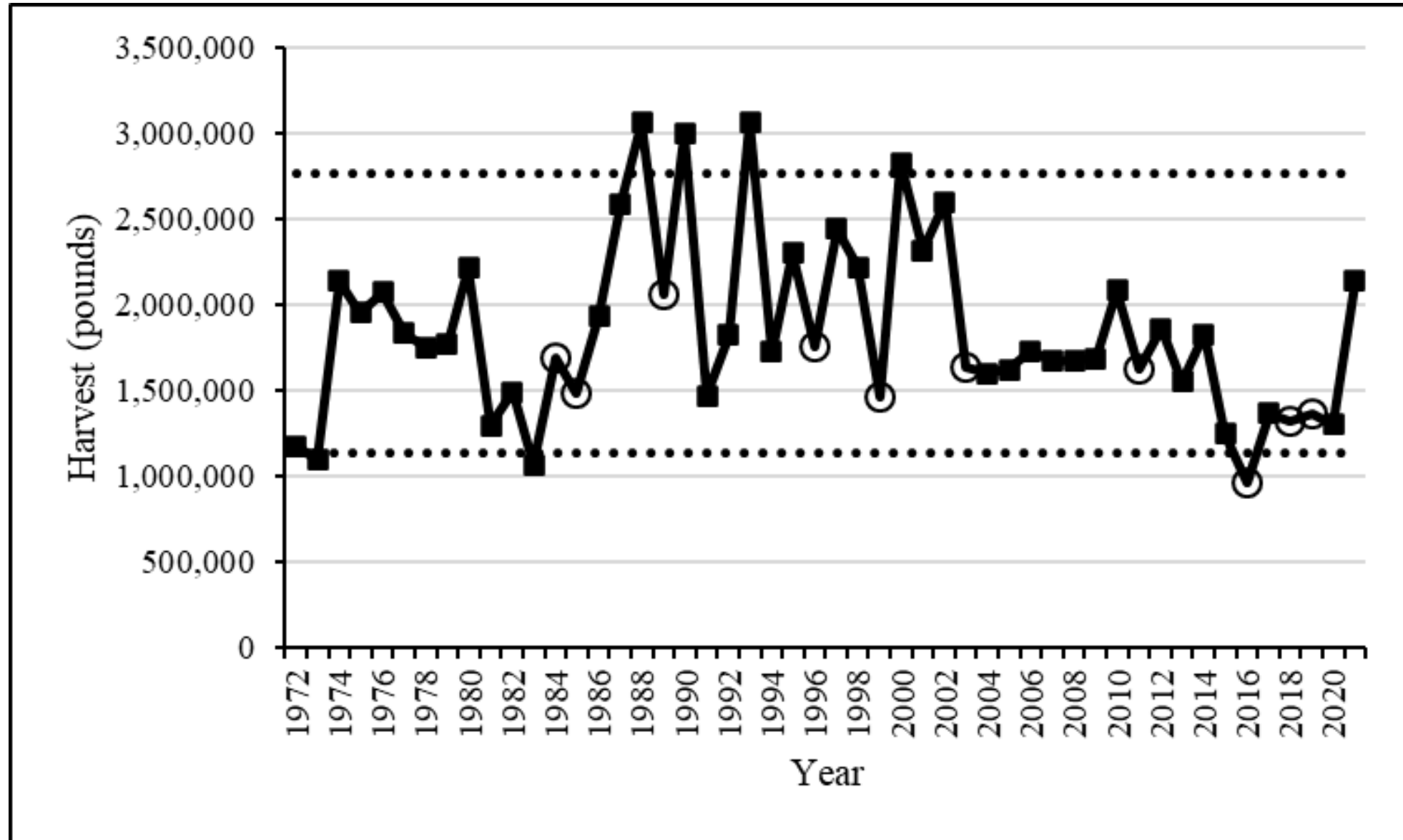
Annual Recreational Harvest, 2002-2021



Average Recreational Harvest by MRIP wave, 2017-2021

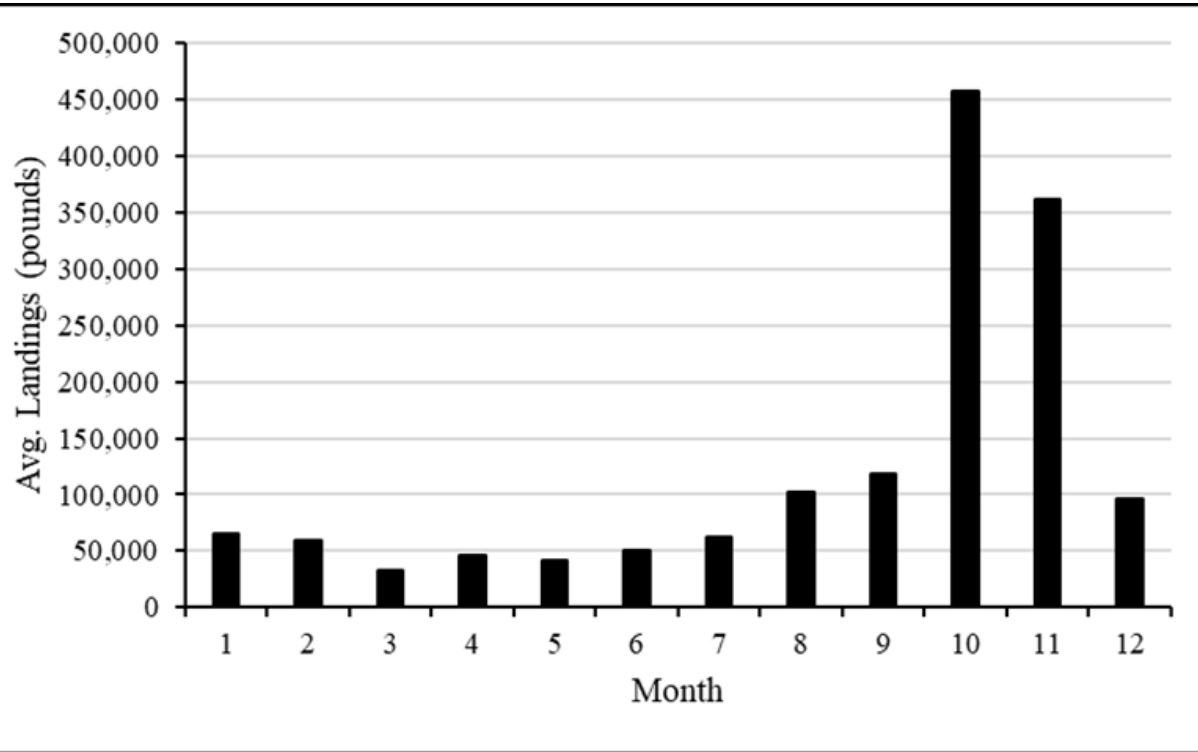


Commercial Fishery - Landings

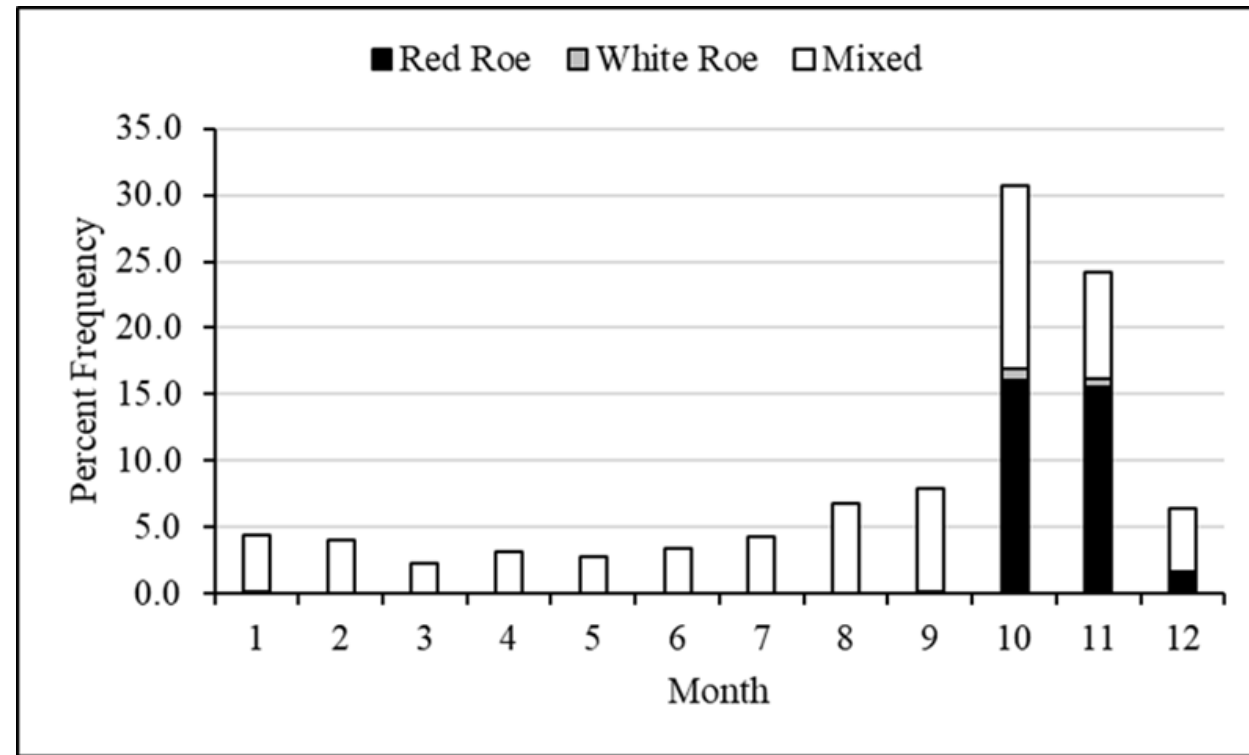


Commercial Fishery – Seasonality

Average commercial landings by month, 2017-2021

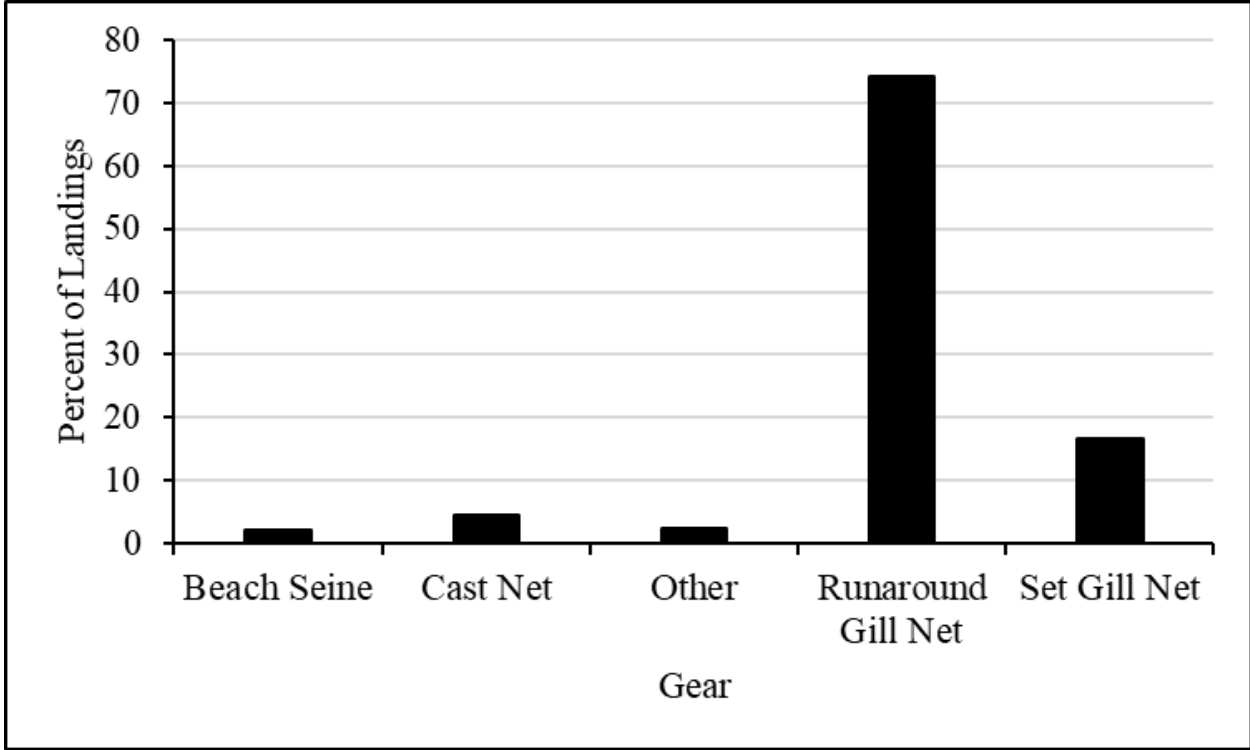


Percent of commercial landings by month and market grade, 2017-2021

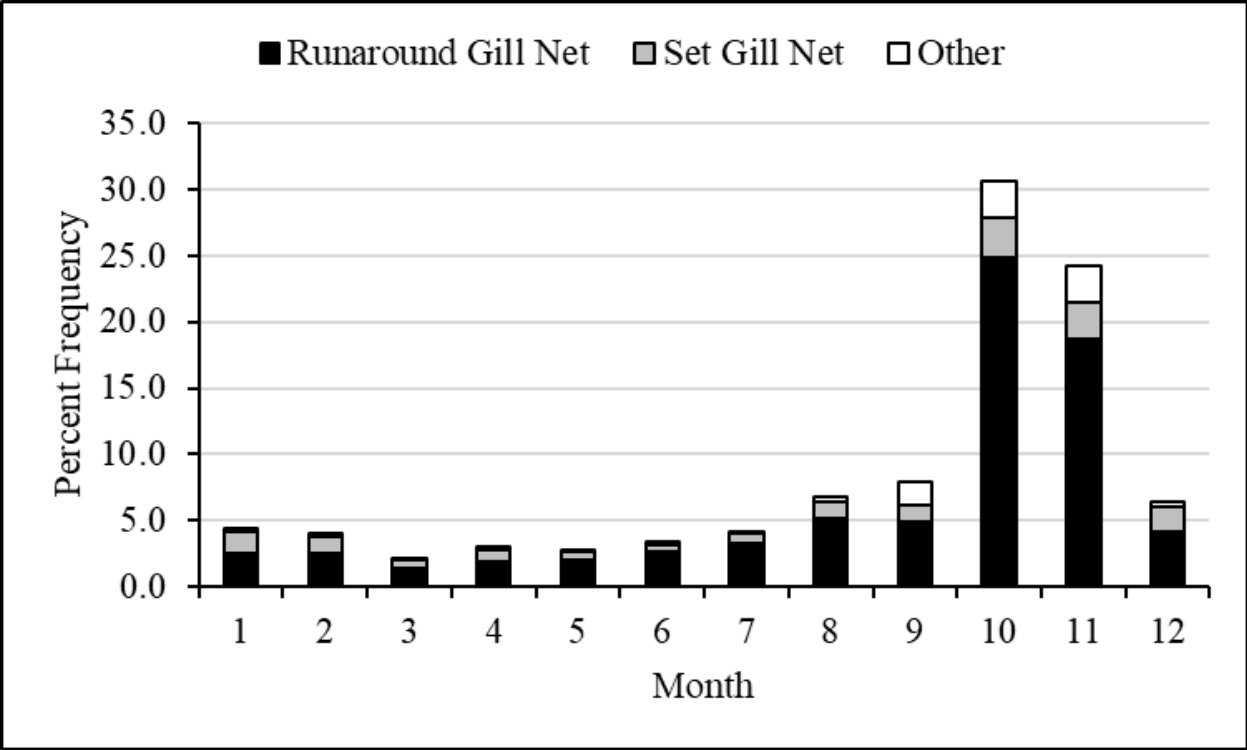


Commercial Fishery - Gears

Percent of commercial landings by gear, 2017-2021

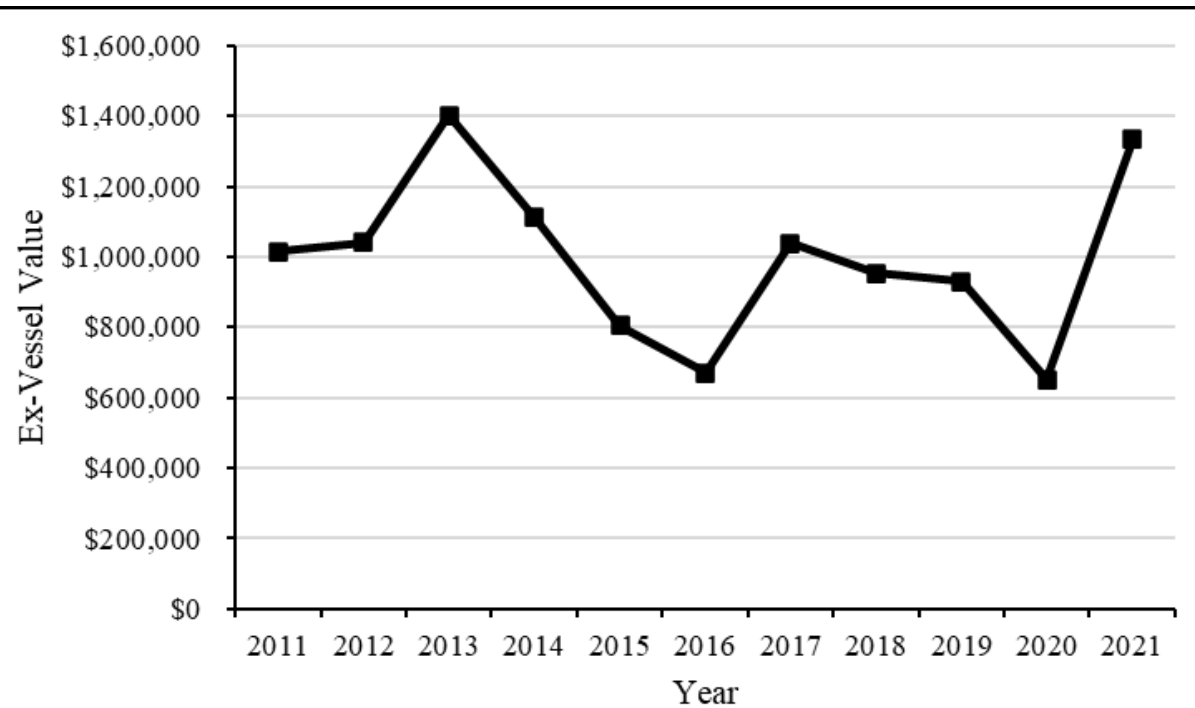


Percent of commercial landings by month and gear, 2017-2021

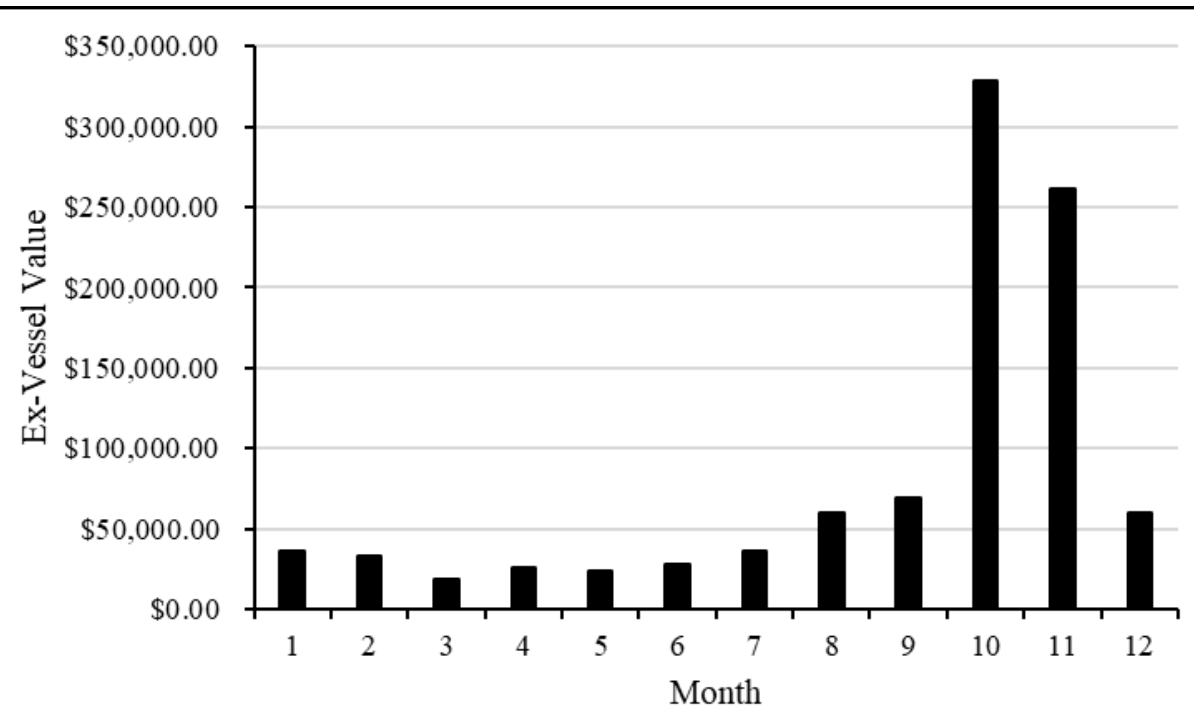


Commercial Fishery - Value

Annual ex-vessel value, 2011-2021



Mean ex-vessel value by month, 2017-2021



Management Options

- Proposed management option is an end of year season closure
- Options not considered because they cannot be implemented quickly and efficiently and may not achieve harvest reductions include:
 - Size limits (minimum/maximum/slot)
 - Area closures
 - Gear restrictions
 - Quota
 - Trip limits
 - Early season closures



Season Closure Options

Option	Season Closure	Estimated Commercial Harvest Reduction (%)	
1	October 29 – December 31	33.7	← Target
2	November 7 – December 31	22.1	← Between Target and Threshold
3	November 13 – December 31	10.9	← Threshold

DMF Recommendation

- The DMF recommends a 20-33% harvest reduction
- Reduction range exceeds the threshold and meets or approaches the target
- To achieve this reduction, **the DMF recommends Option 1 or Option 2**
- To achieve a 20-33% reduction, any end of year closure must begin no sooner than October 29 and no later than November 7 and continue through December 31

Option	Season Closure	Estimated Commercial Harvest Reduction (%)
1	October 29 – December 31	33.7
2	November 7 – December 31	22.1



MFC Actions and Next Steps

- In accordance with the MFC FMP Guidelines, the MFC will review the draft supplement and reject, approve, or modify the supplement for public comment
- If rejected...
 - Supplement process ends
- If approved...
 - MFC select preferred management strategy
 - 30-day public comment period
 - Final adoption in February 2023

Division Next Steps

- If Supplement A is approved, closure will be implemented via proclamation authority of the DMF Director in 2023
- DMF will continue development of Amendment 2 to the Striped Mullet FMP
- Amendment 2 tentatively scheduled for adoption in 2024



Questions?

Striped Mullet Leads Contact Information

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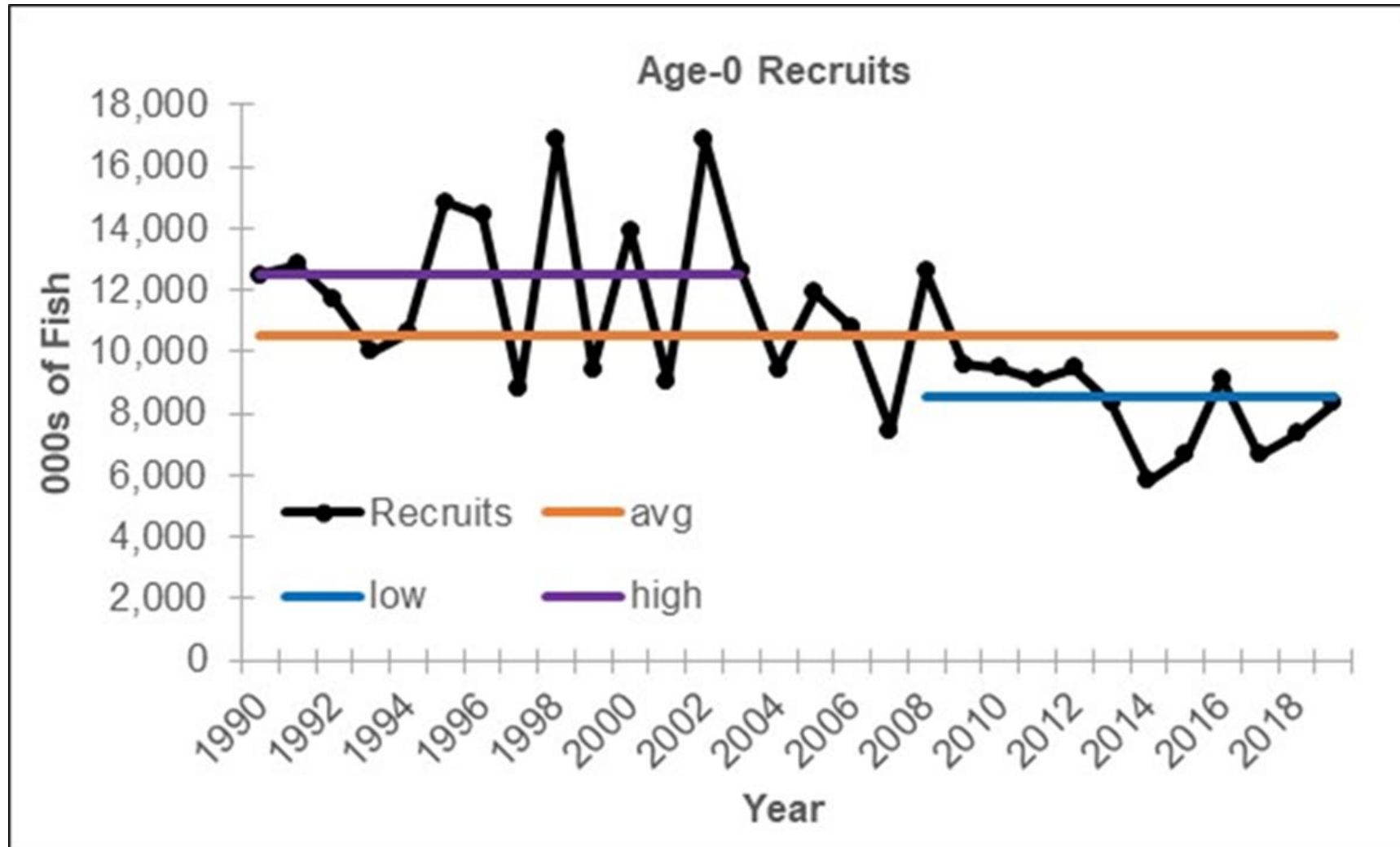
Actions

- **ACTION:** Reject, approve, or modify supplement
- **ACTION:** If approved, select a preferred management strategy

Option	Season Closure	Estimated Commercial Harvest Reduction (%)	
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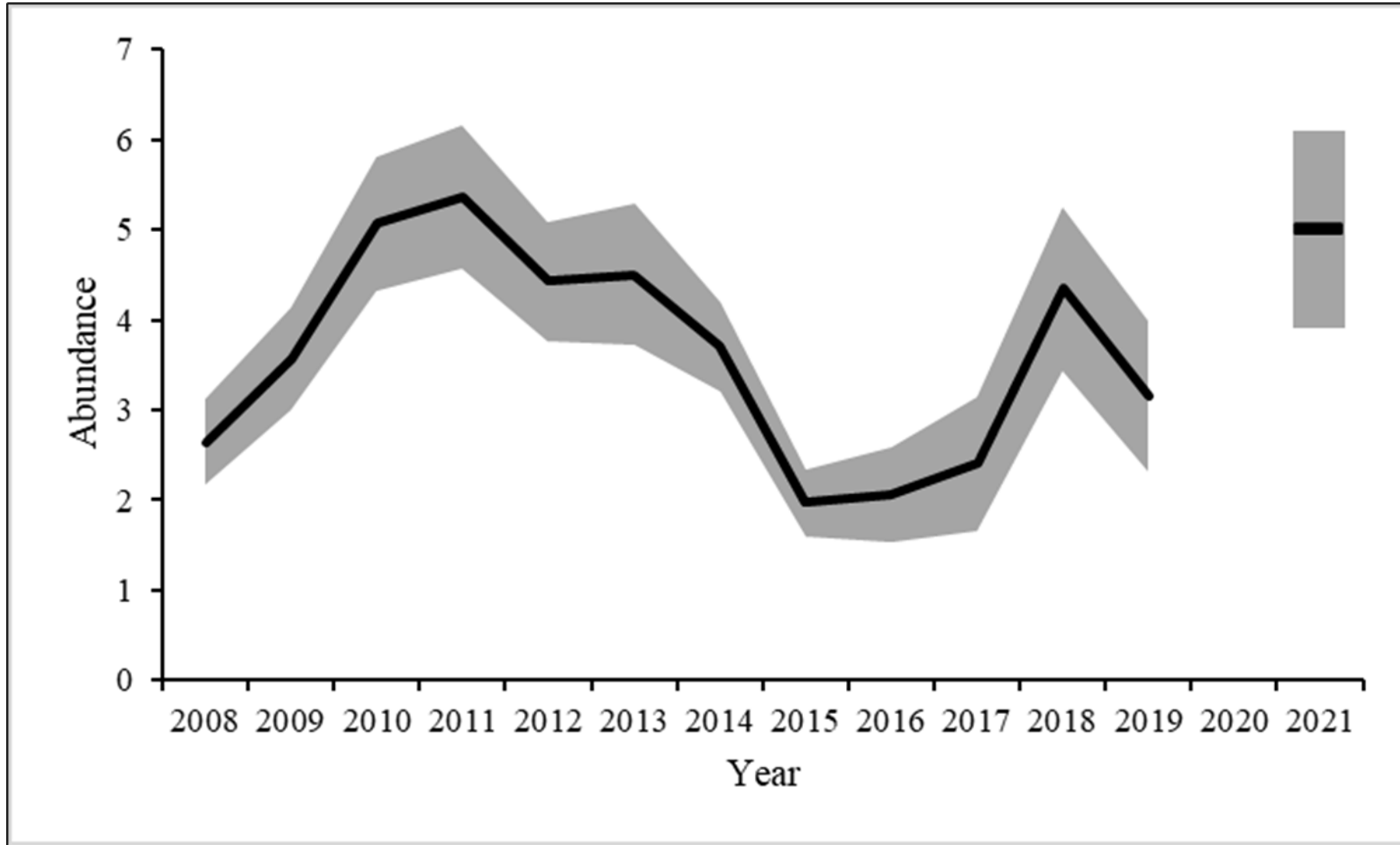
DMF Recommendation

Recruitment



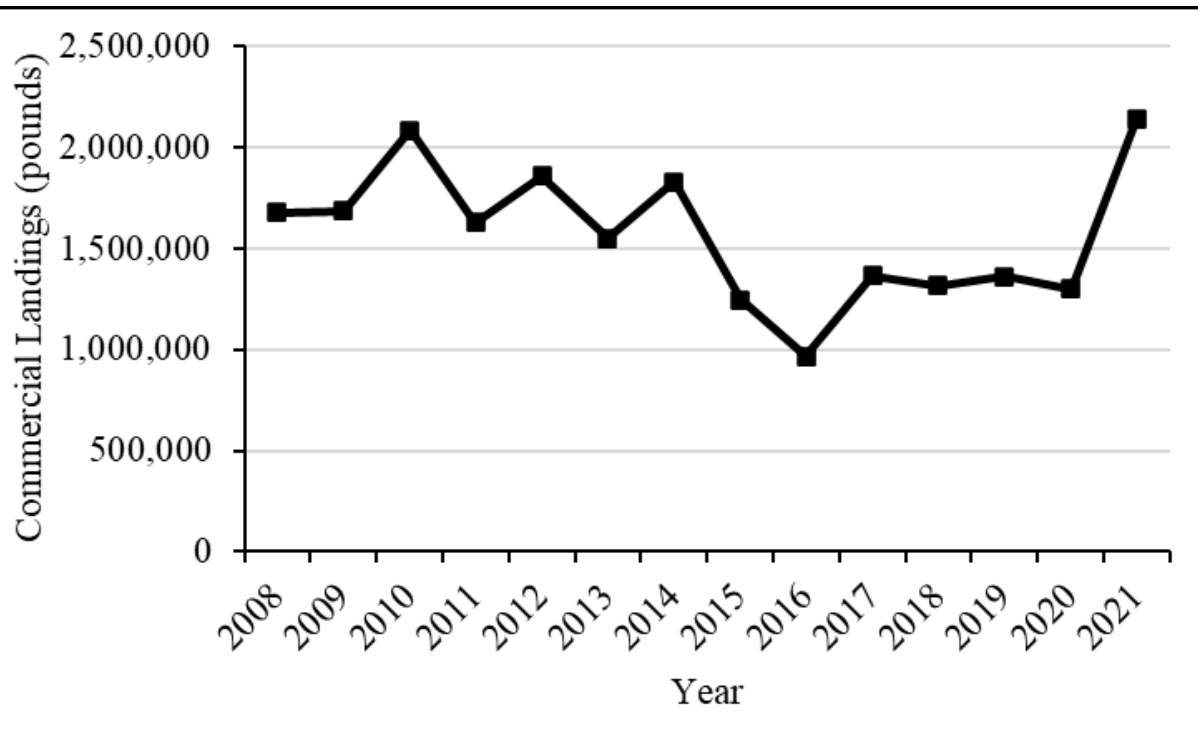
Striped mullet recruitment estimated in the 2022 stock assessment

Independent Gill Net Survey – Program 915

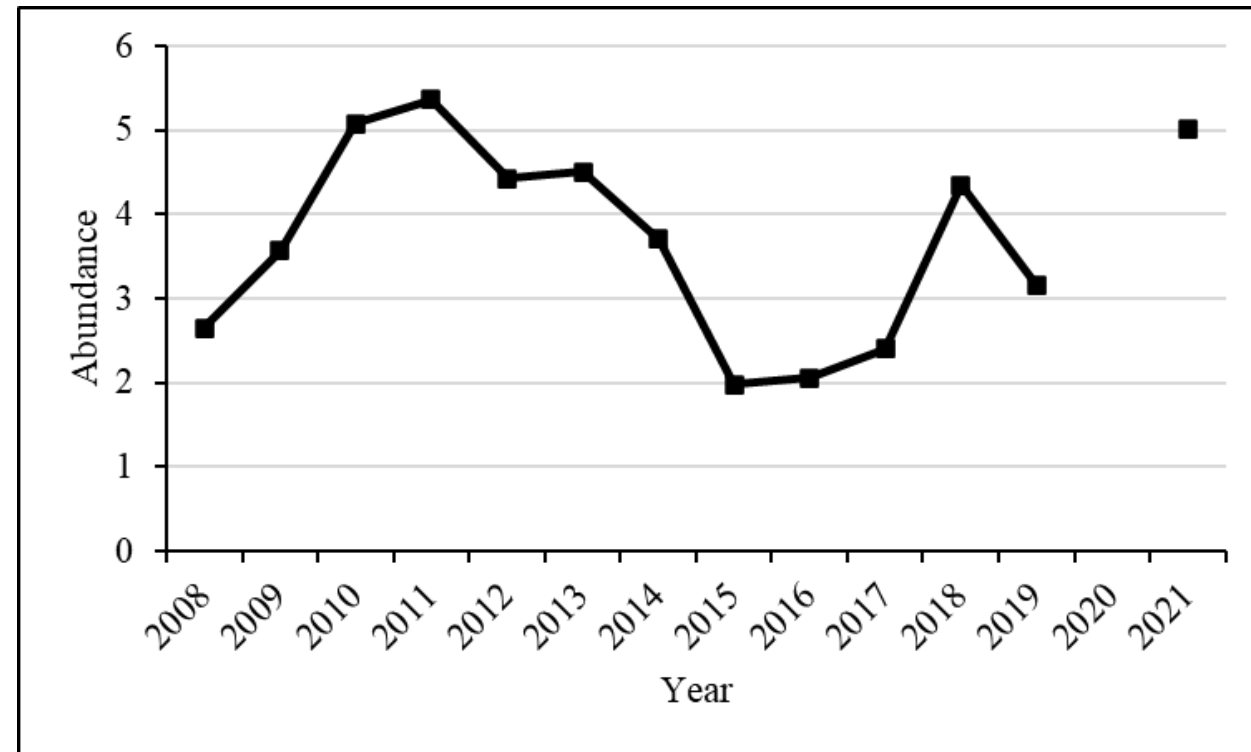


Commercial Landings and Program 915

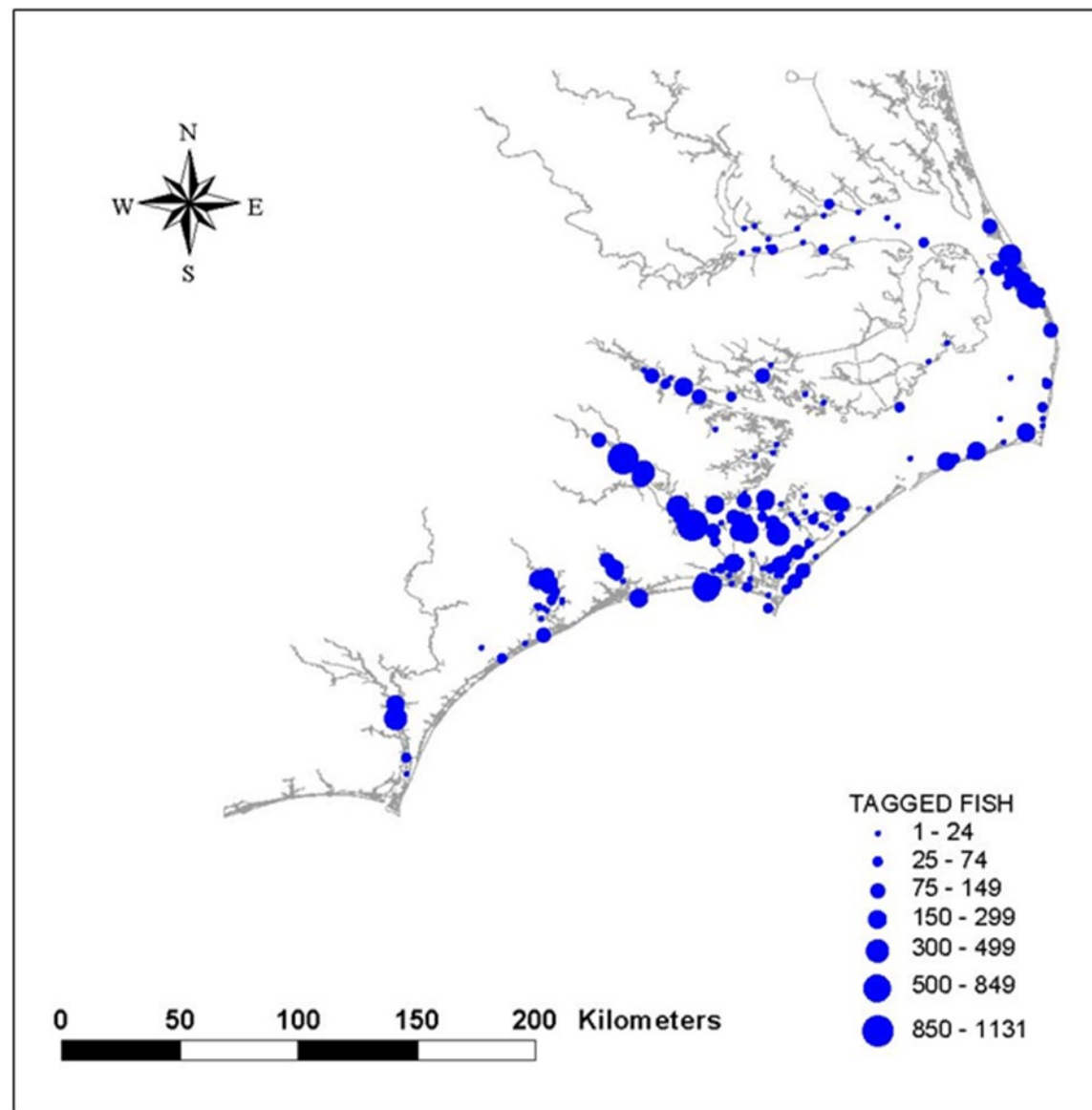
Commercial Landings, 2008-2021



Striped Mullet Abundance, Program 915, 2008-2021



Tagging Study



Commercial Fishery - Area

Percent of Commercial Landings by Area and Month, 2017-2021

Area	1	2	3	4	5	6	7	8	9	10	11	12	Total
Albemarle Sound	1.5	1.0	0.5	0.8	0.2	0.2	0.4	0.5	0.6	1.8	1.0	1.3	9.9
Northern	0.1	0.3	0.2	0.2	0.1	0.2	0.2	0.3	0.3	2.5	0.8	0.4	5.6
Ocean, N of Cape Hatt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.1	0.0	0.7
Pamlico River	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.2	0.9	0.3	0.1	2.8
Bay River	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	1.2	0.6	0.1	2.2
Neuse River	0.4	0.1	0.1	0.1	0.2	0.1	0.1	0.8	0.6	4.1	2.9	0.5	10.1
Pamlico Sound	1.3	1.7	0.9	1.5	1.7	2.0	2.4	3.3	3.3	10.3	5.5	1.7	35.6
Core Sound	0.1	0.2	0.1	0.1	0.3	0.2	0.4	0.6	0.8	5.3	2.6	0.4	11.1
Central	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.3	1.6	5.1	0.7	8.5
New River	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.8	0.0	1.4
Ocean, S of Cape Hatt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1	2.1	3.8	0.6	7.9
Southern	0.6	0.4	0.2	0.1	0.1	0.1	0.2	0.2	0.4	0.4	0.9	0.6	4.2
Total	4.4	4.0	2.2	3.1	2.8	3.4	4.2	6.8	7.9	30.6	24.2	6.4	100.0

Commercial Landings and Recruitment

