



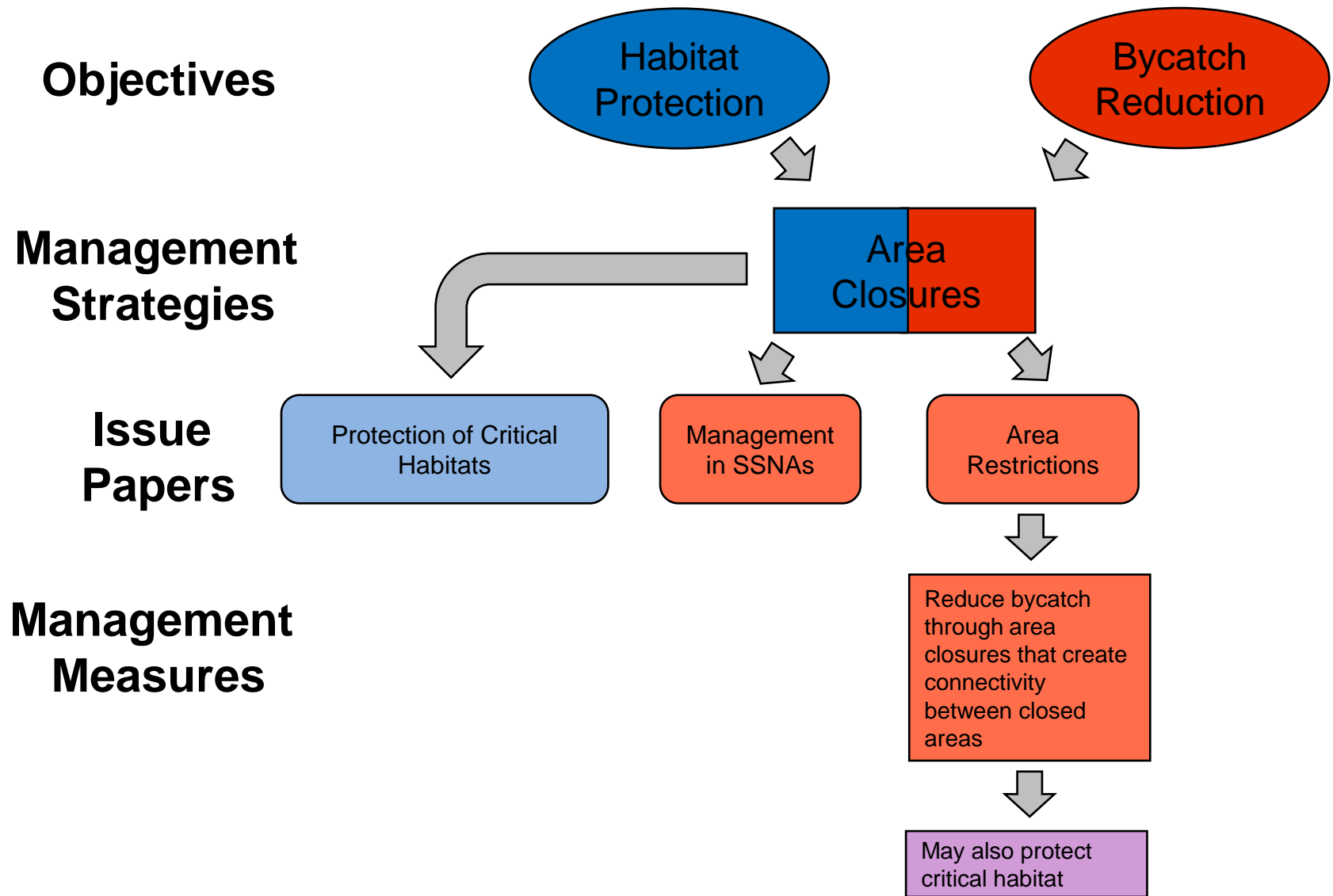
*Shrimp FMP Amendment 2
Reducing Shrimp Trawl Bycatch Through Area Closures
that Increase Connectivity Between Closed Areas*

DEPARTMENT OF ENVIRONMENTAL QUALITY

Marine Fisheries

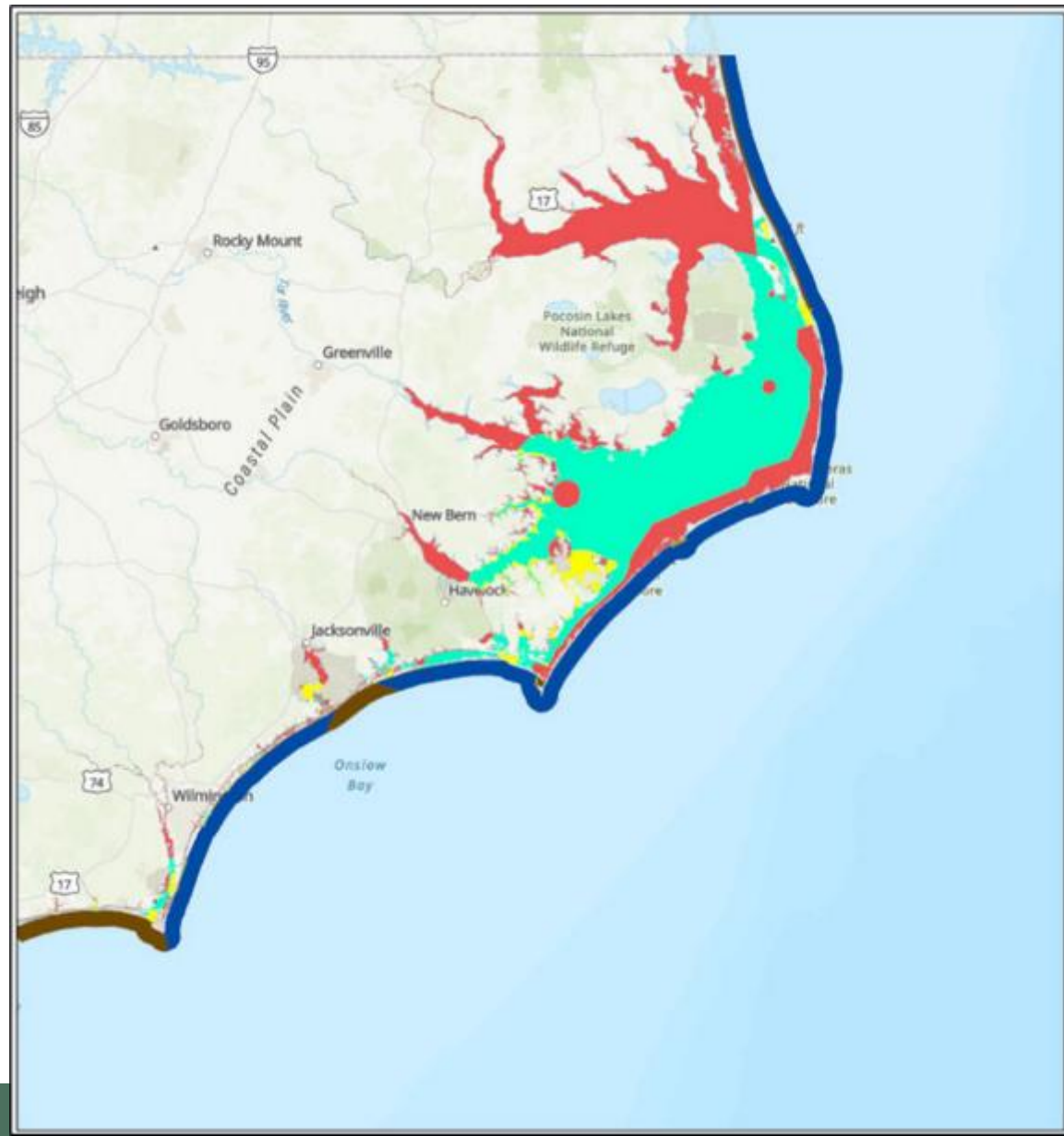
Shrimp Advisory Committee | Daniel Zapf | March 10, 2021

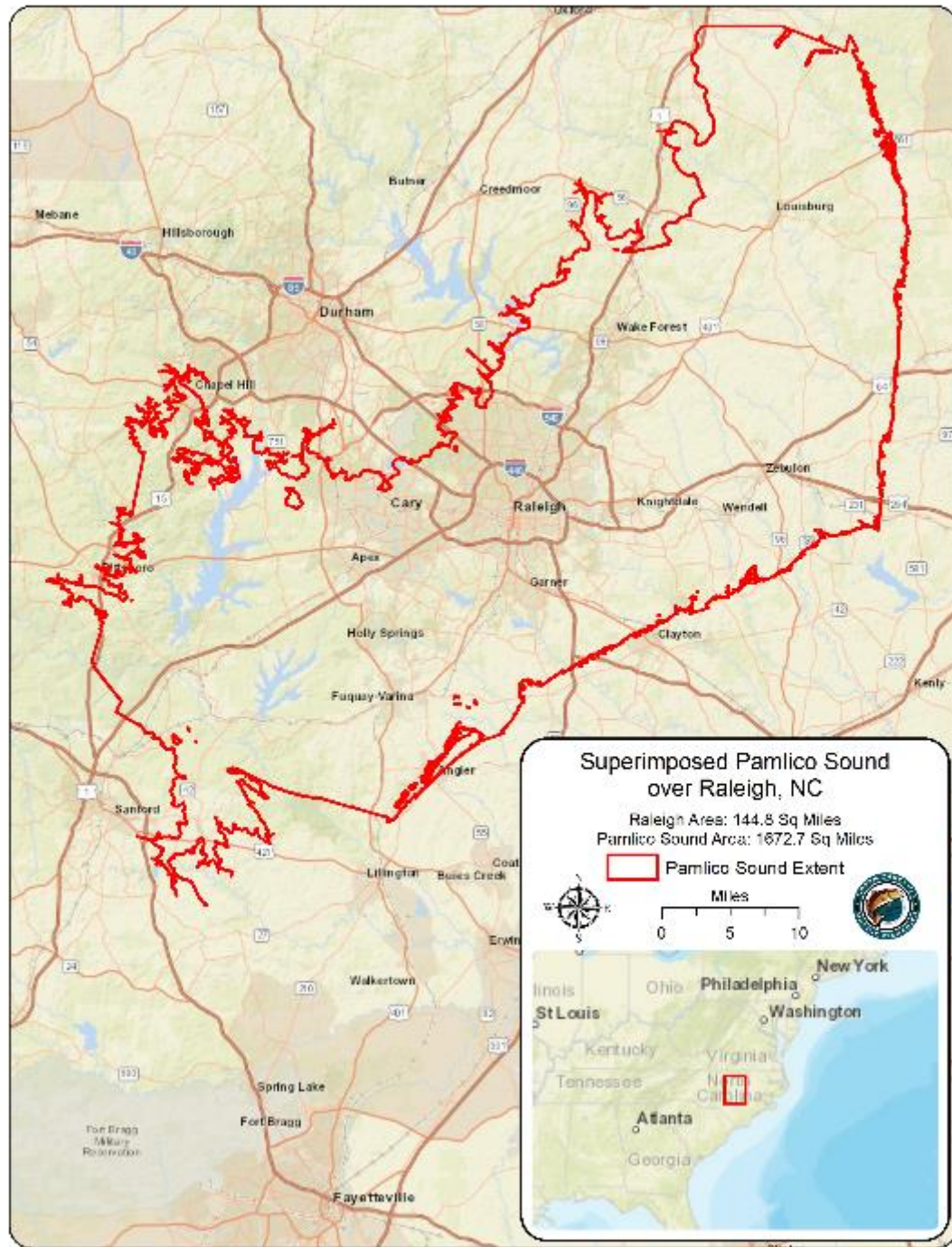


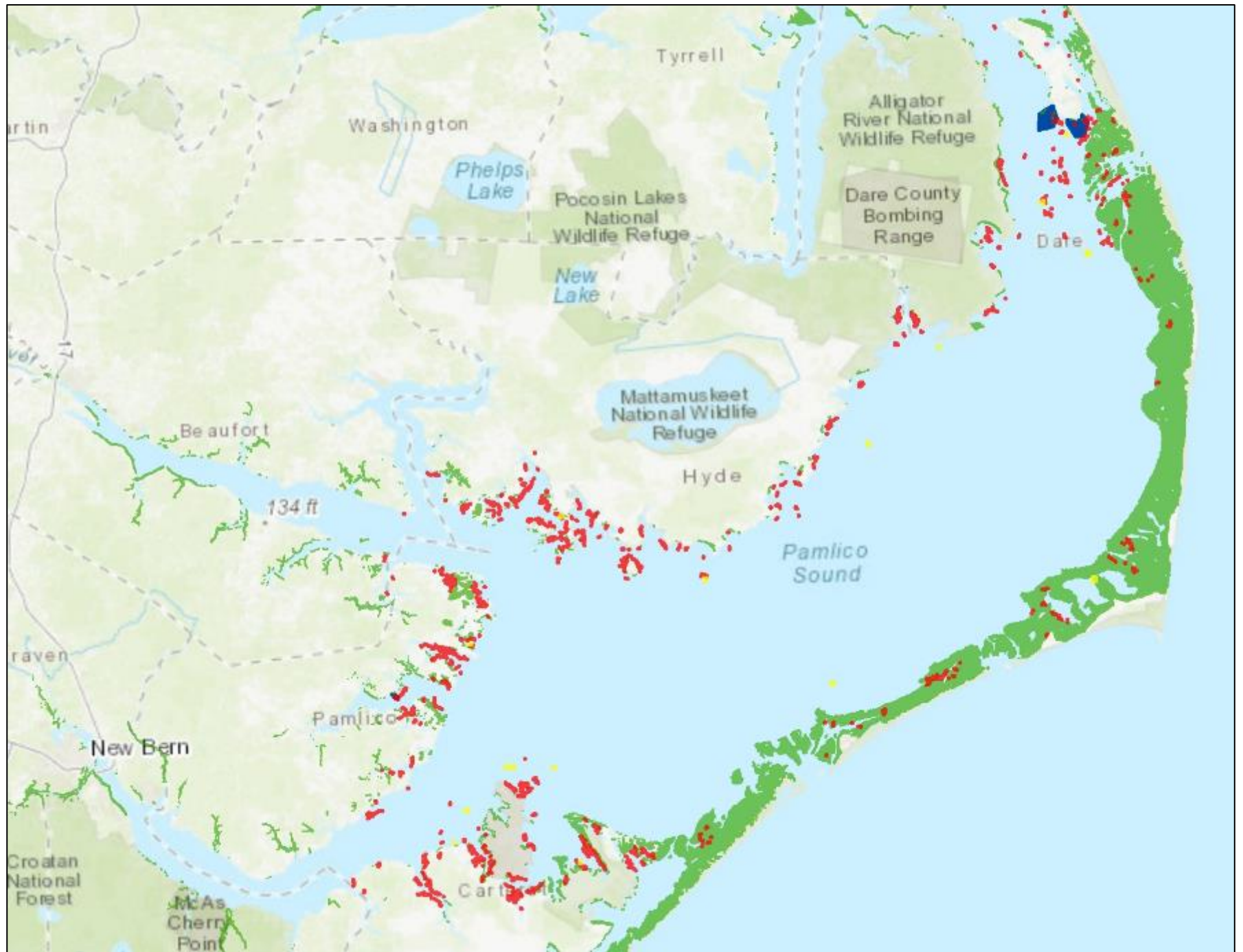


Commercial Shrimp Trawl Fishery

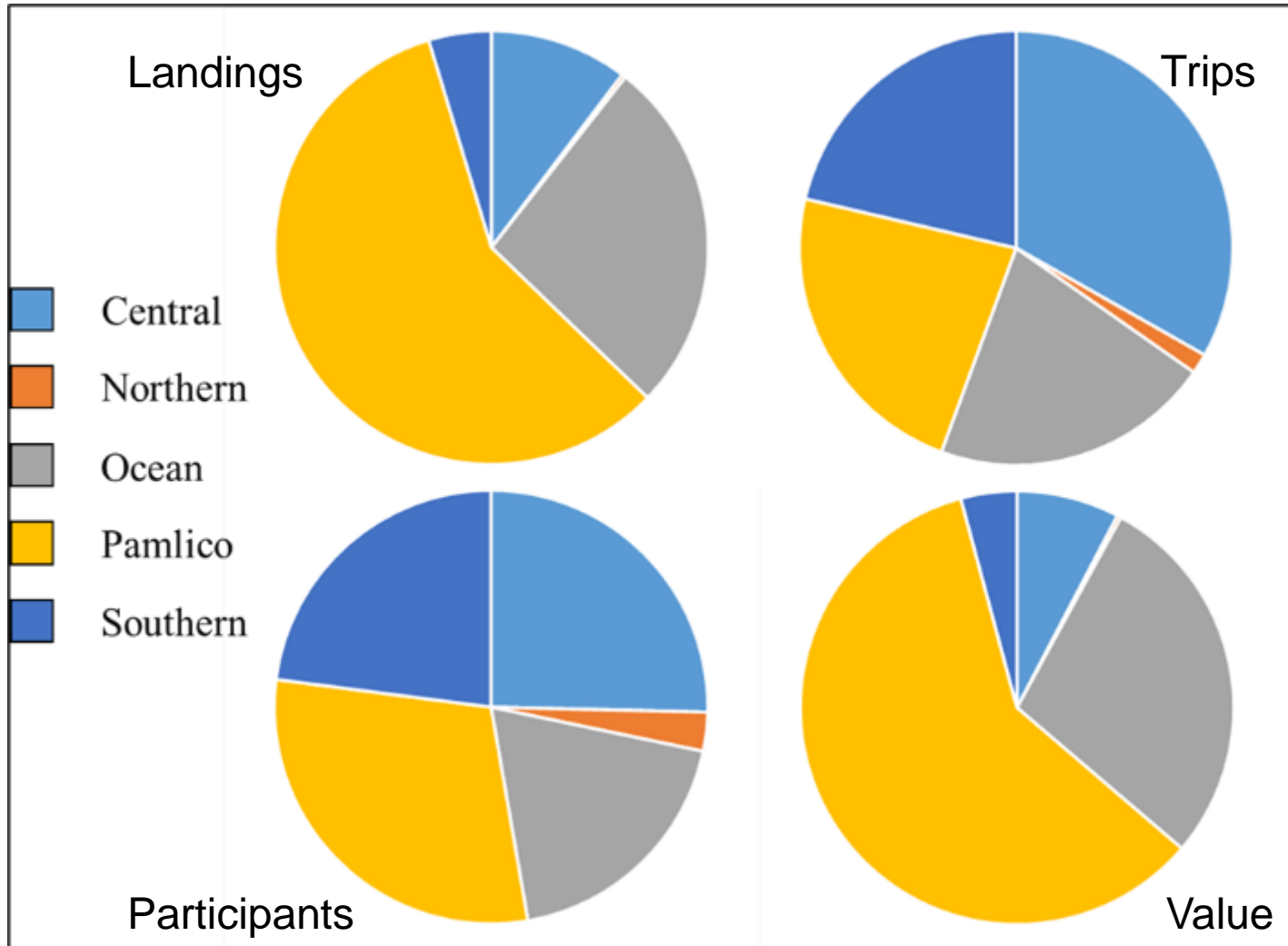
- Occurs statewide where allowed
- Estuarine and ocean
- Diverse estuarine fishery
- Focus is Pamlico Sound and adjacent waterbodies



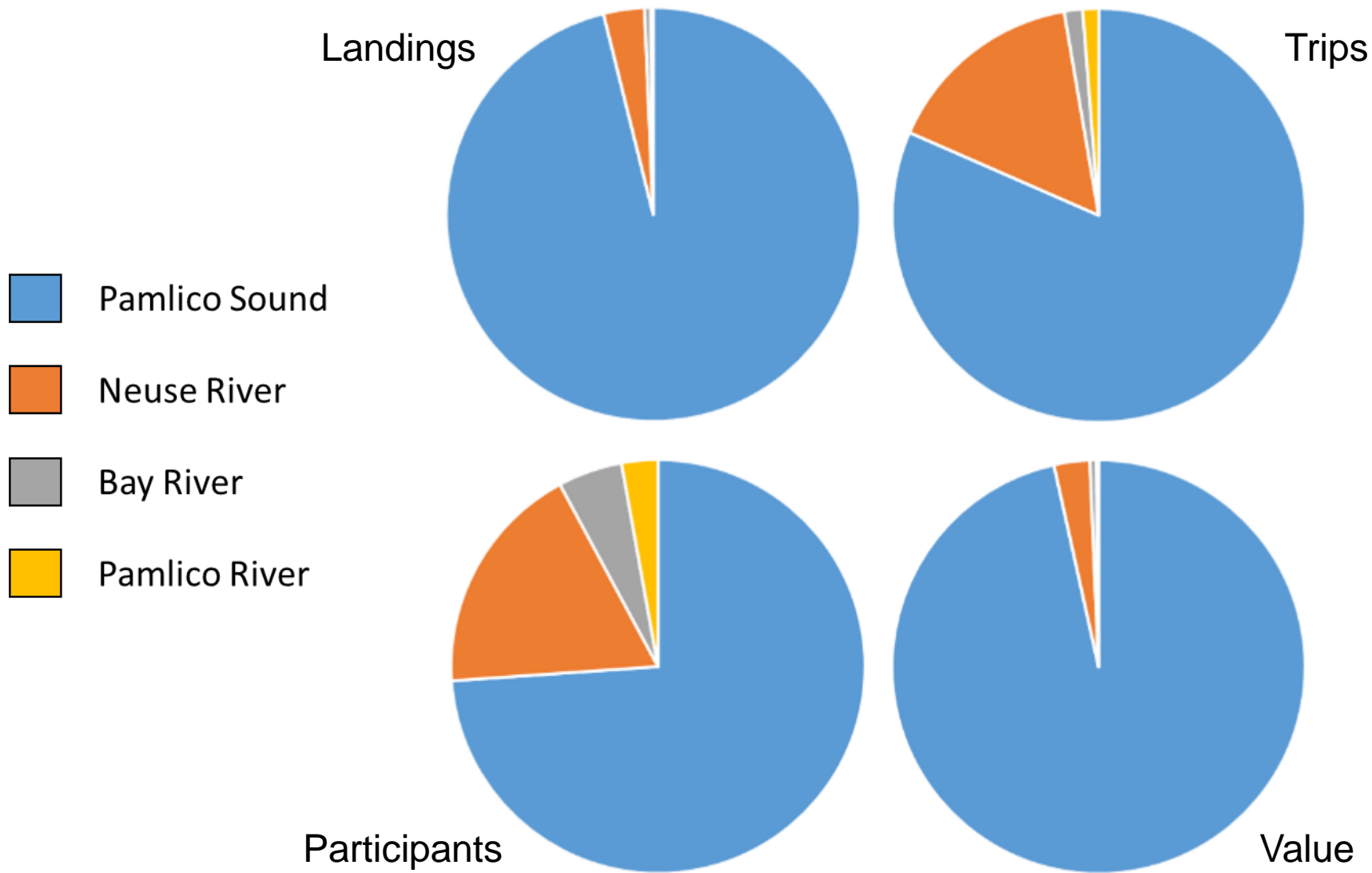




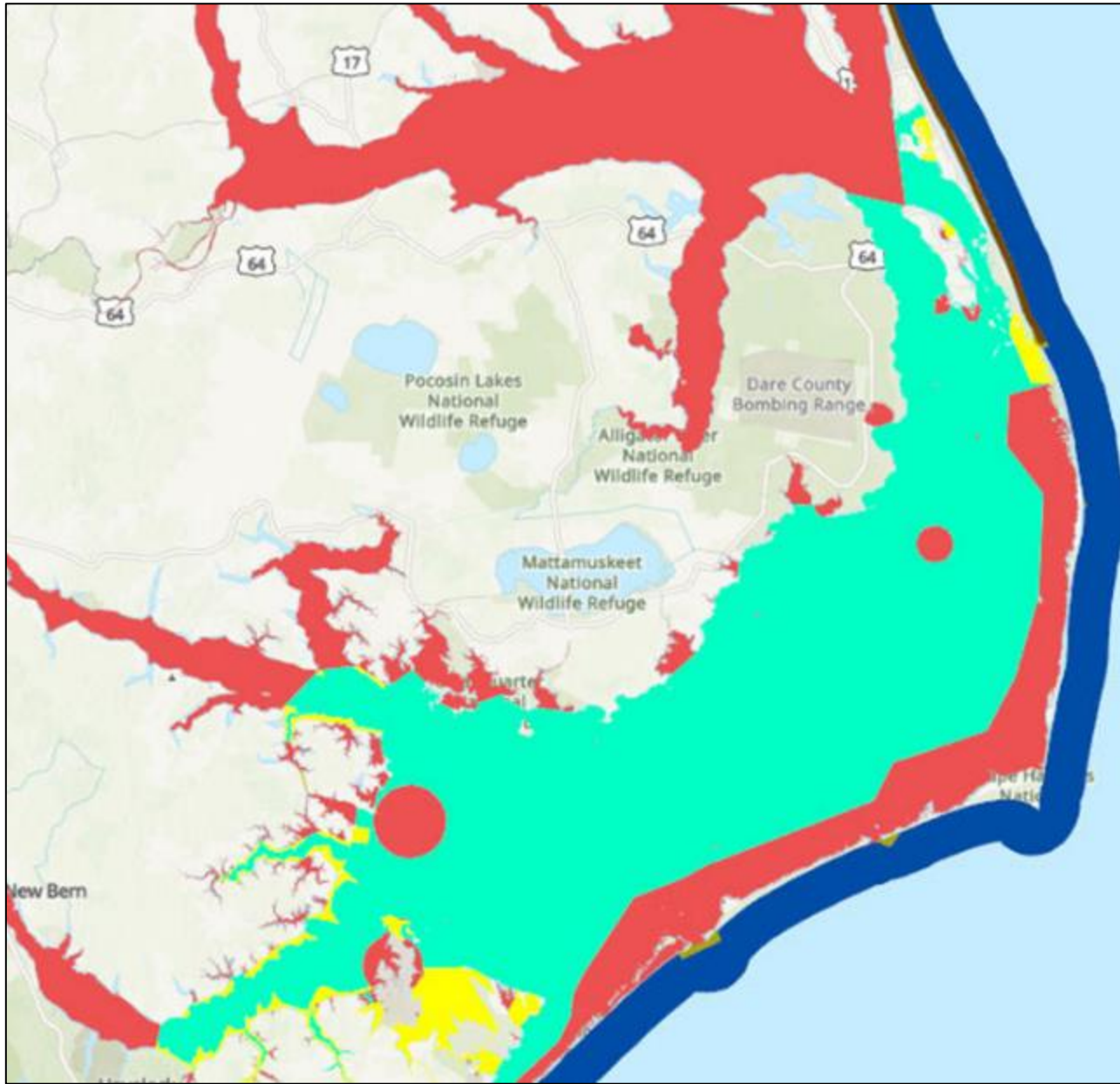
Commercial Shrimp Fishery



Pamlico Area

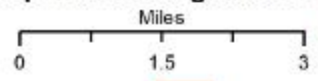


Area Closures

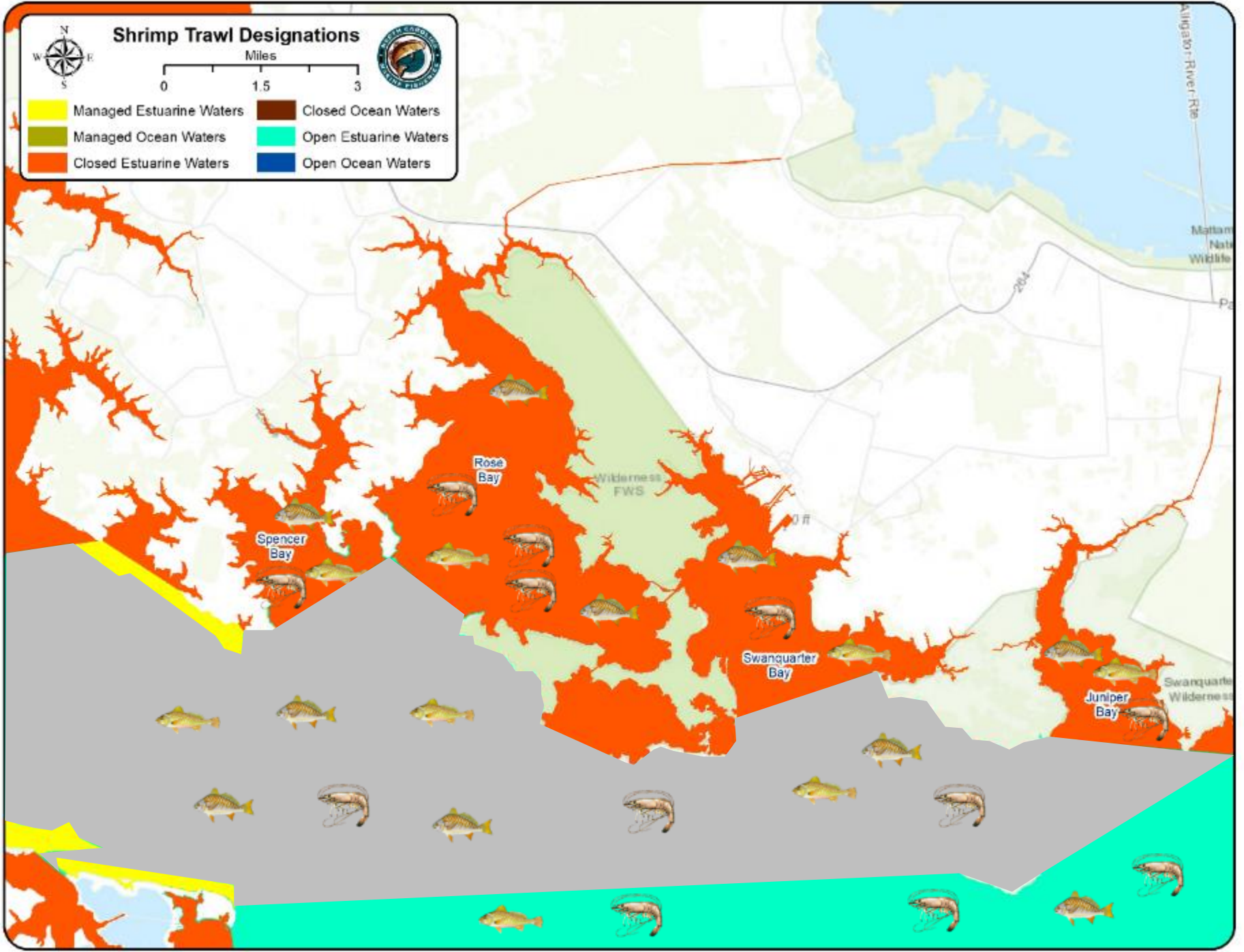




Shrimp Trawl Designations

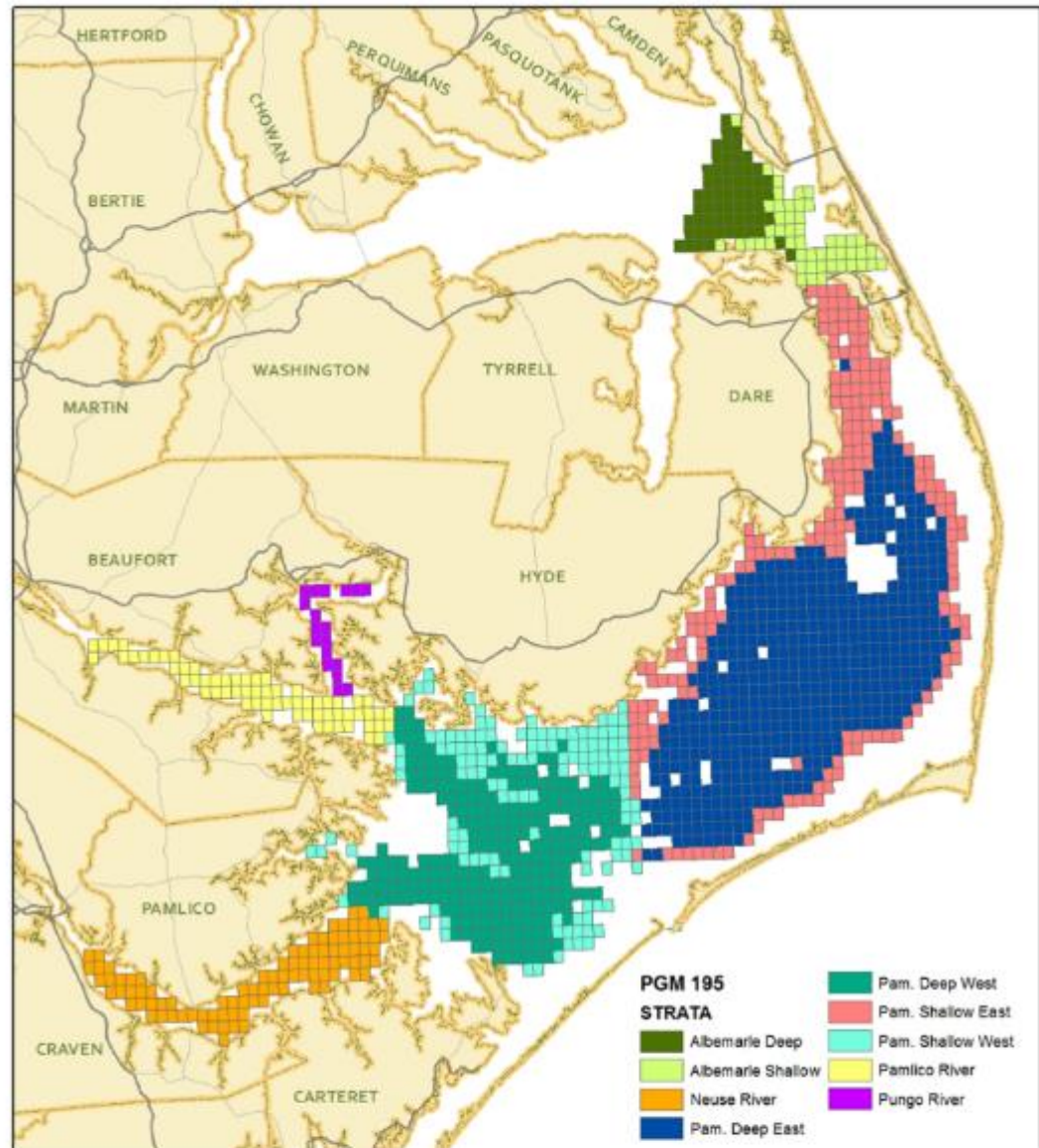


- | | |
|---|---|
|  Managed Estuarine Waters |  Closed Ocean Waters |
|  Managed Ocean Waters |  Open Estuarine Waters |
|  Closed Estuarine Waters |  Open Ocean Waters |



Data Sources

- Pamlico Sound Survey
- Sample in Pamlico Sound and tributaries
- 1987 to present
- June and September
- Stratified random



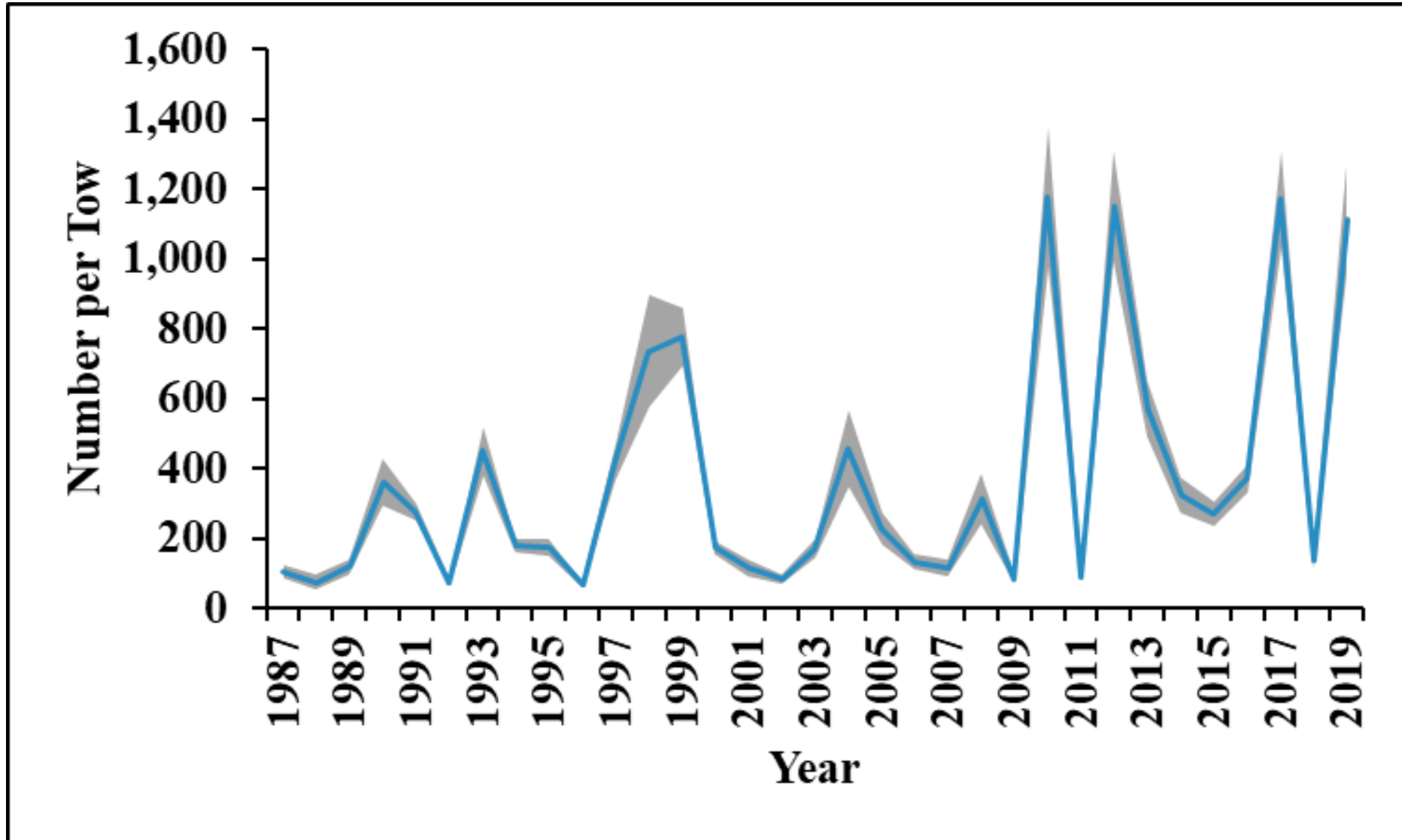
PGM 195
Pamlico Sound Sampling Survey



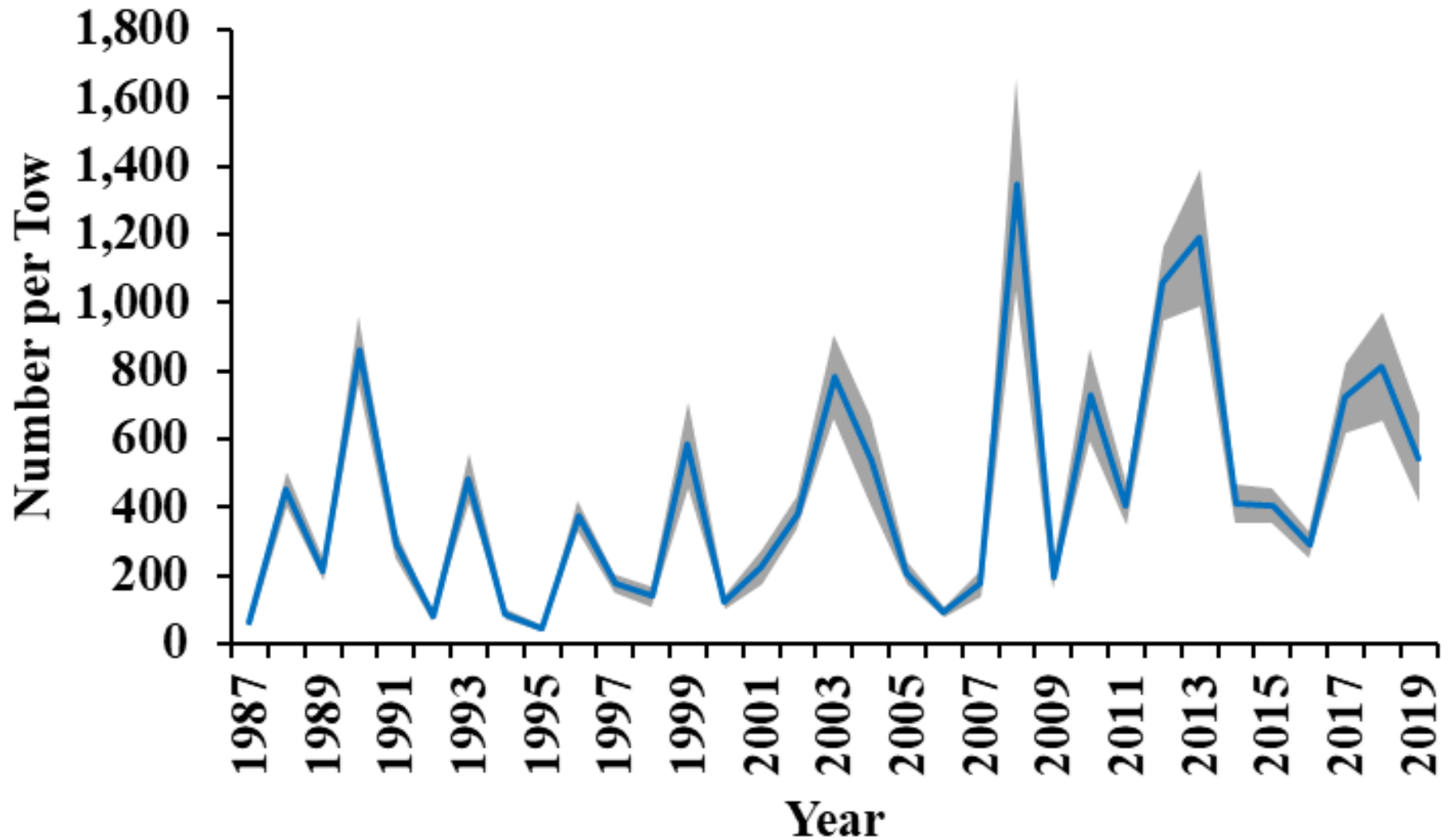
Pamlico Sound Trawl Survey



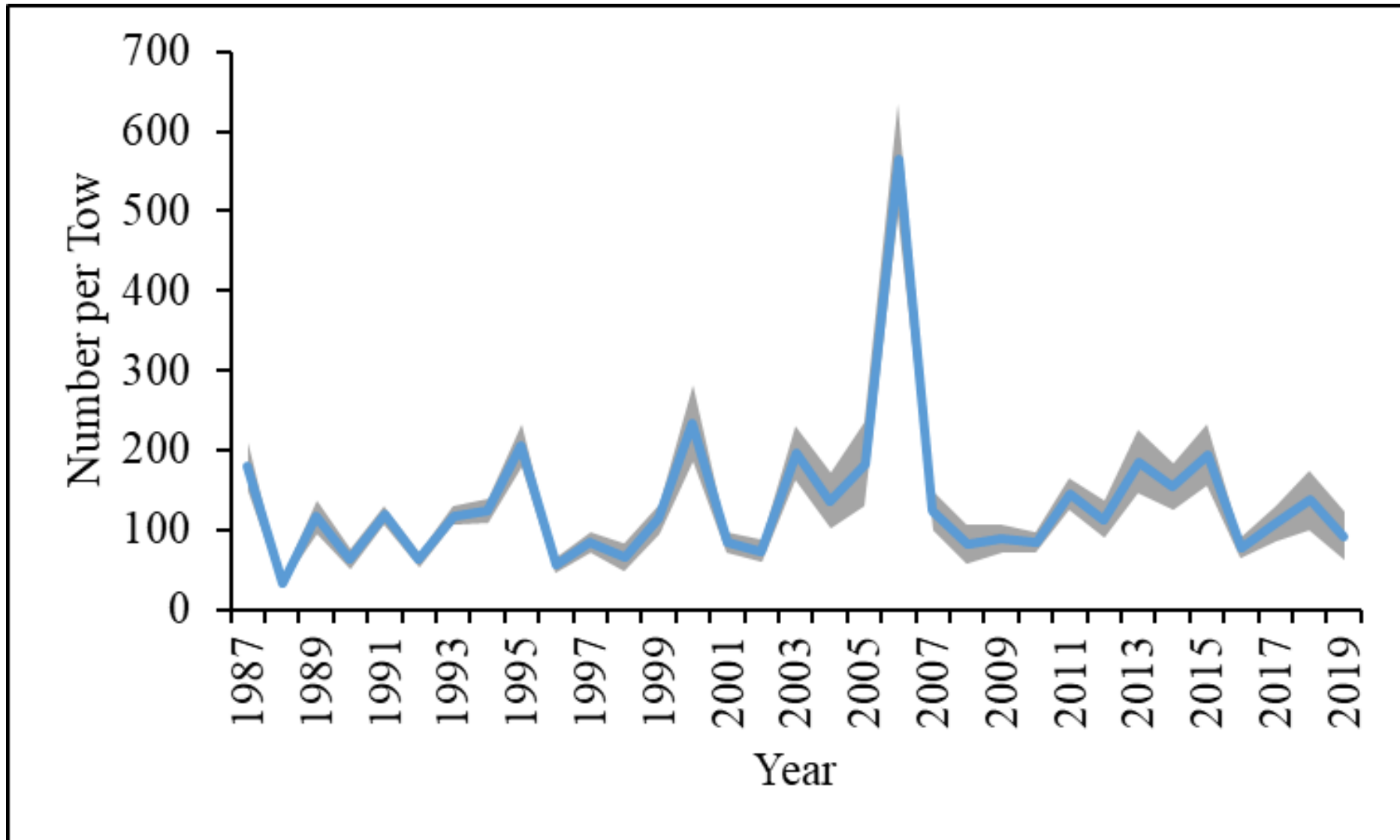
Atlantic Croaker



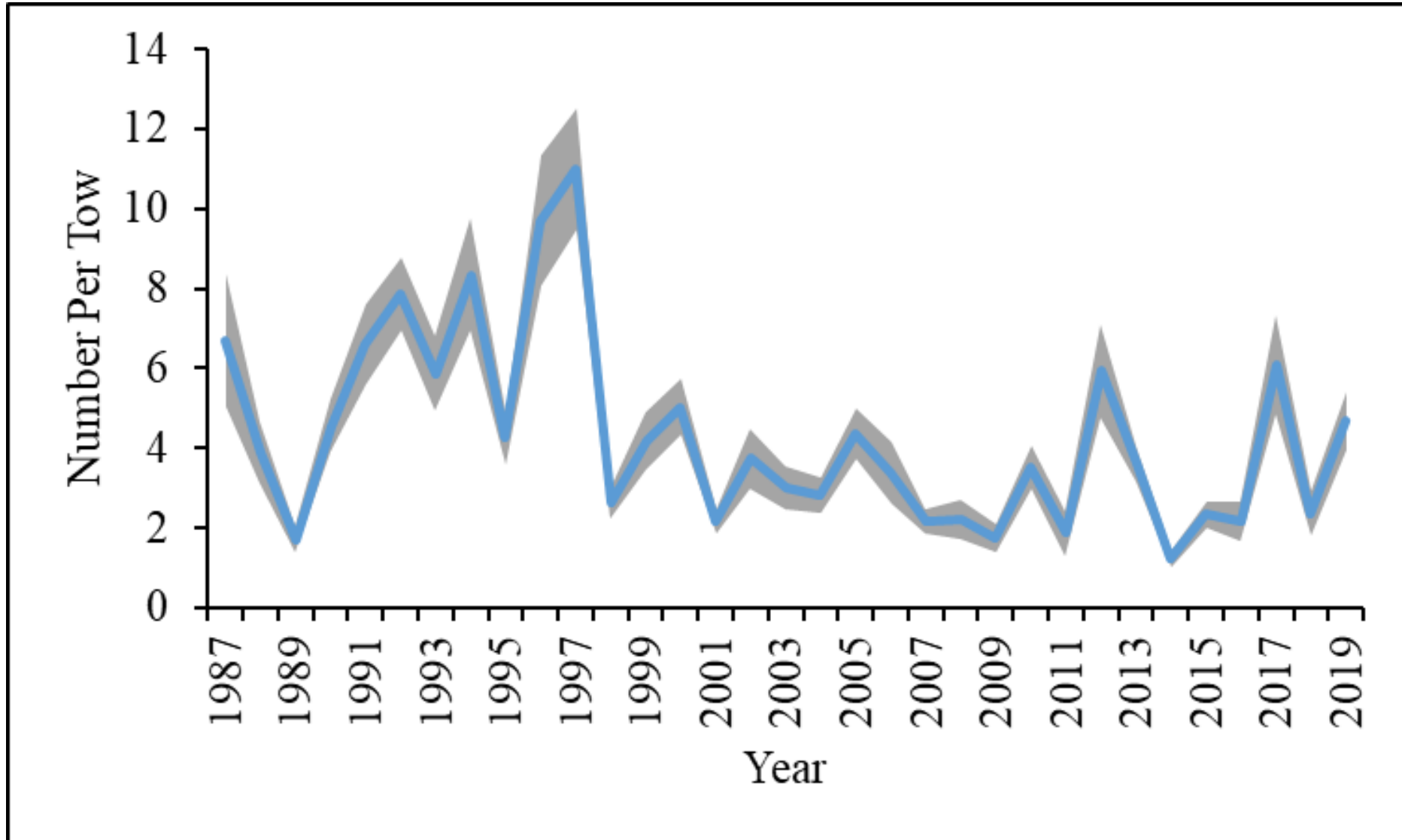
Spot Young of Year



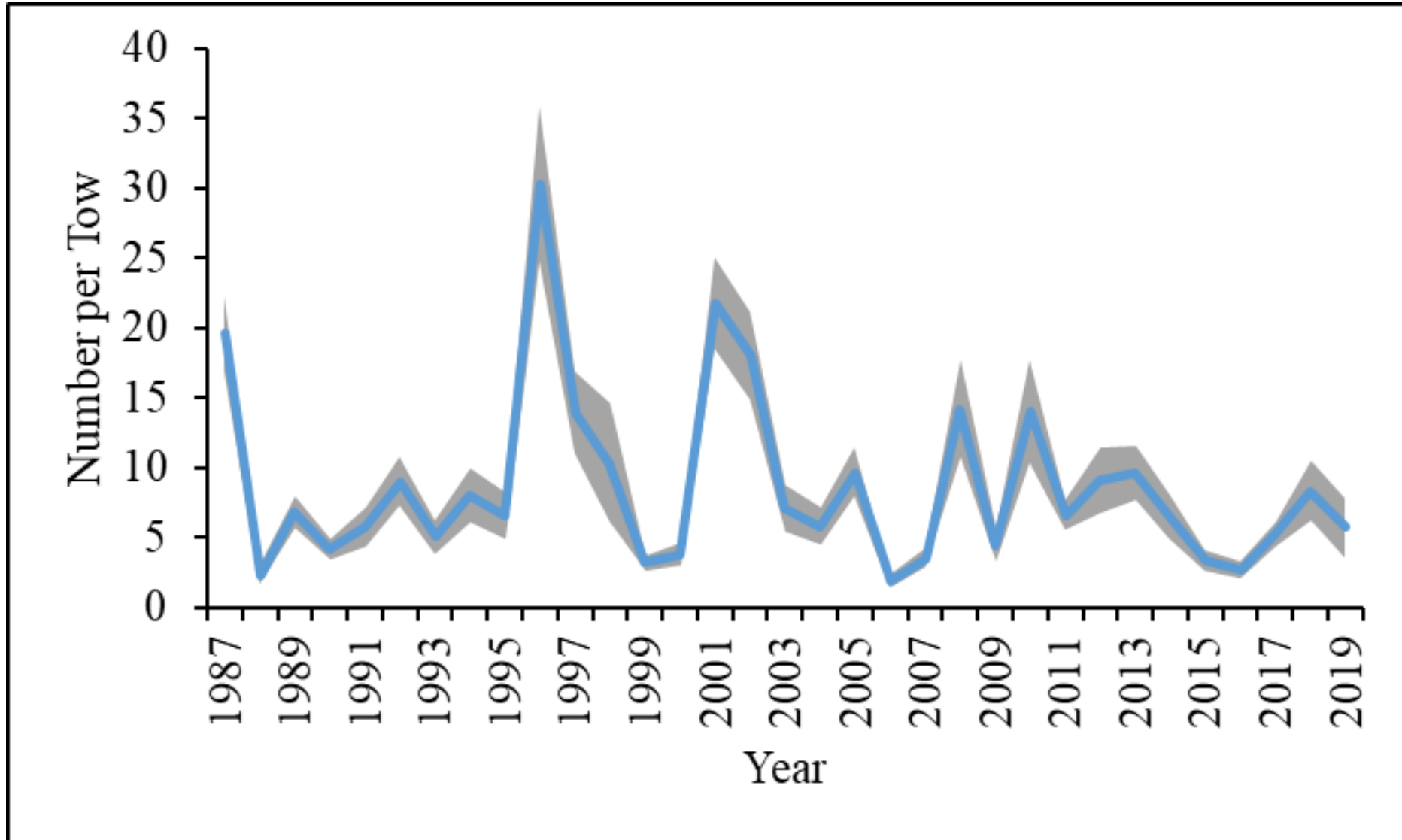
Spot Age-1+



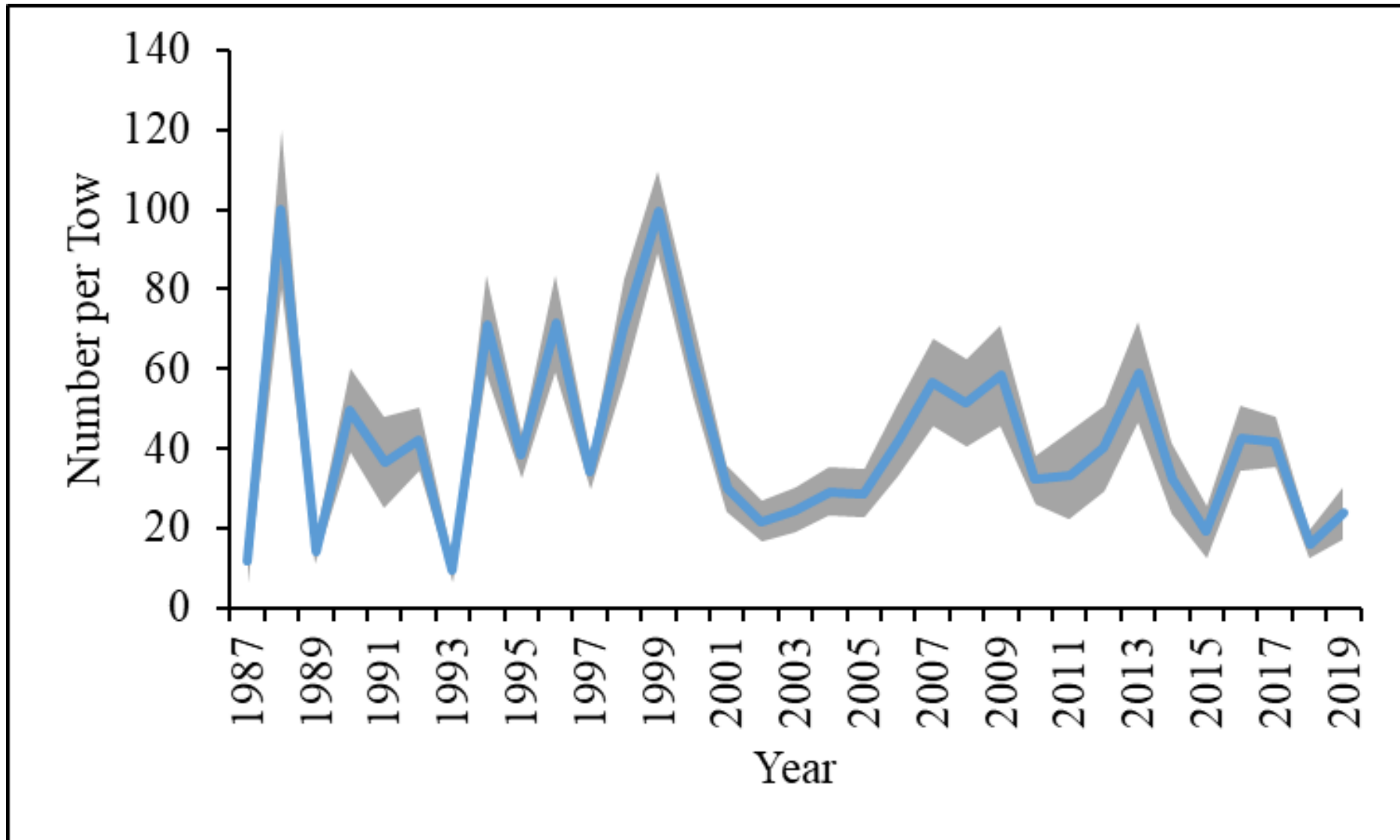
Southern Flounder



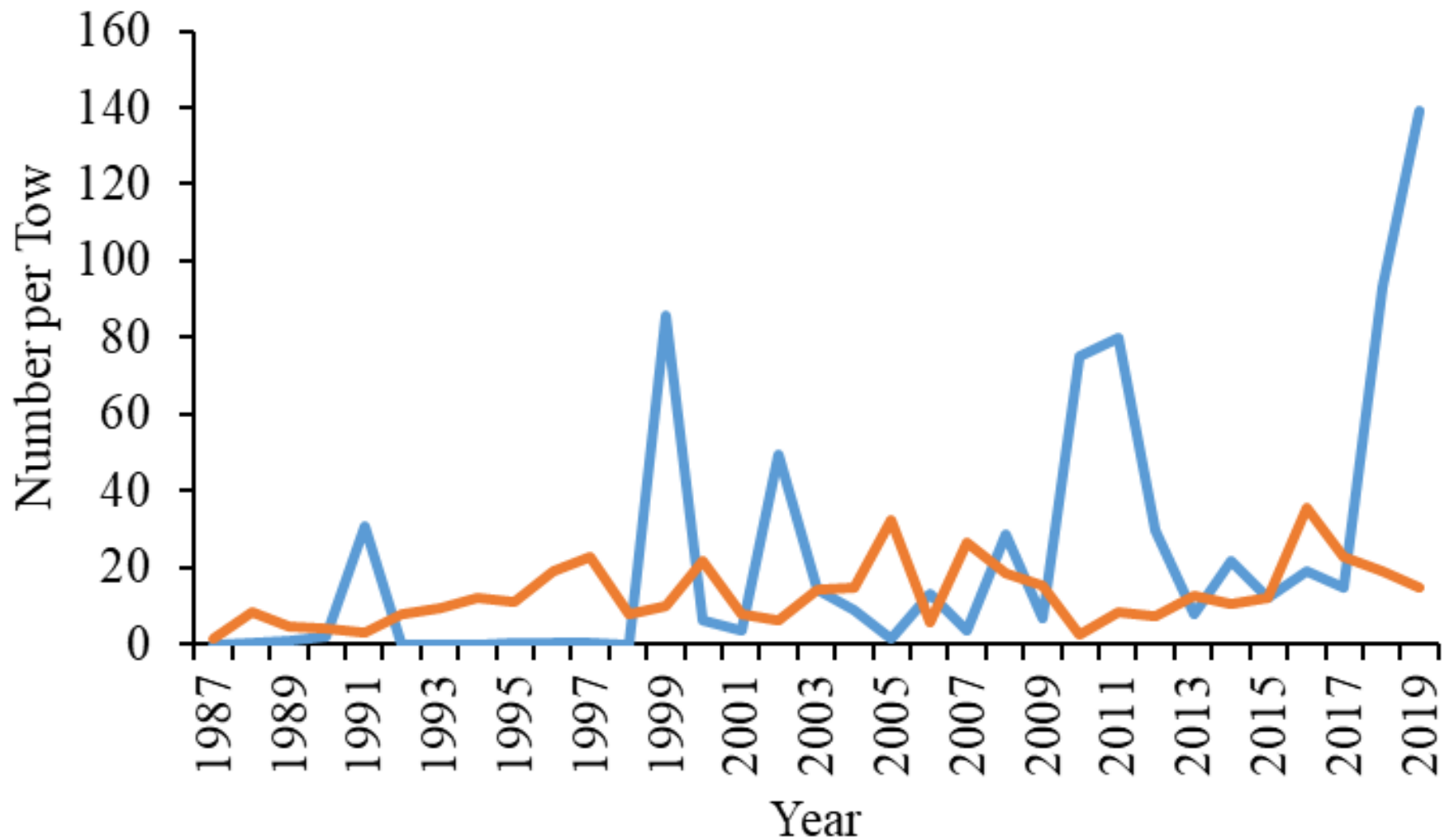
Summer Flounder



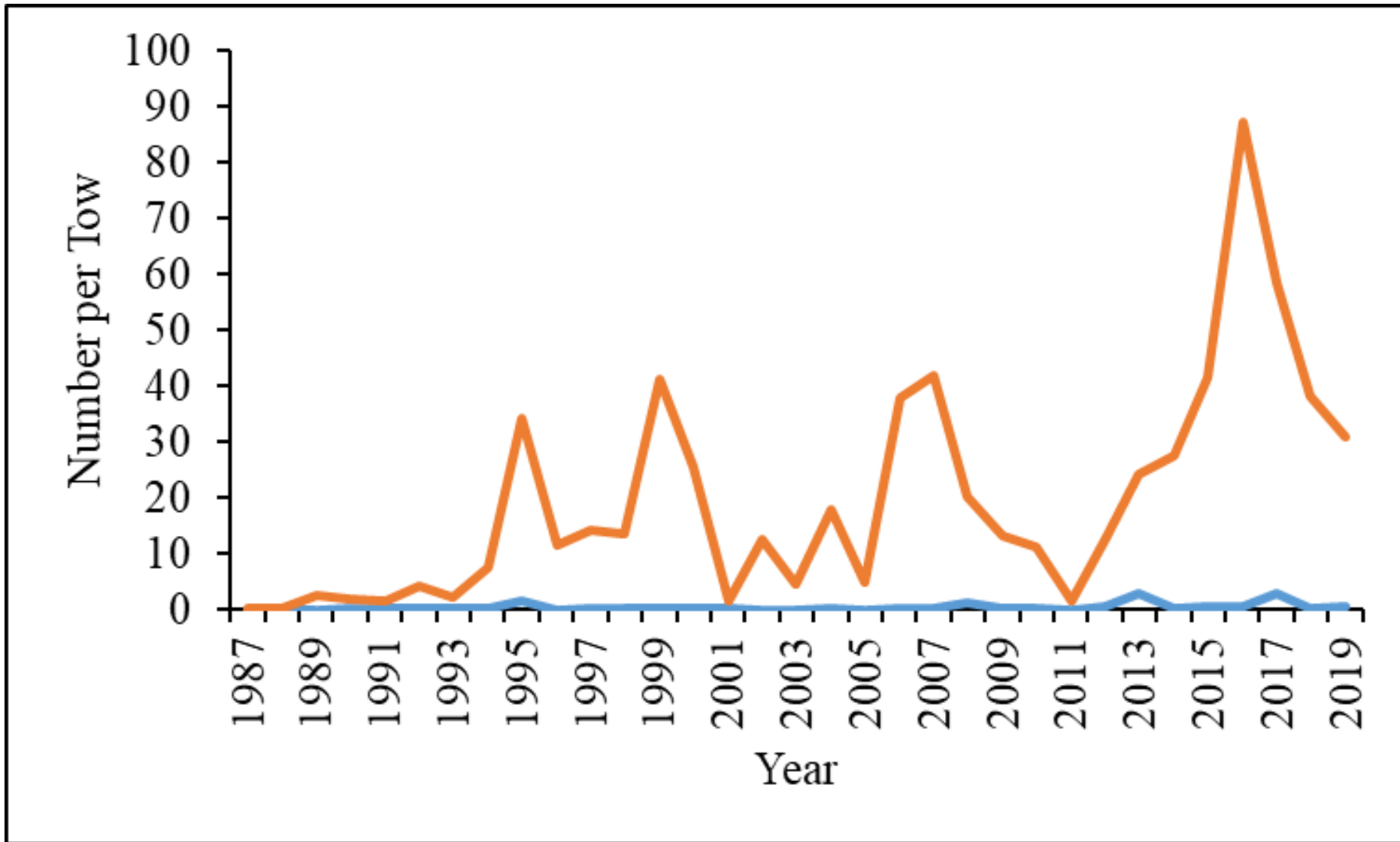
Weakfish



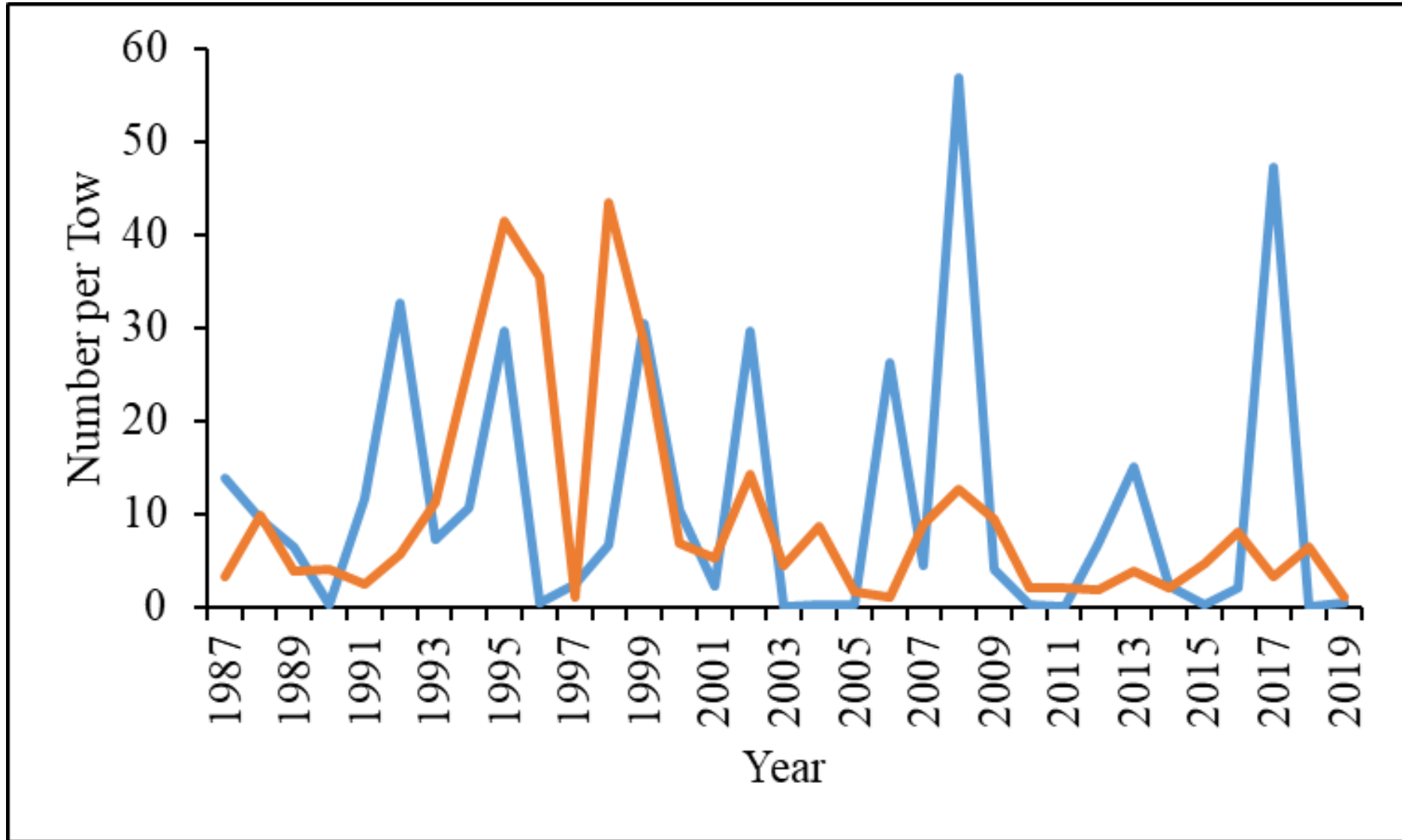
Brown Shrimp



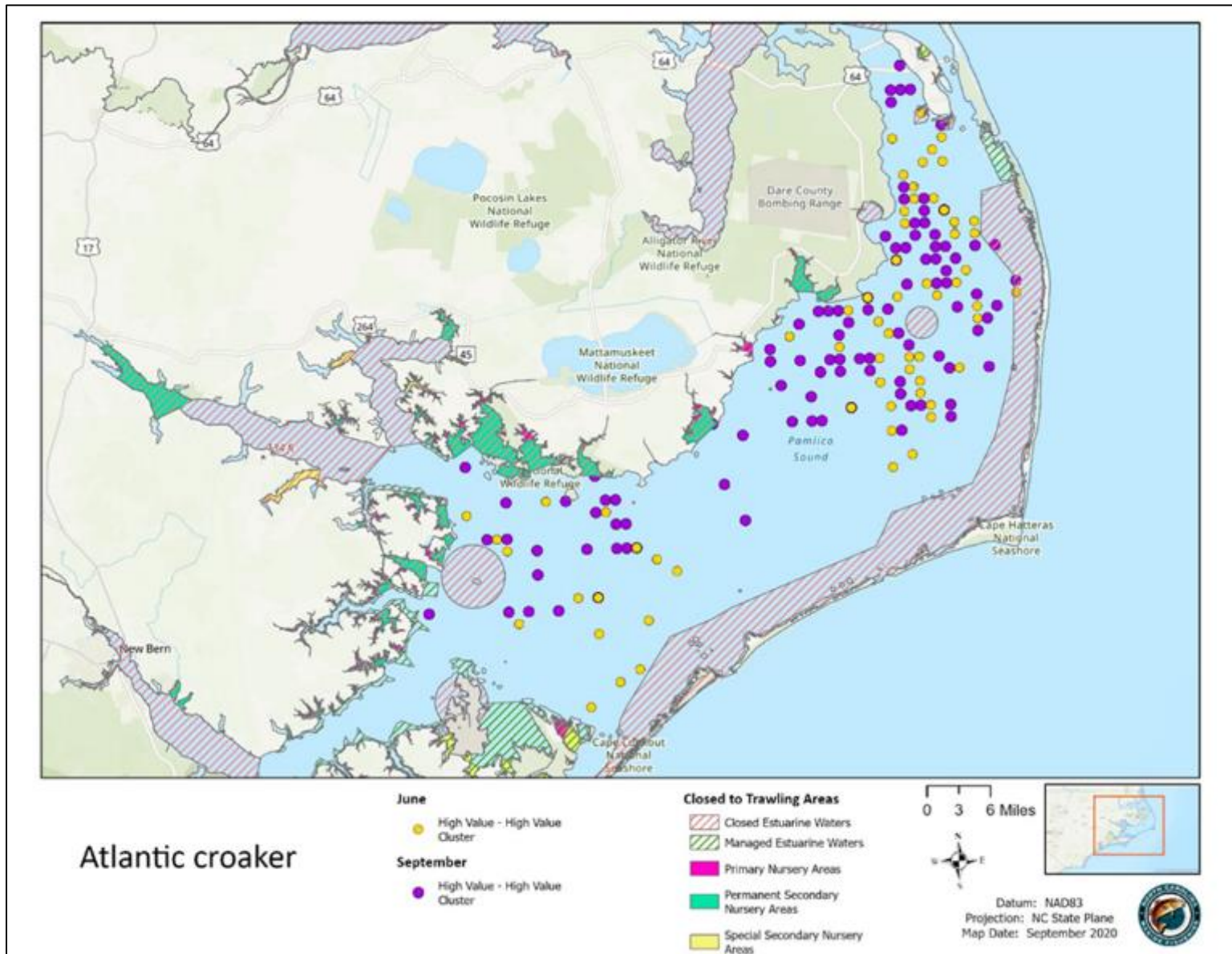
White Shrimp



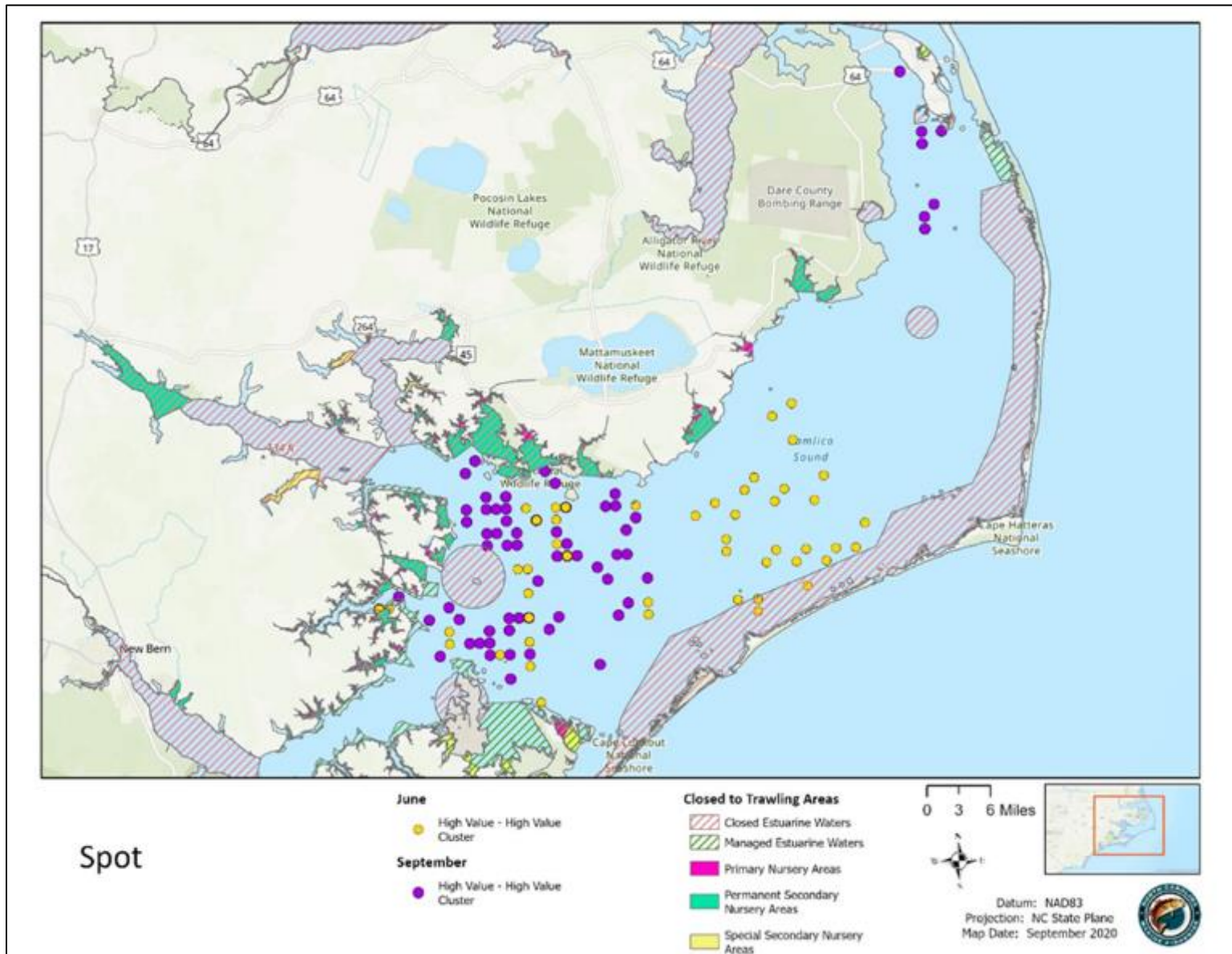
Pink Shrimp



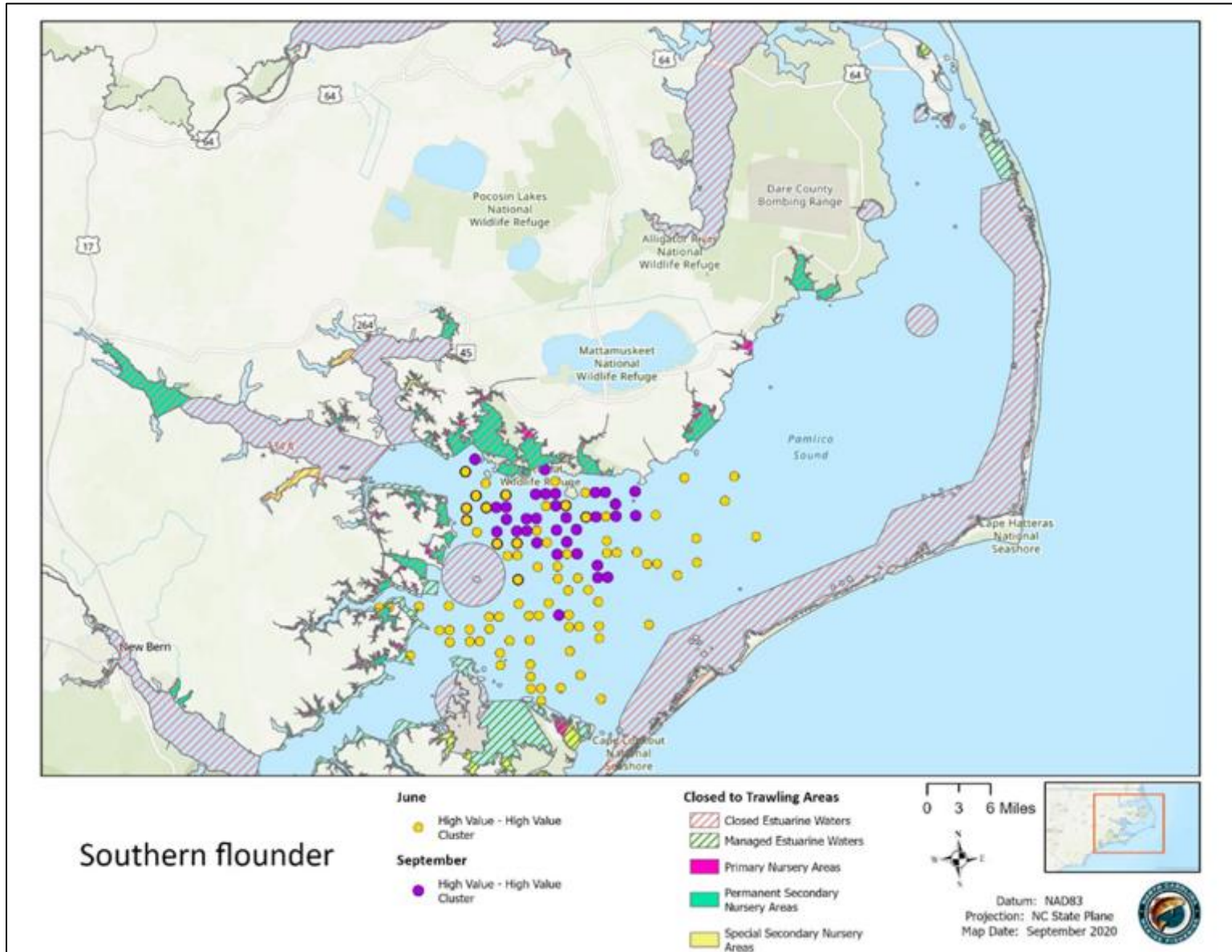
Atlantic Croaker



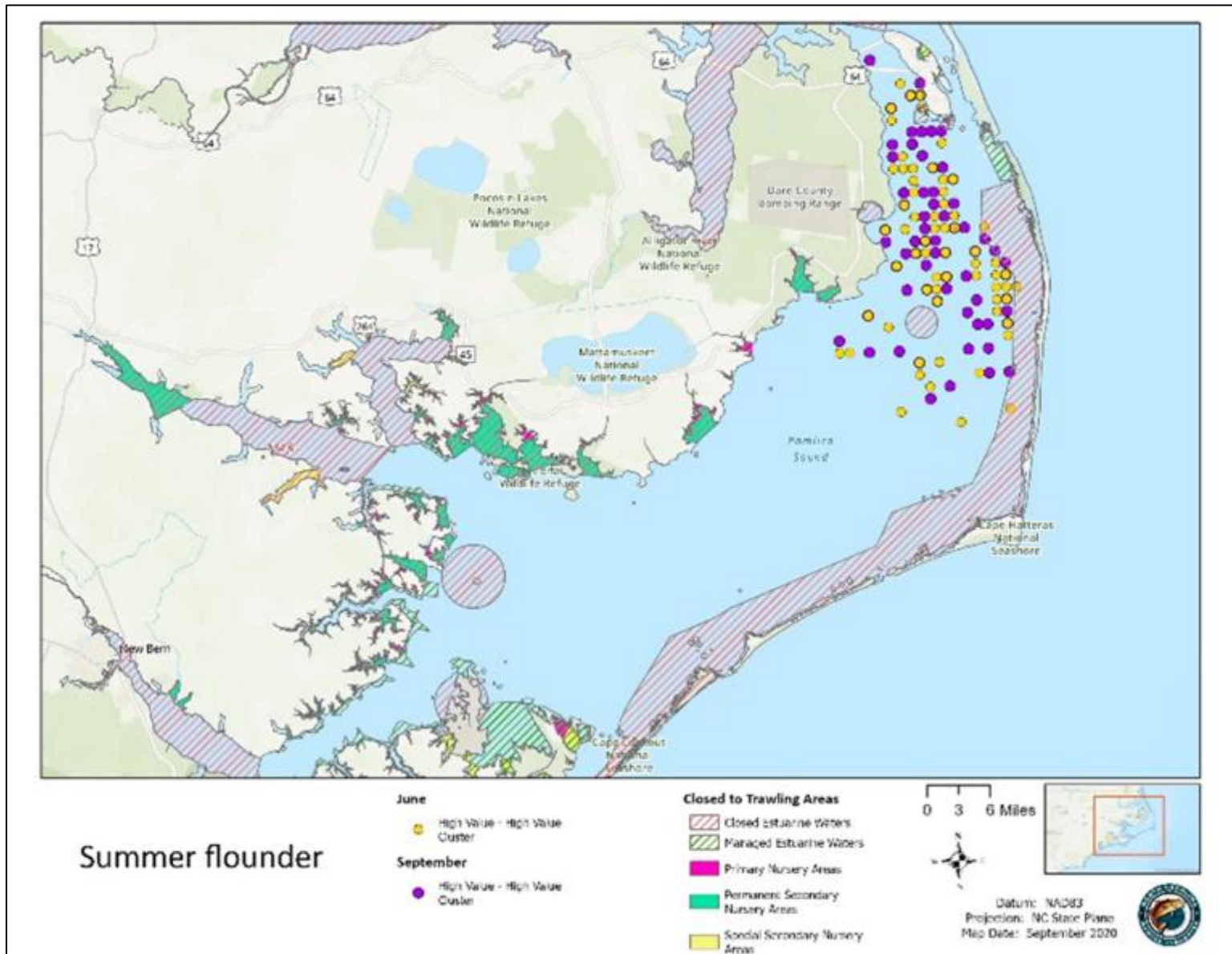
Spot



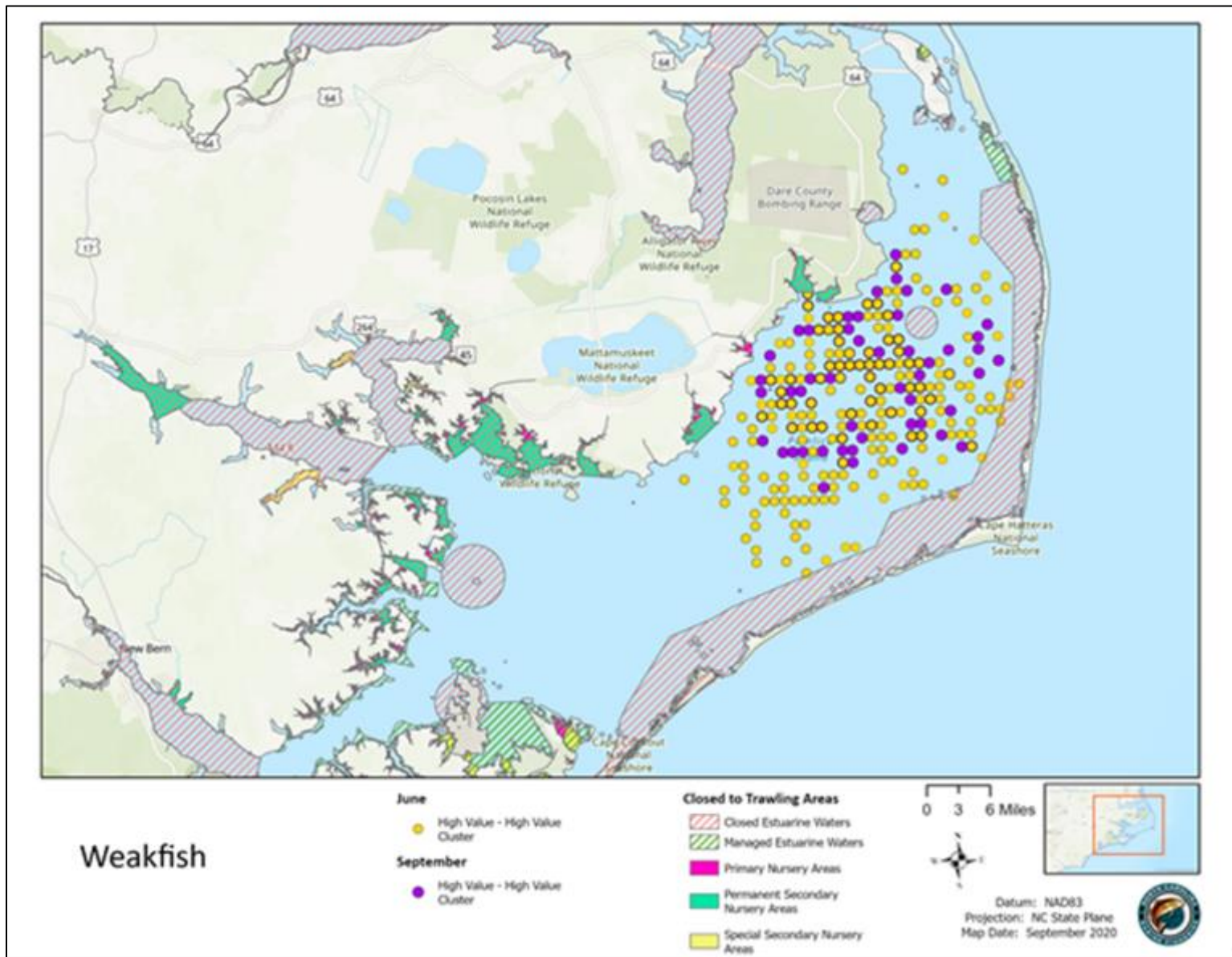
Southern Flounder



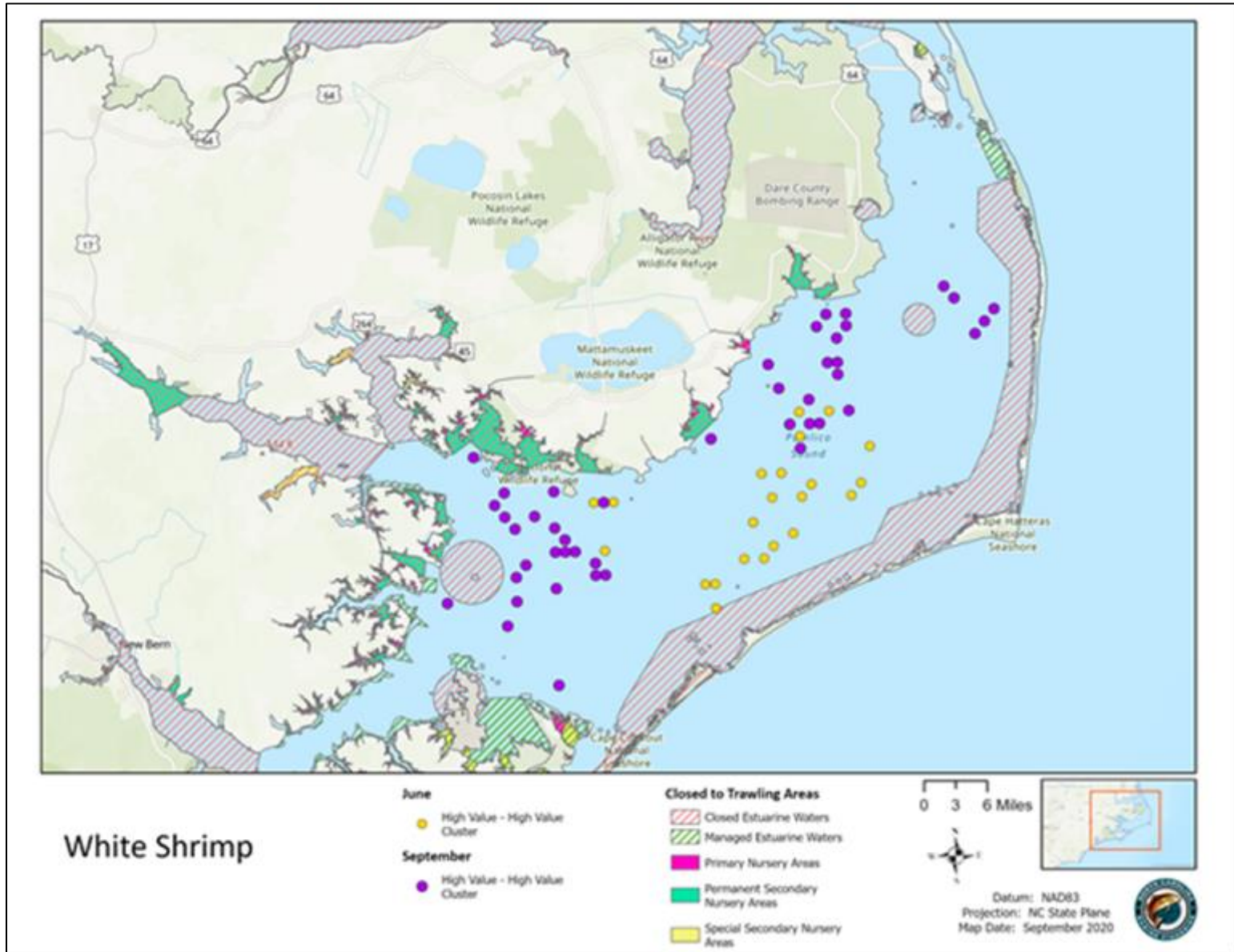
Summer Flounder



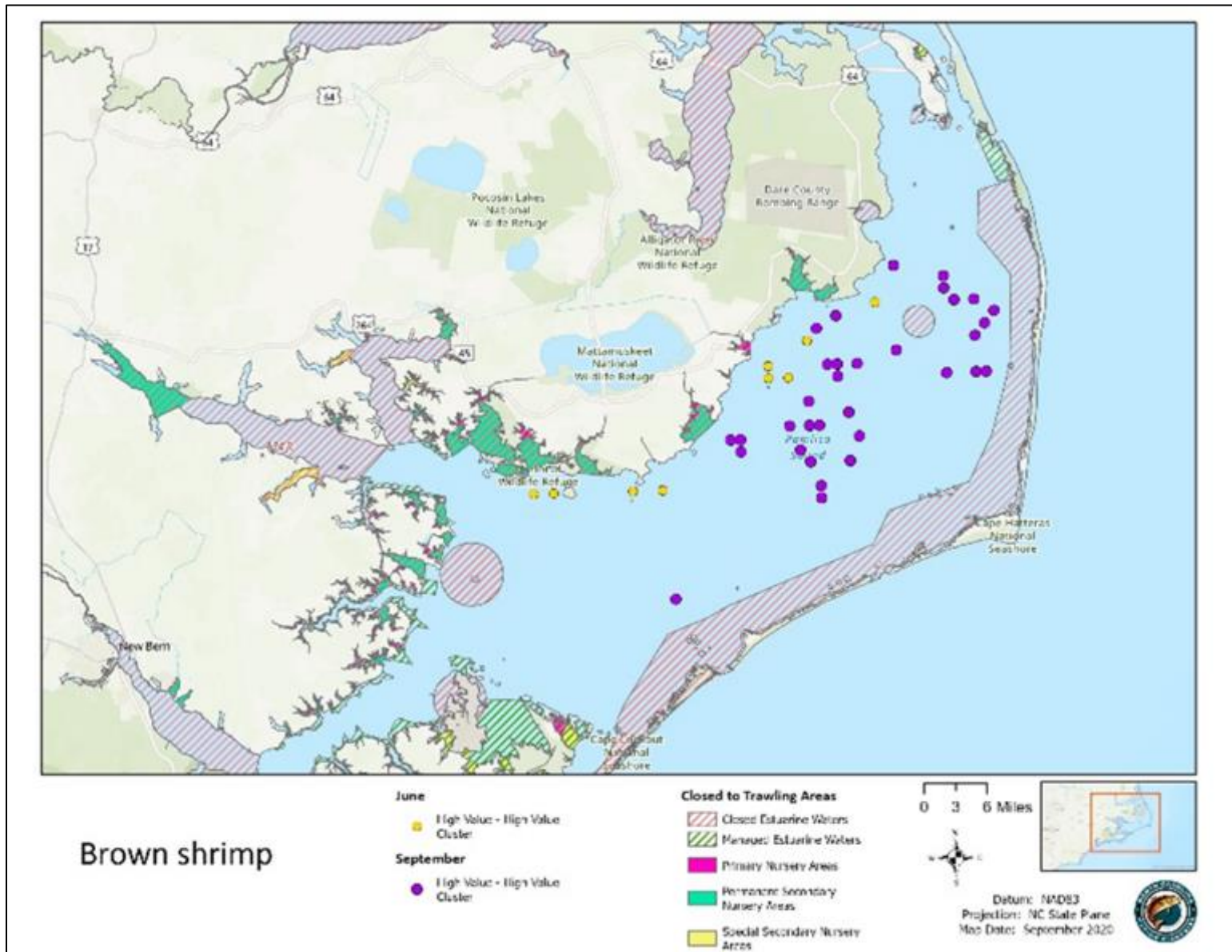
Weakfish



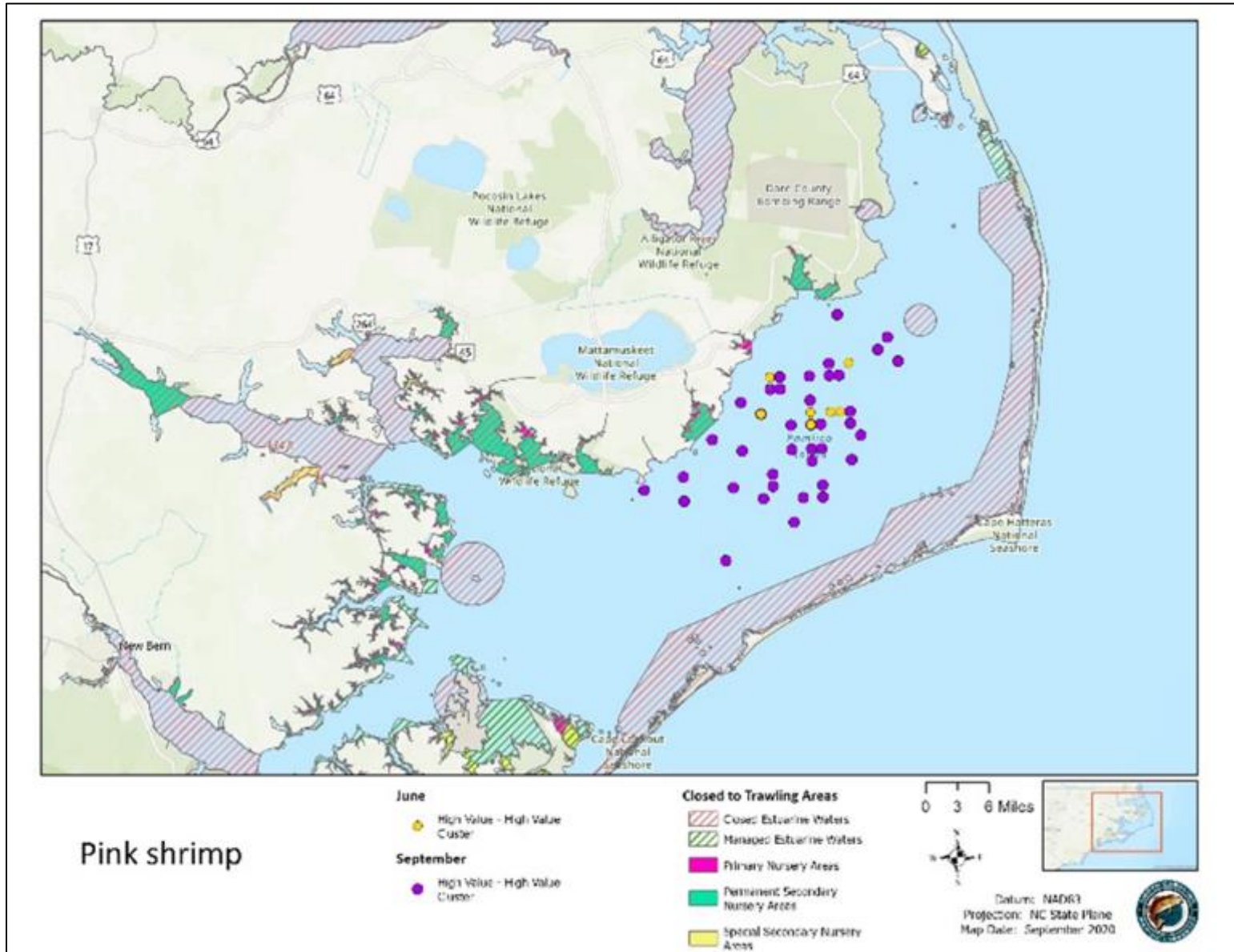
White Shrimp



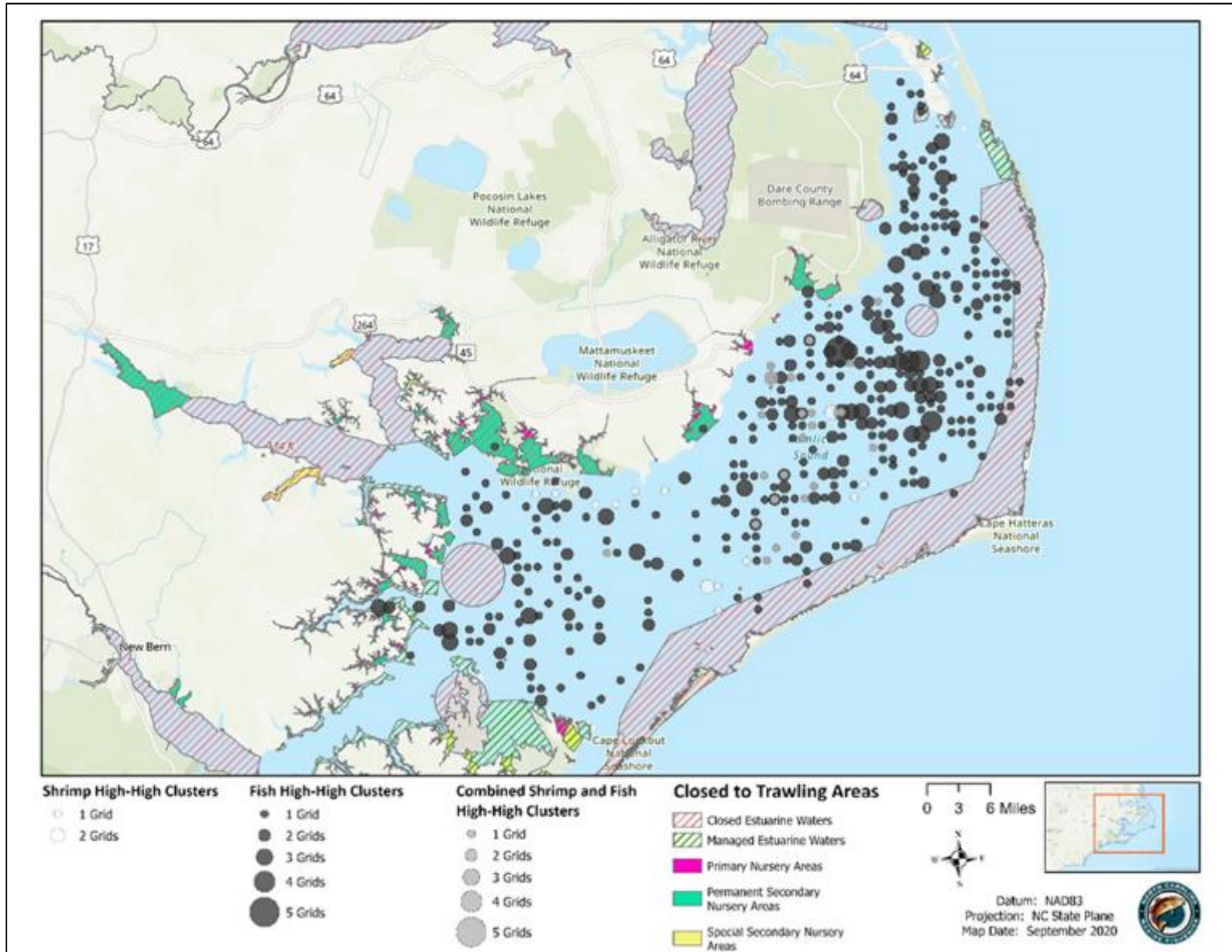
Brown Shrimp



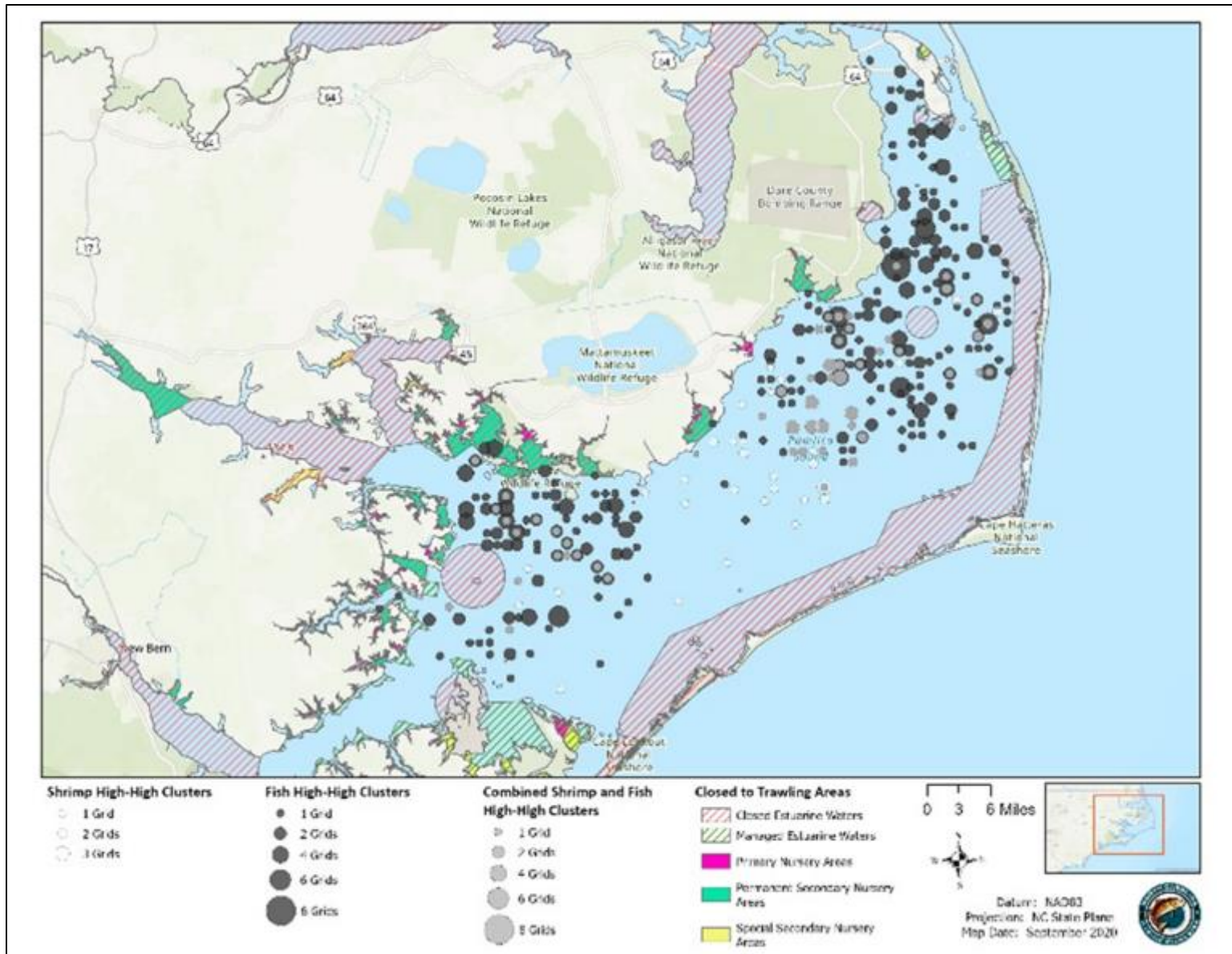
Pink Shrimp



Aggregate June

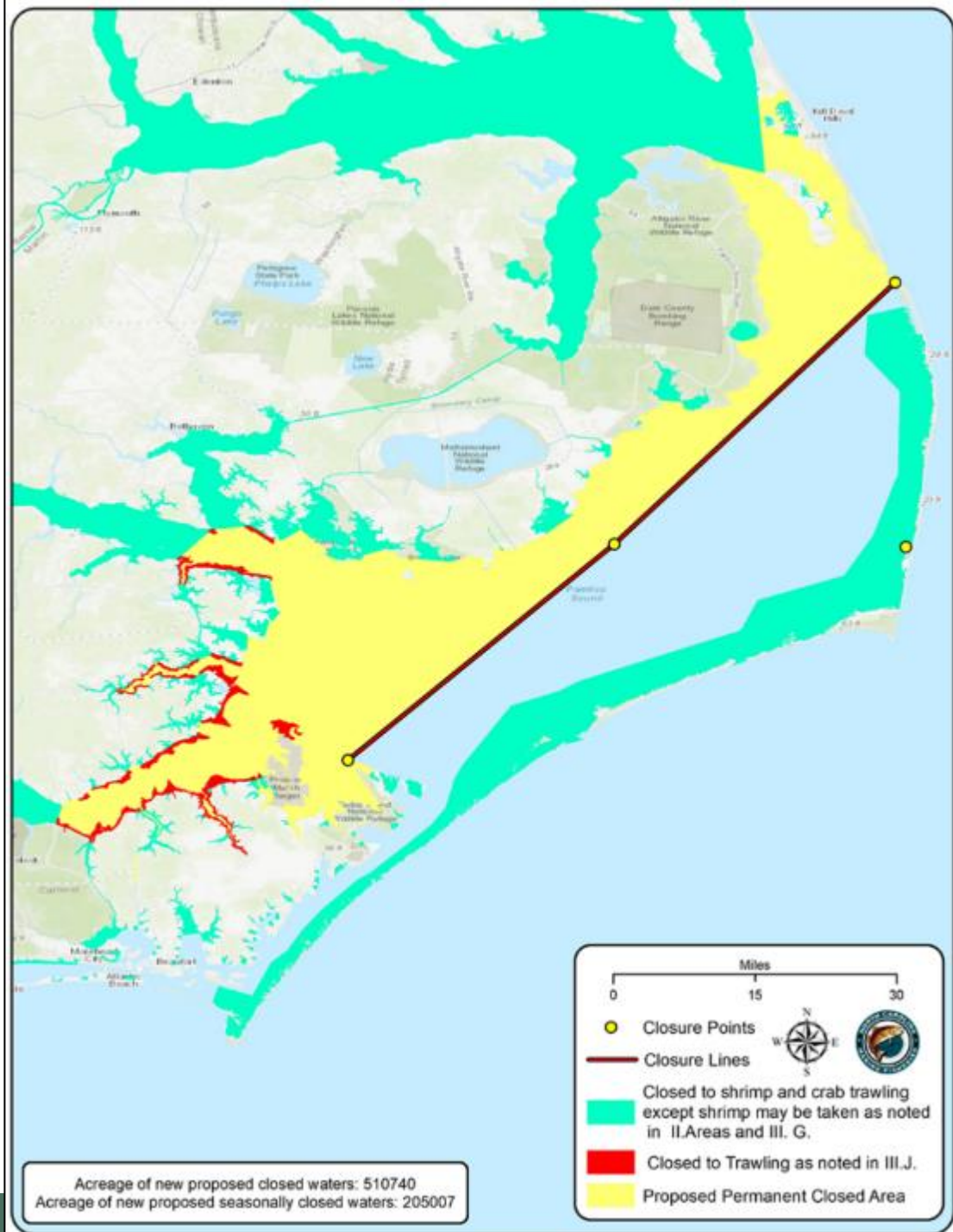


Aggregate September



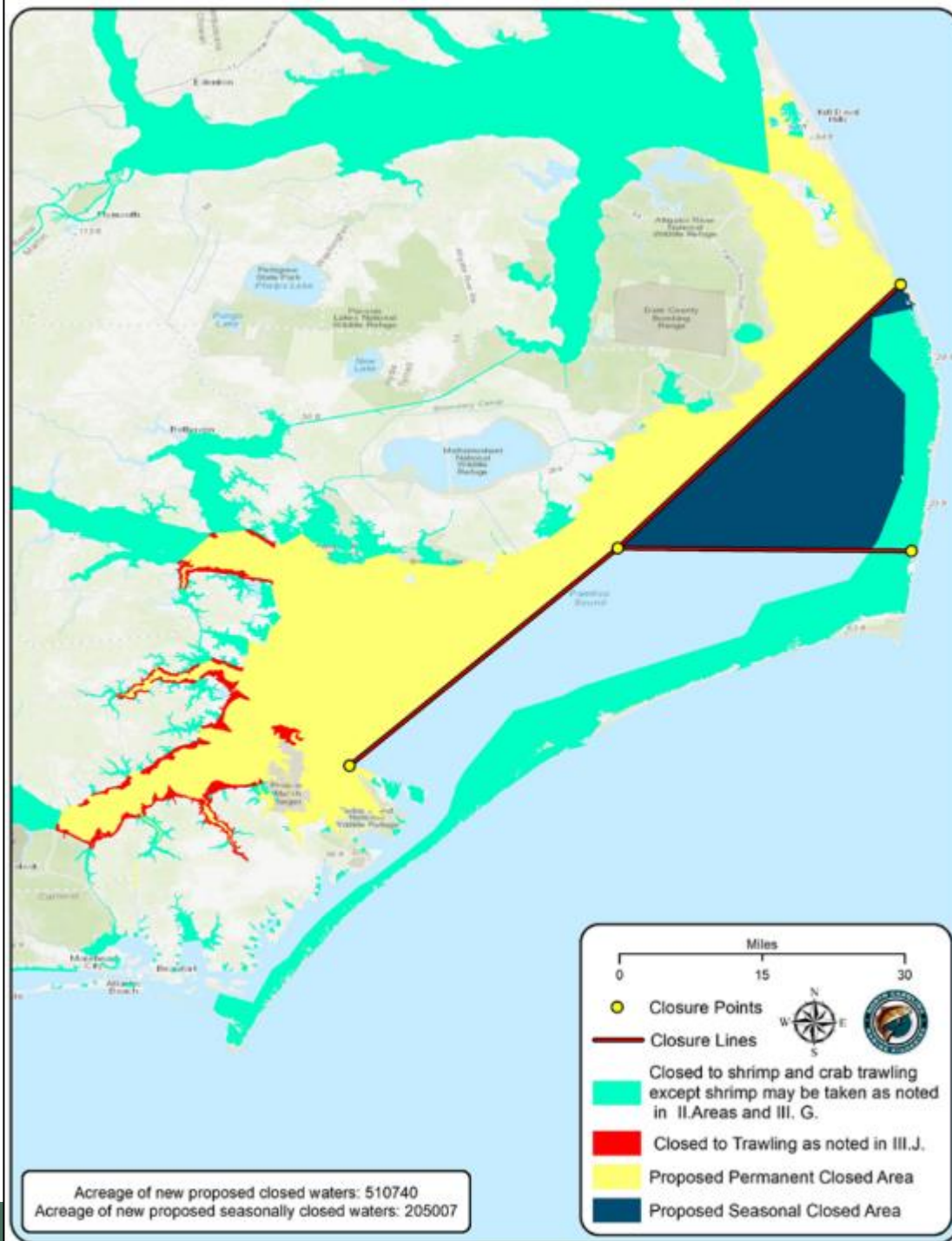
Example Permanent Closure

- Creates connectivity
- Encompasses hot spots



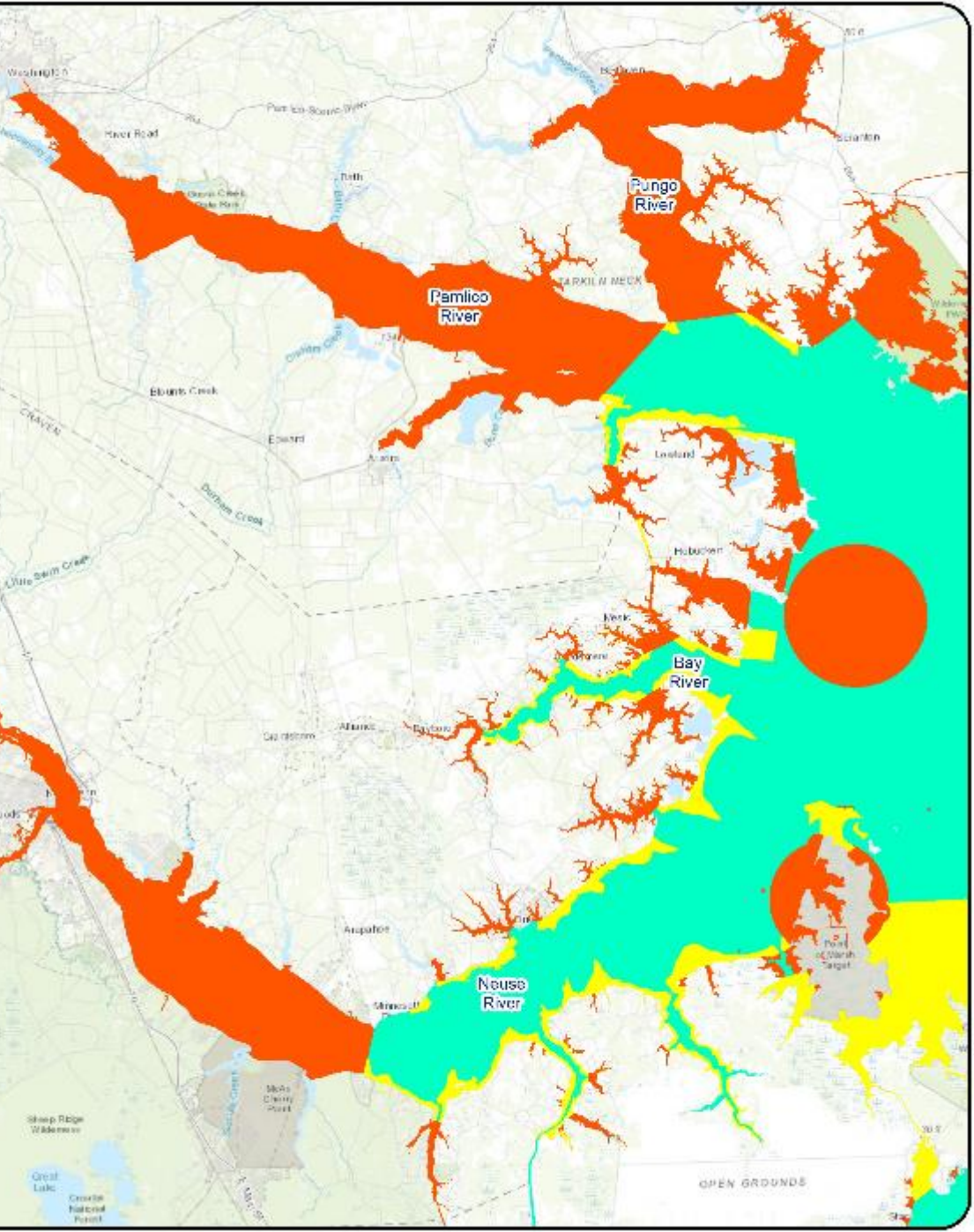
Example Seasonal Closure

- Creates connectivity
- Encompasses additional hot spots
- Allows access to shrimp seasonally
- Could be adjusted for species of interest



Shrimp Trawl Designations

	Managed Estuarine Waters		Closed Ocean Waters
	Managed Ocean Waters		Open Estuarine Waters
	Closed Estuarine Waters		Open Ocean Waters

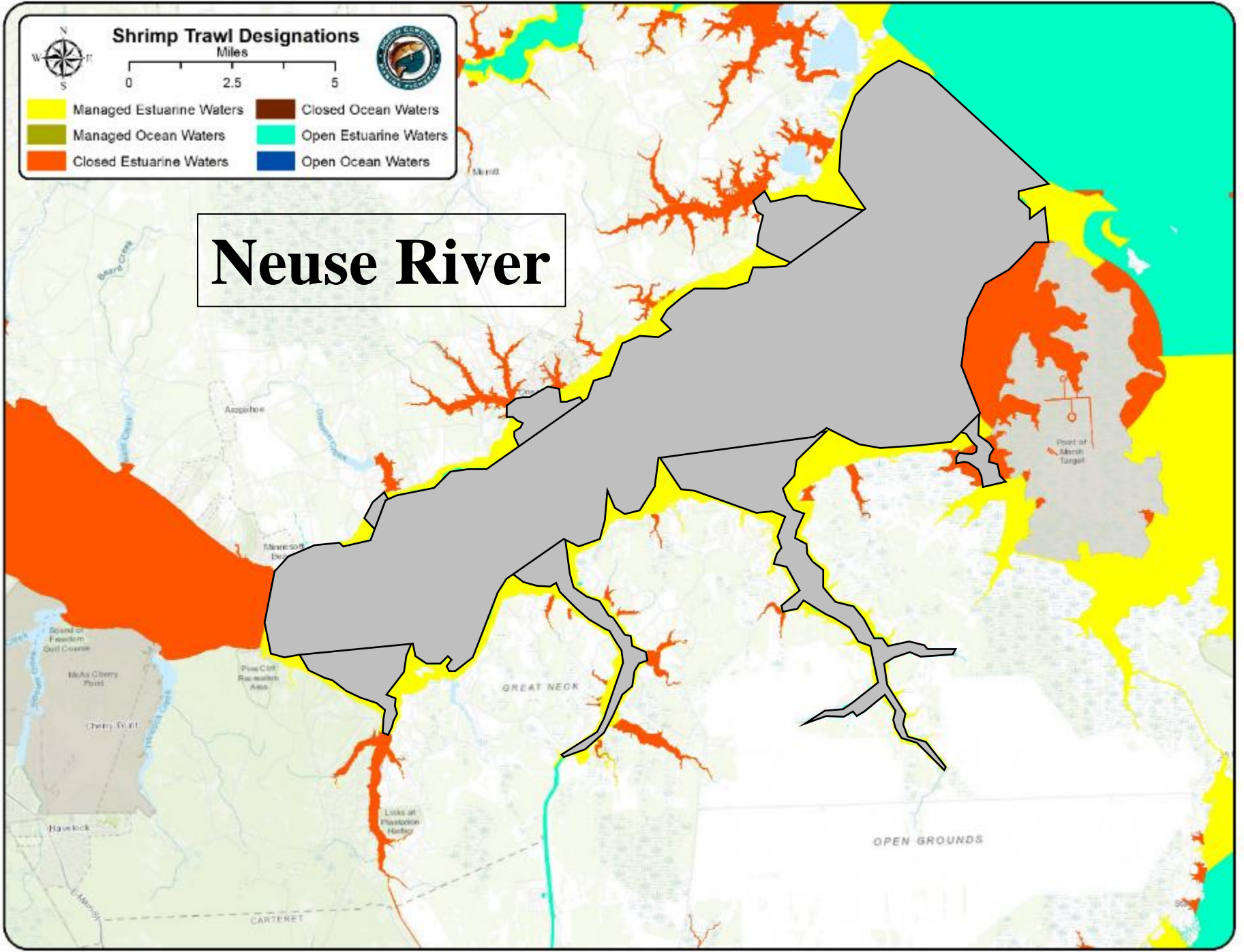


***Tributaries
and
Adjacent
Areas***

Shrimp Trawl Designations

	Managed Estuarine Waters		Closed Ocean Waters
	Managed Ocean Waters		Open Estuarine Waters
	Closed Estuarine Waters		Open Ocean Waters

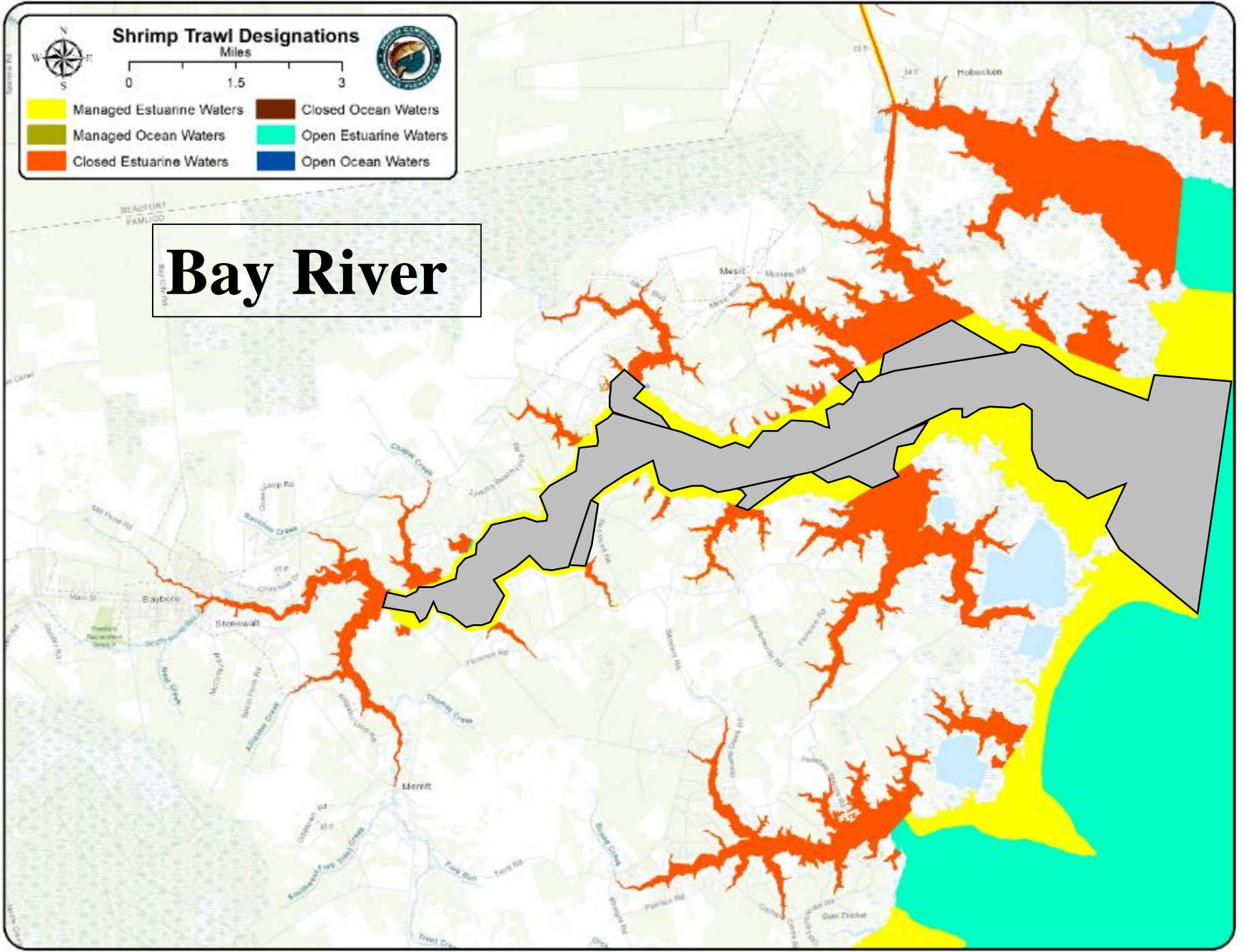
Neuse River



Shrimp Trawl Designations

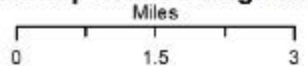
Managed Estuarine Waters	Closed Ocean Waters
Managed Ocean Waters	Open Estuarine Waters
Closed Estuarine Waters	Open Ocean Waters







Bay River

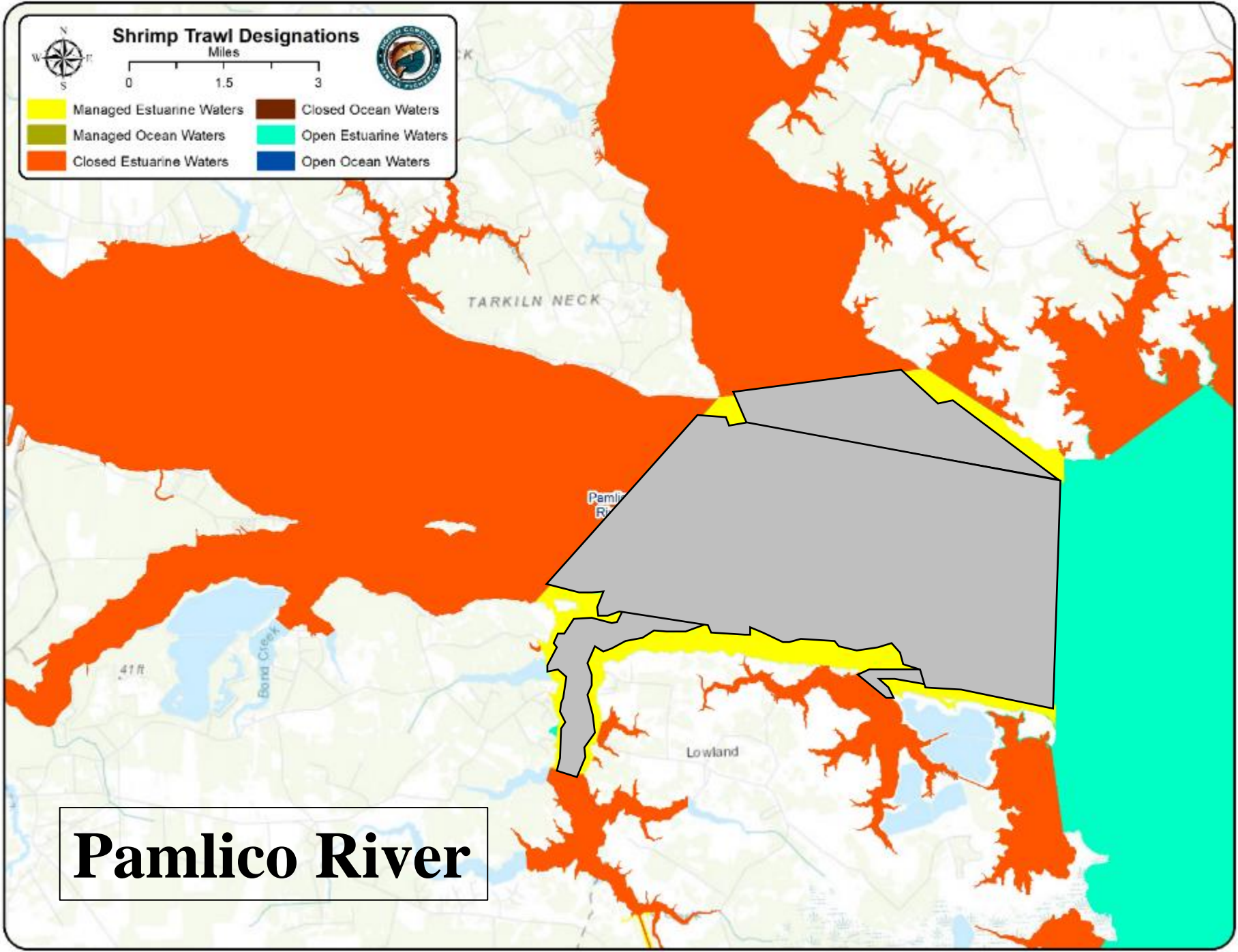




Shrimp Trawl Designations

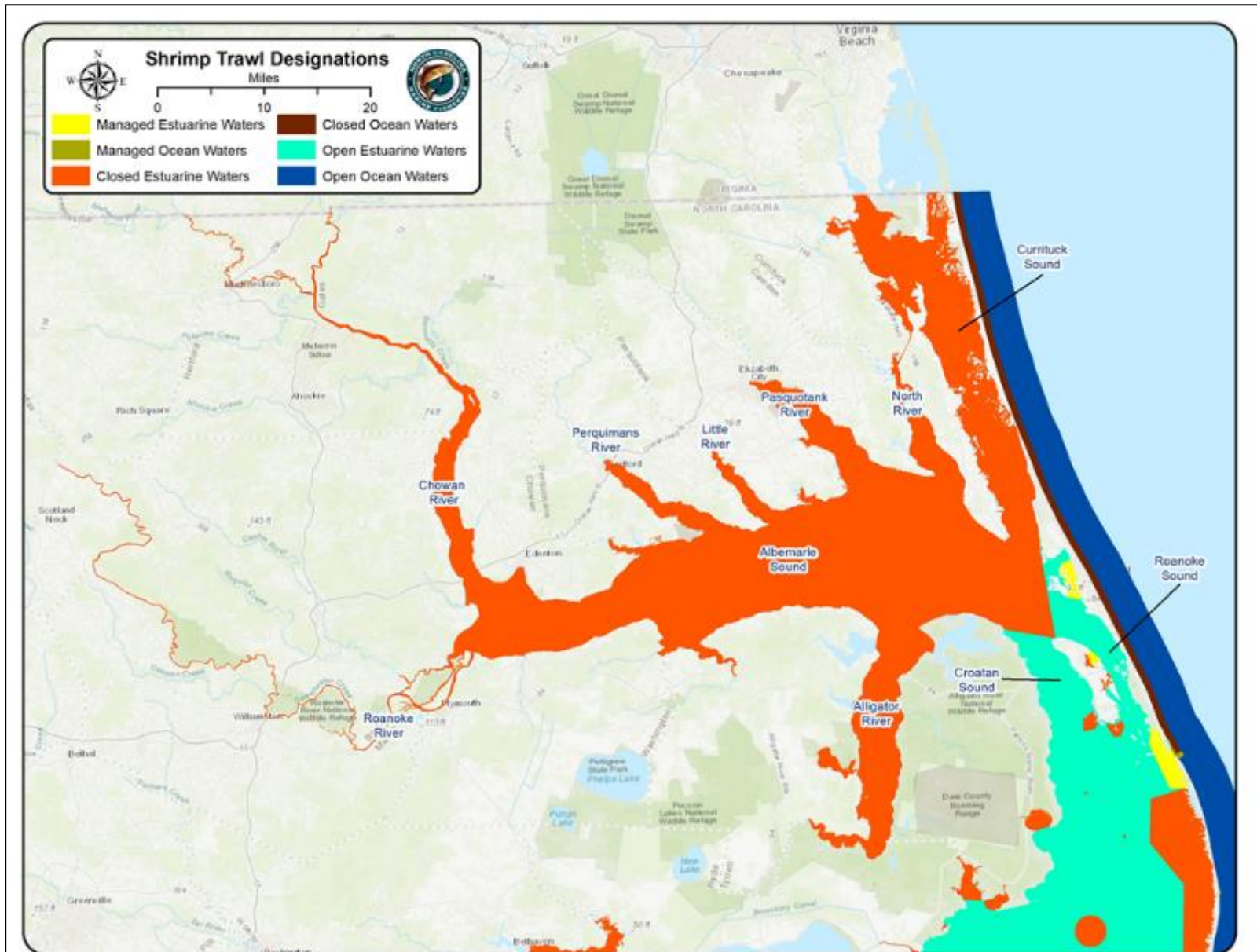


- | | |
|---|---|
|  Managed Estuarine Waters |  Closed Ocean Waters |
|  Managed Ocean Waters |  Open Estuarine Waters |
|  Closed Estuarine Waters |  Open Ocean Waters |

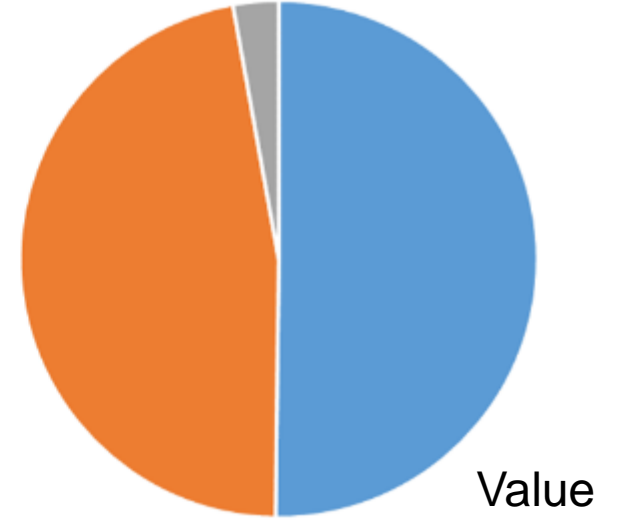
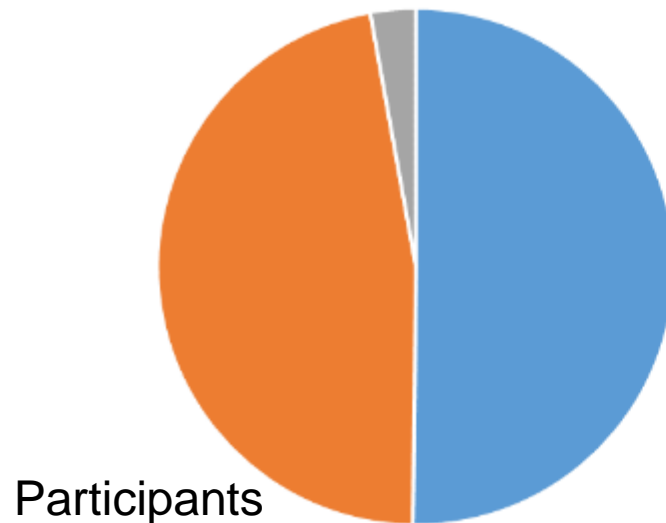
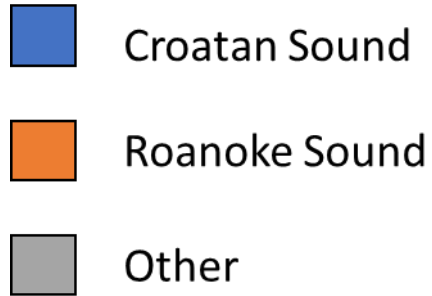
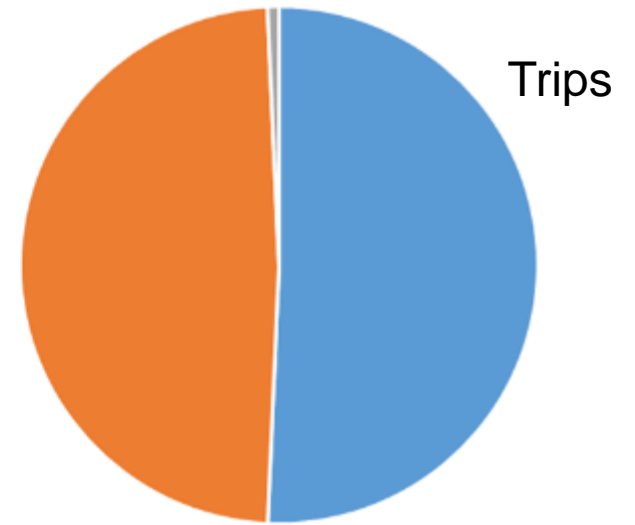
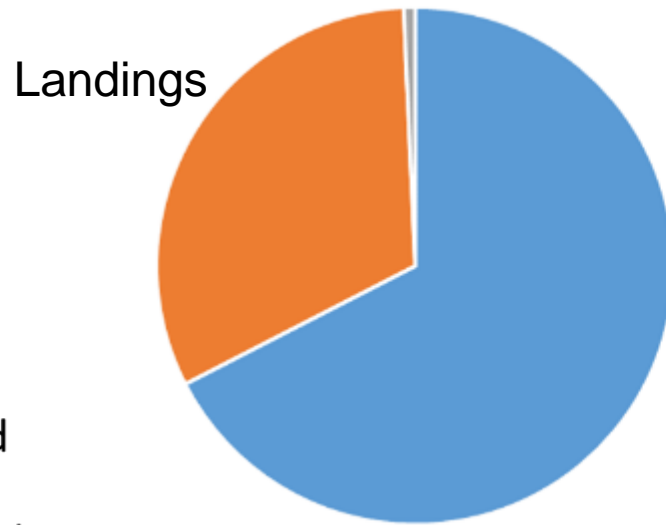


Pamlico River

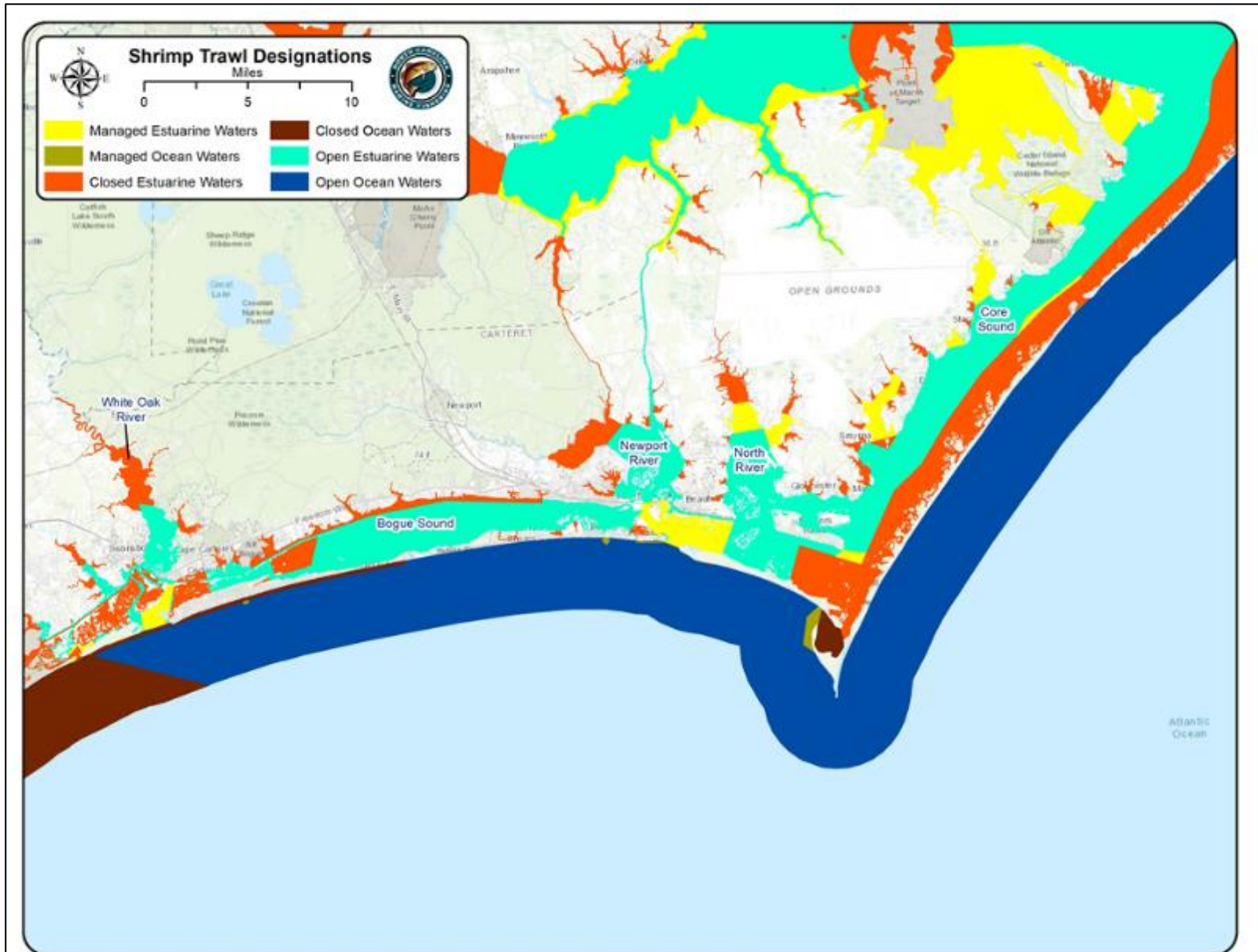
Northern Area



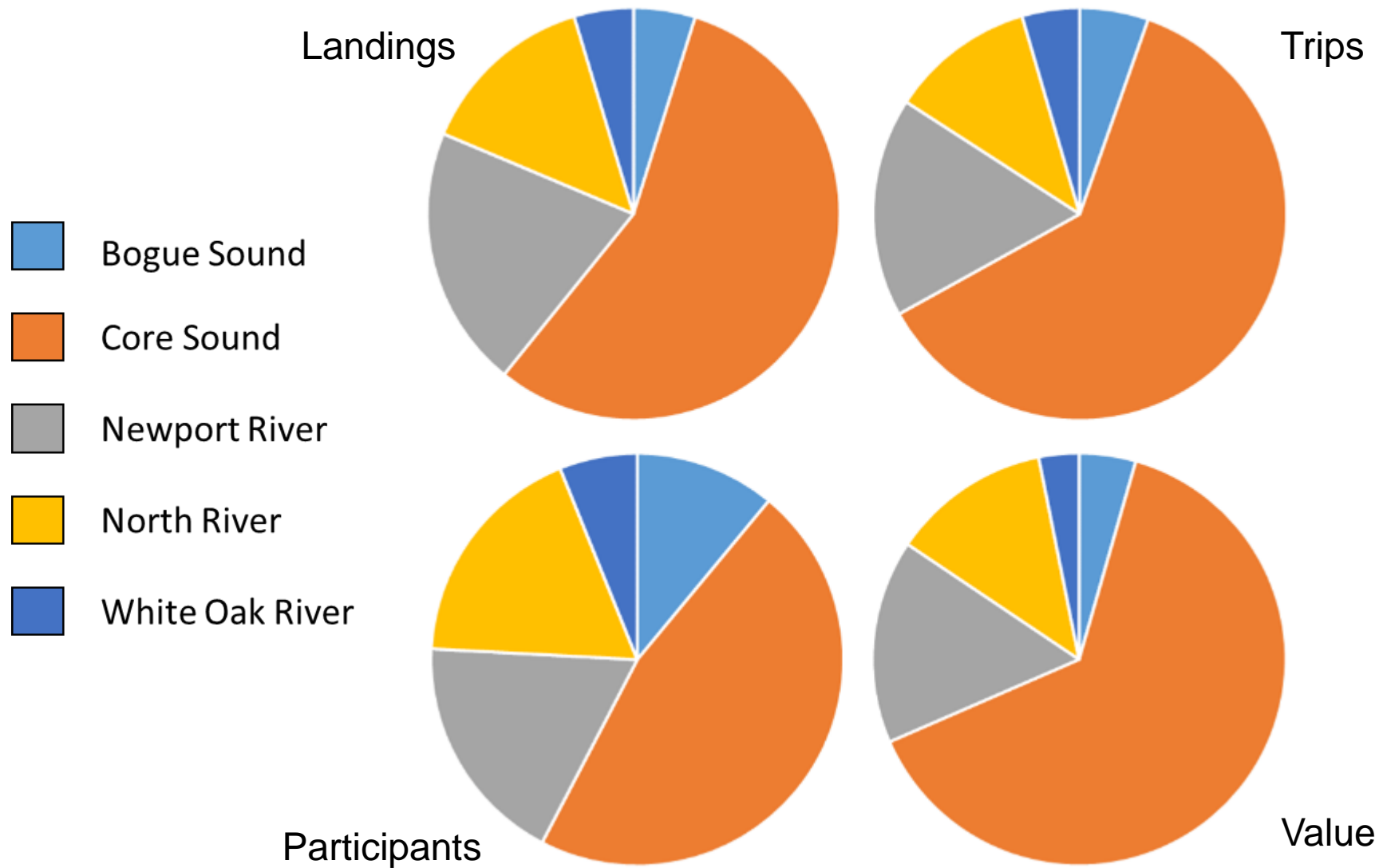
Northern Area



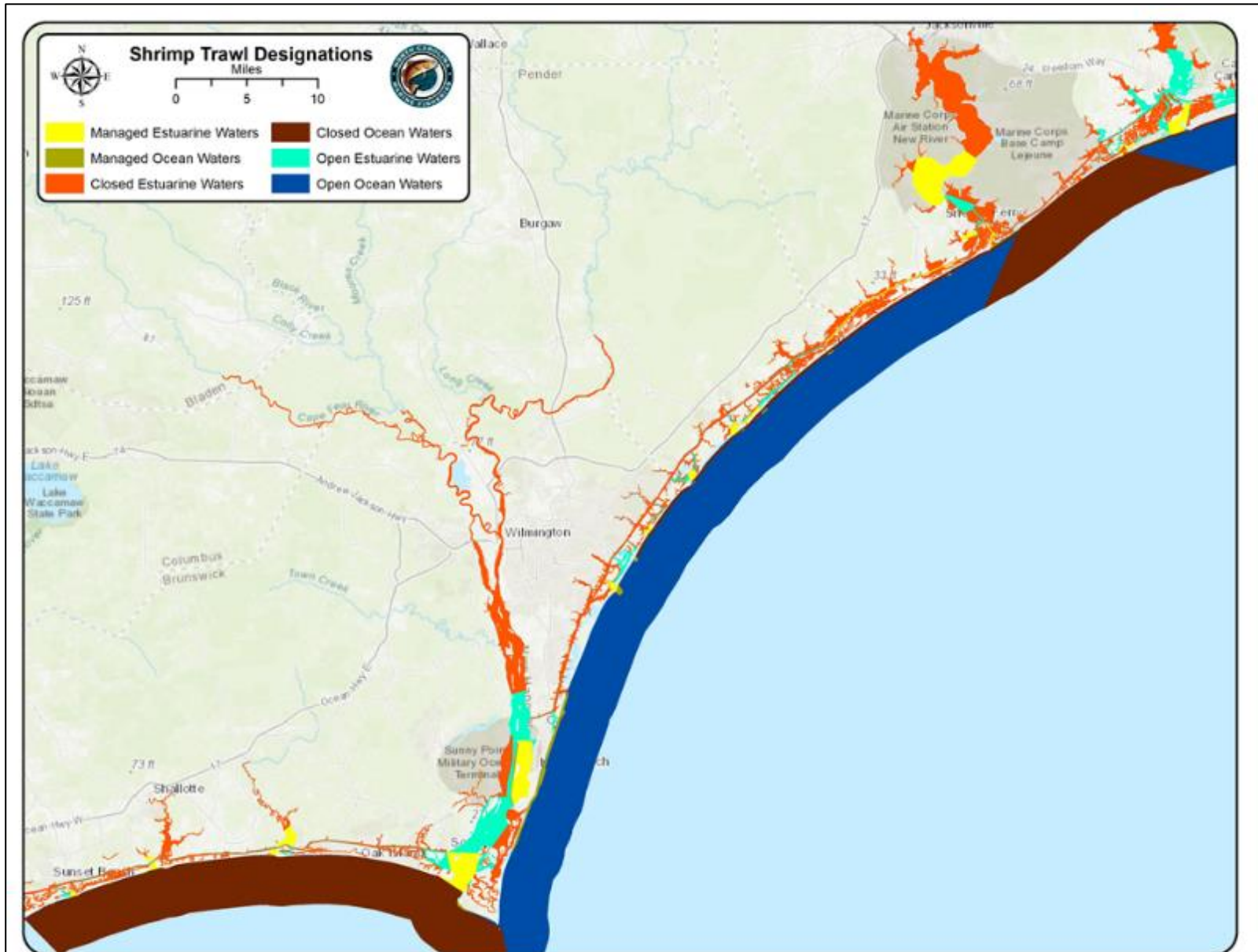
Central Area



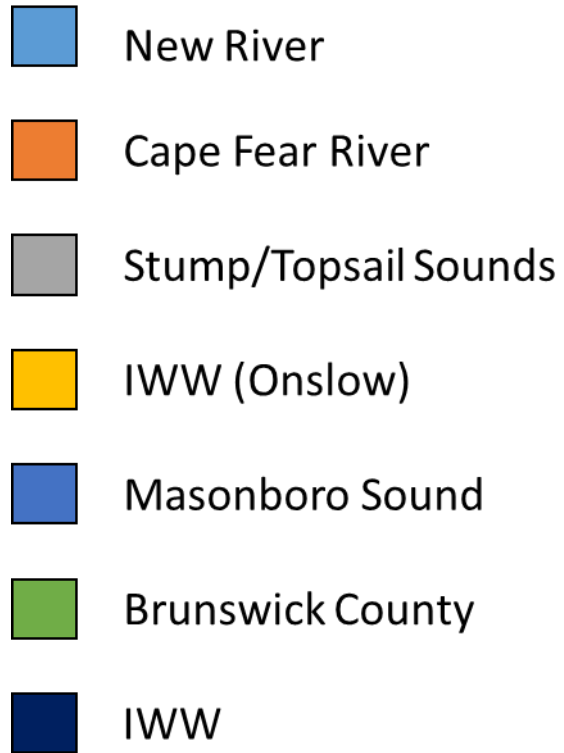
Central Area



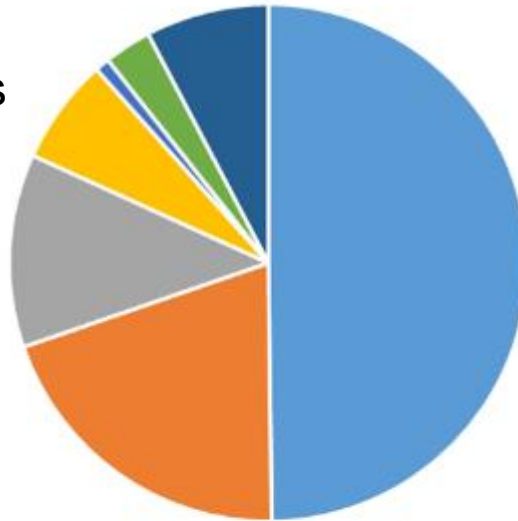
Southern Area



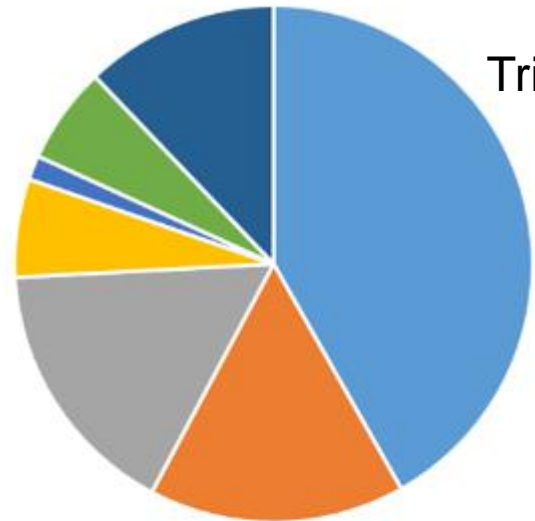
Southern Area



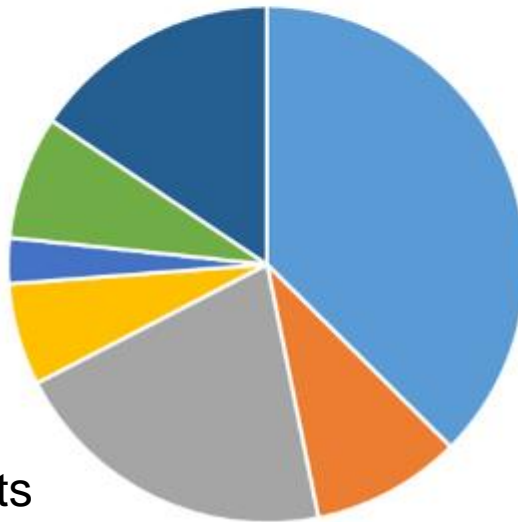
Landings



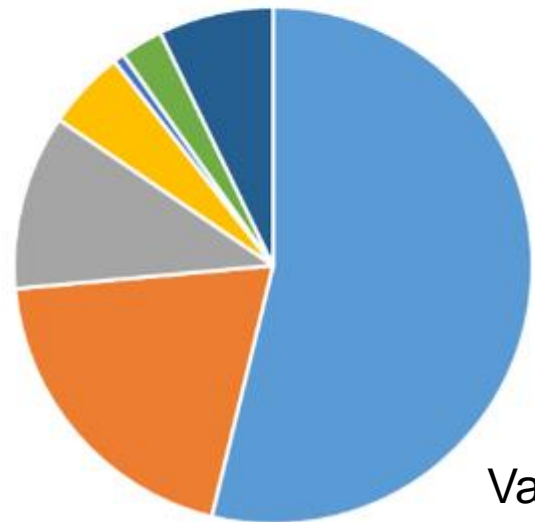
Trips



Participants



Value



Gear Considerations

- Consider use of gear with less bycatch concerns
- Skimmer trawls allowed in New River upstream of Highway 172 Bridge
- RCGL exception

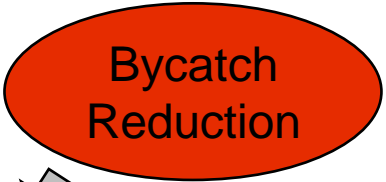


Considerations

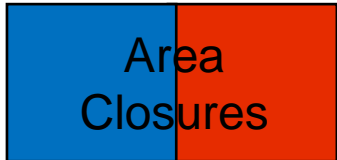
- Bycatch reductions are not quantifiable
- Benefits are uncertain
- Negative impacts to the shrimp fishery
 - Reduce shrimp harvest
- Increased effort in open areas
- Detrimental to smaller commercial shrimp trawlers and the recreational sector
- Detrimental to brown shrimp fishery



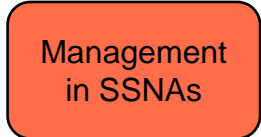
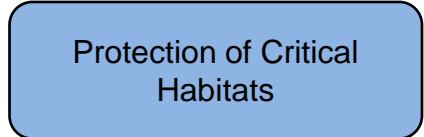
Objectives



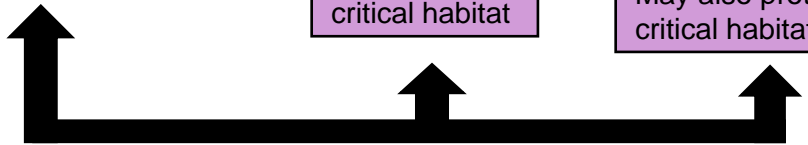
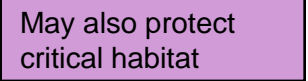
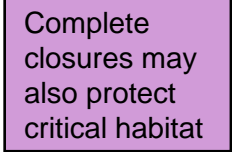
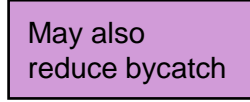
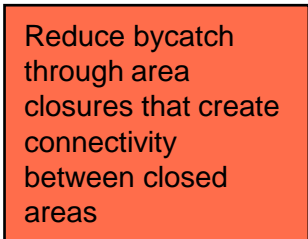
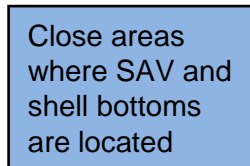
Management Strategies



Issue Papers



Management Measures



Discussion Points

Points to consider when discussing the questions below:

- The focus of this paper is area closures in Pamlico Sound and adjacent water bodies
- The Management of Shrimp Trawling for Protection of Critical Sea Grass and Shell Bottom Habitat and Shrimp Management in Special Secondary Nursery Areas issue papers should be referenced for area closure options from Core Sound and south
- The amount of bycatch reduction and its impact on the status of bycatch species from further area closures is non-quantifiable
- Impacts to stakeholders if additional measures are implemented



Discussion Points

- Would the provided examples be effective in reducing bycatch?
- In comparison to the provided examples, are there alternative area closure scenarios that should be considered?
- Should seasonal closures be considered?





Questions?