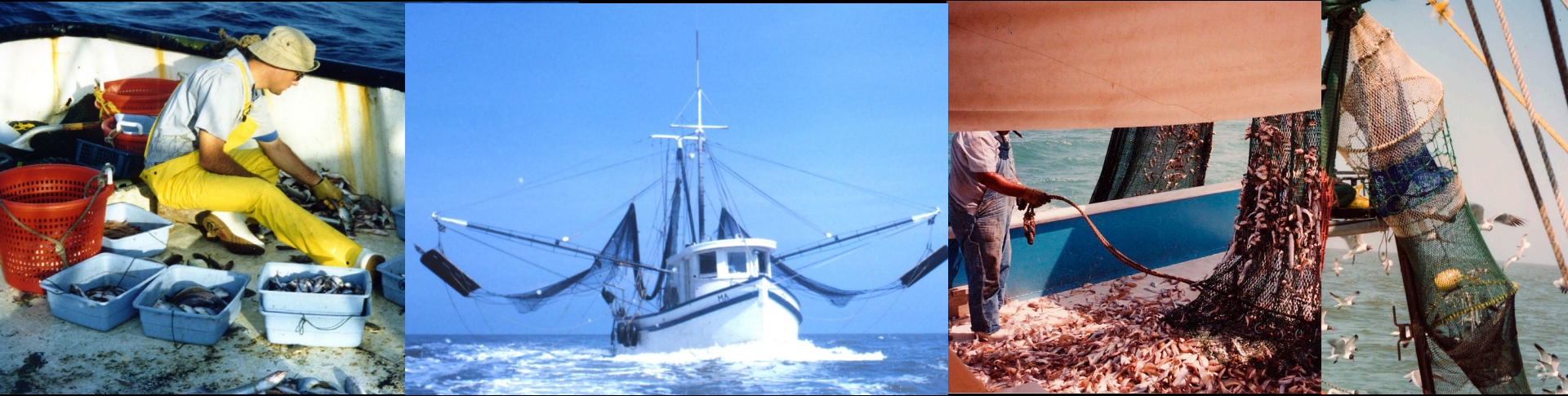


U.S. Gulf of Mexico and South Atlantic Penaeid and Rock Shrimp Fisheries Observer Program

NOAA Fisheries Service
Galveston Laboratory

Shrimp Trawl Bycatch Observer Program



Objectives:

- Refine catch rate estimates of finfish and shrimp by area and season for use in stock assessments (SEDARs)
- Bycatch Reduction Device (BRD) and Turtle Excluder Device (TED) evaluation. Estimate protected species bycatch

Since 1992:

- Annual coverage approx. <1% to ~2% of total shrimp effort
- Mandatory Coverage in 2007 (Gulf) and 2008 (SA)

Shrimp and Reef Bycatch Observer Programs - Management Interrelated



July 2006 (Reef)

July 2007 (Shrimp – Gulf, 2008 –SA)

- Collect biological and gear data aboard commercial vessels in the US Gulf of Mexico and
 - mandatory (\$25)
 - federal fishing permits
 - required to take an observer if selected
- Bycatch reduction
 - voluntary (\$200)

Bycatch Characterization



- Total weight of one randomly selected net
- Total shrimp, red snapper
- ~ 20% sample to species level
- 30 specimens of each species in sample measured

BRD / TED Evaluation and Mandatory Shrimp



- Two outboard nets (experimental vs. control)
- Total weight
- Total shrimp, red snapper
- Basket sample - species groupings

Other species that were recorded for all tows:

Atlantic croaker (*Micropogonias undulatus*),

black drum (*Pogonias cromis*),

cobia (*Rachycentron canadum*),

king mackerel (*Scomberomorus cavalla*),

lane snapper (*Lutjanus synagris*),

longspine porgy (*Stenotomus caprinus*),

red drum (*Sciaenops ocellatus*),

seatrout (*Cynoscion sp.*),

other snapper (*Lutjanus sp.*),

grouped sharks (until 2009, then taken to species),

southern flounder (*Paralichthys lethostigma*),

Spanish mackerel (*Scomberomorus maculatus*), and

vermilion snapper (*Rhomboplites aurorubens*)

Shrimp Trawl Bycatch Observer Program

Delivery Model:

- NOAA Fisheries Galveston component
 - Between 6-45 contract observers depending on funding level

Cooperative Research:

- NOAA Fisheries Galveston
- Gulf & South Atlantic Fisheries Foundation, Inc. (Foundation)
- Texas Shrimp Association
- North Carolina Division of Marine Fisheries
- Georgia Department of Natural Resources

Shrimp Trawl Bycatch Mandatory Observer Program

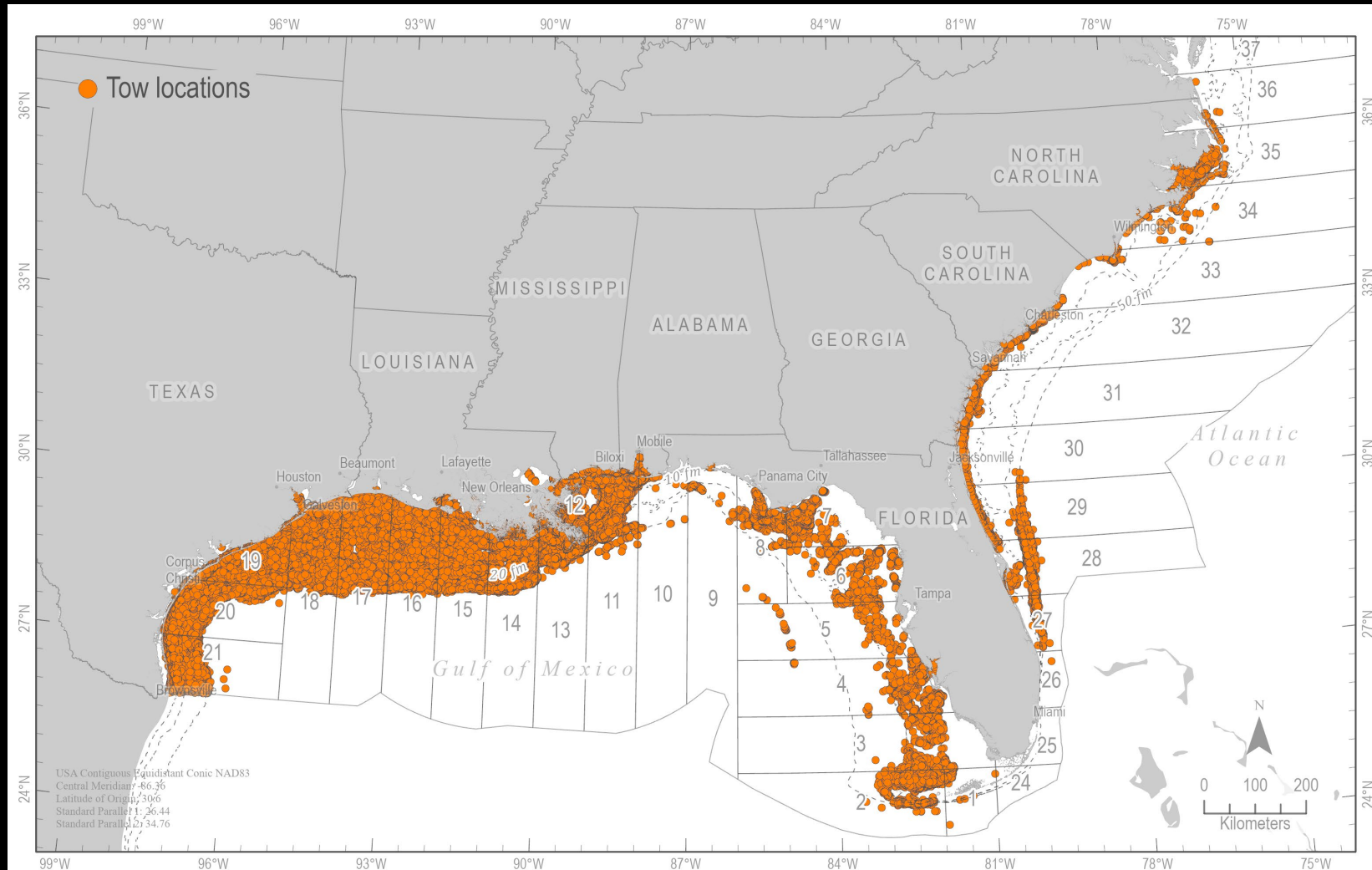
Selected randomly – based on previous year of landings/effort (from NMFS data)

- Stratified by:
 - Area (states)
 - Depth
 - Season
 - January - April
 - May - August
 - September - December
- 1500 Sea days plus DWH (at minimum)
 - 80% Gulf of Mexico
 - 20% South Atlantic

Shrimp and Reef Mandatory Observer Programs Selection Letters

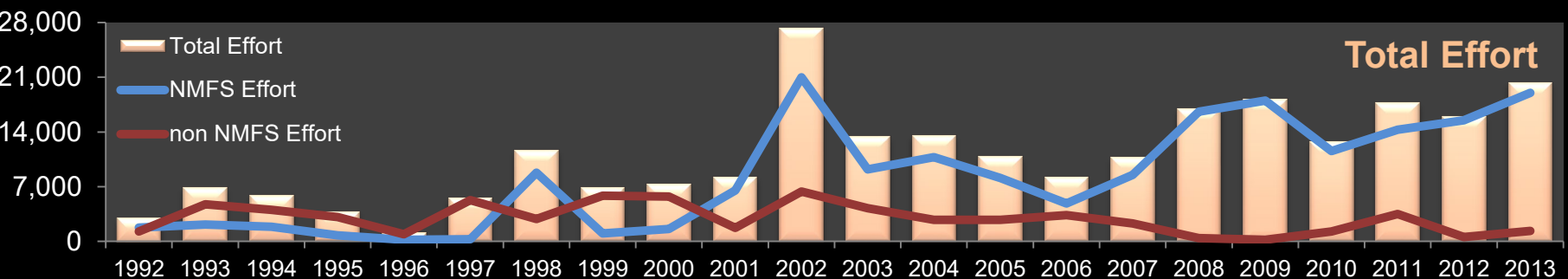
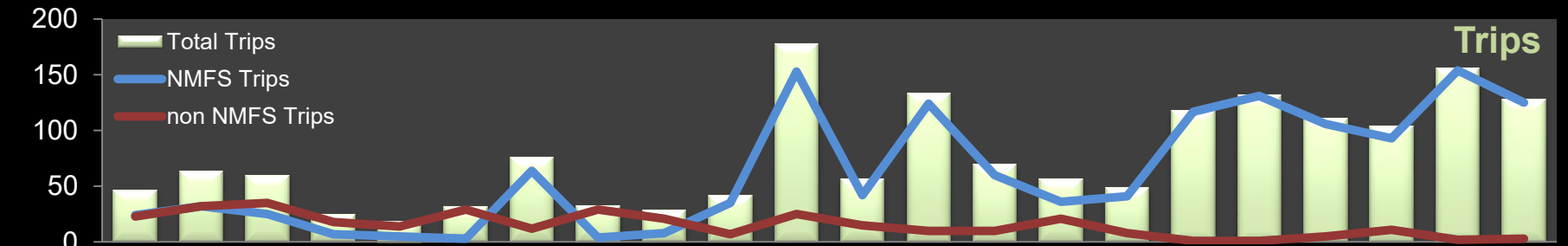
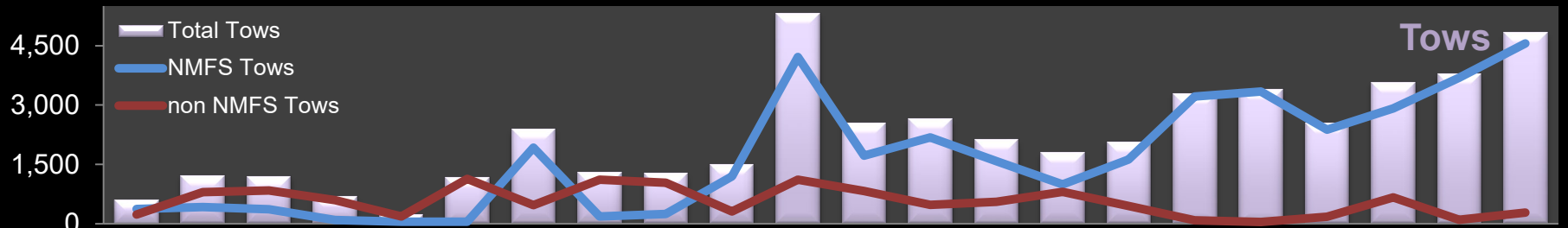
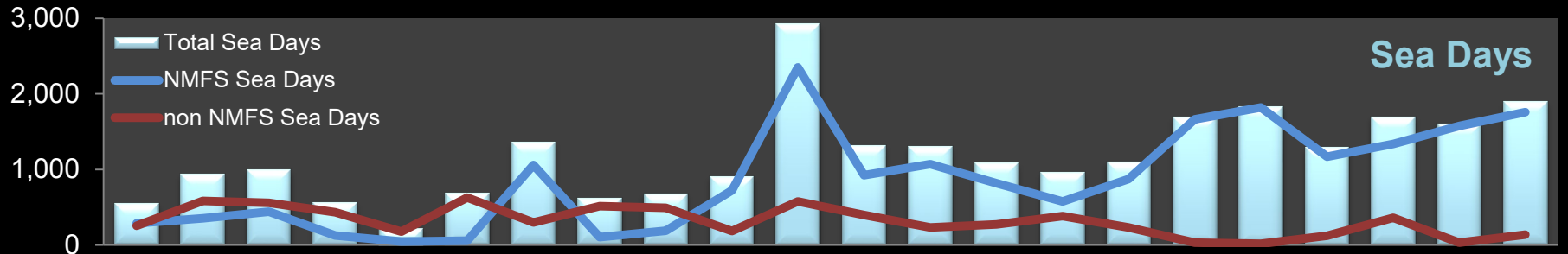
- Mailed 1 – 2 months prior to season
- Contain:
 - Authority
 - Magnuson-Stevens Act
 - Endangered Species Act
 - Marine Mammal Protection Act
 - Requirements
 - e.g. Safety Decal
- Notify observer program staff upon receipt of letter and 48 hours prior to each trip until requirements met
- Work with Industry
- OLE

Shrimp Trawl Tow Locations



- Trip Length (1 to 62 days)
- Coverage ~2% of annual directed effort currently; varies – funding

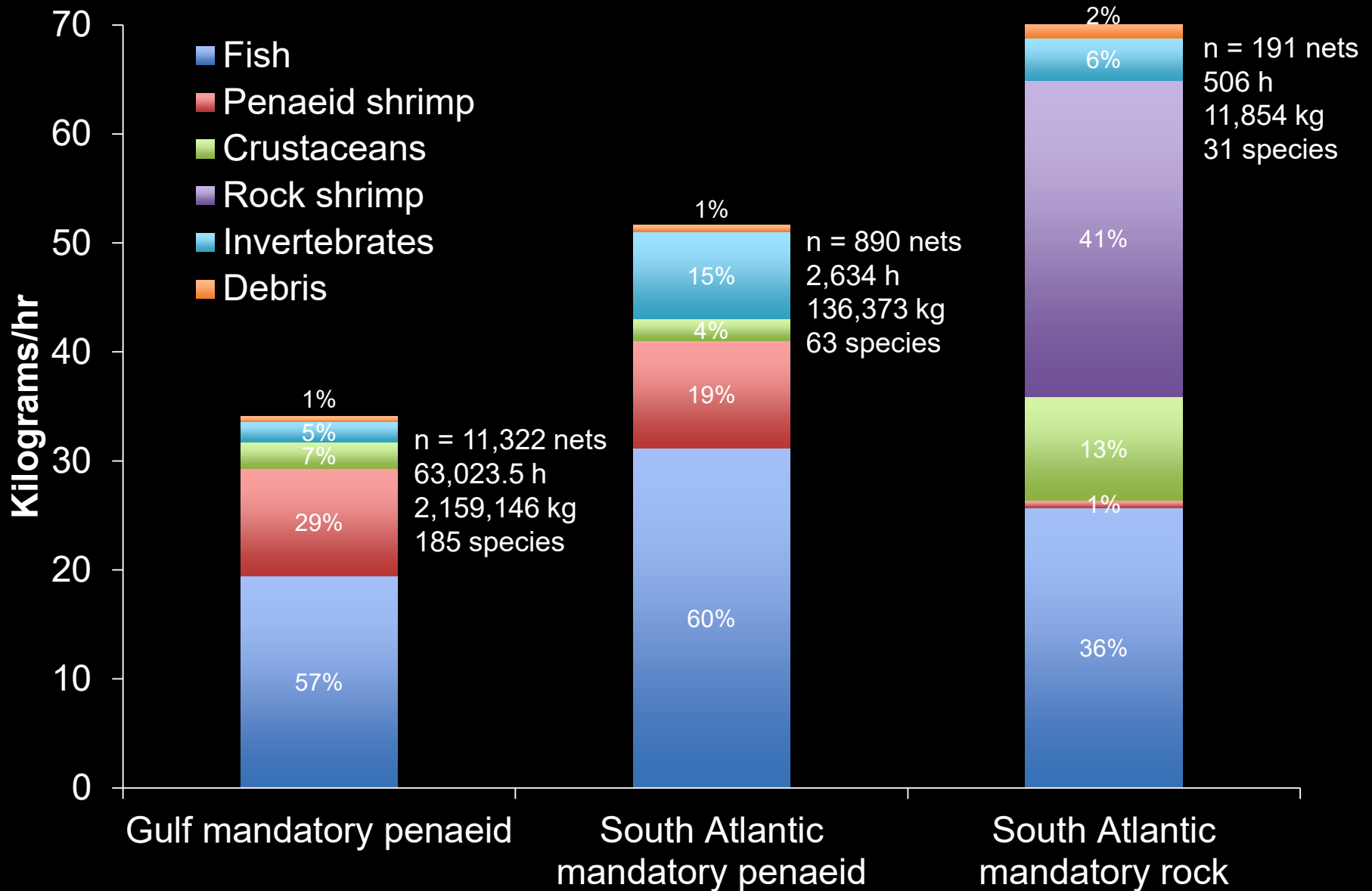
Gulf of Mexico Penaeid Shrimp Fishery Observer Effort



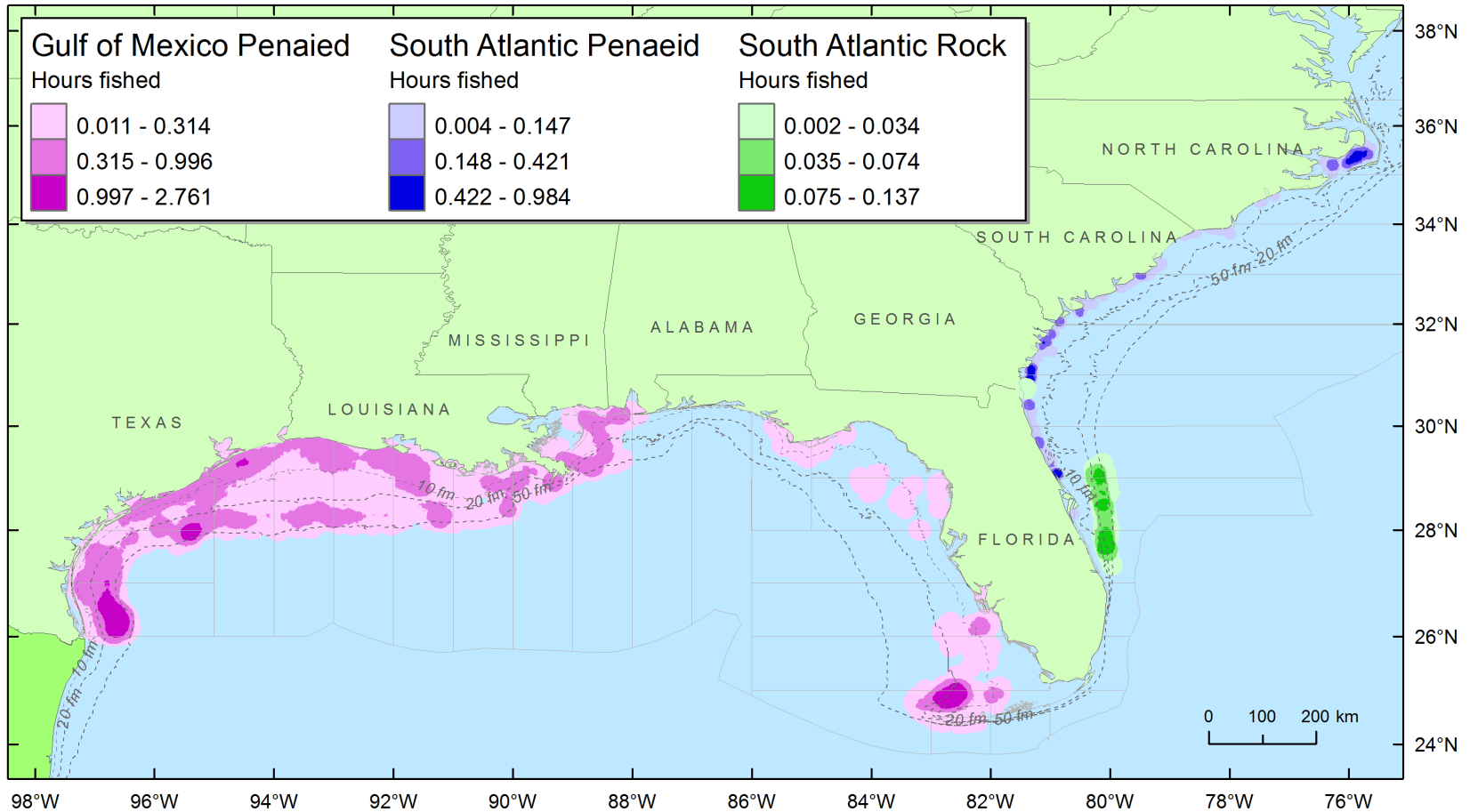
Shrimp Trawl Bycatch Observer Program

Vessels	~1,200(Gulf); 500 (S. Atlantic) federal Steel Hull/Freezer Capacity (Gulf) Wooden/Ice (SA)
Vessel Length	31 - 98 ft (Avg. = 74 ft) Gulf (Smaller 64 ft SA)
Crew	1 to 5
Trips	1-62 days •Avg. = 13.8 days (Gulf); •Avg. = 2.9 days (S. Atlantic)
Tow Depth	0.5 - 65 fms (Avg. = 16.4 fms) Gulf (4.8 SA) (34 Rock) (222 RR)
Tow Time	0.1 to 20.5 hrs •Gulf - 5.2 hours •South Atlantic - 2.8 hours

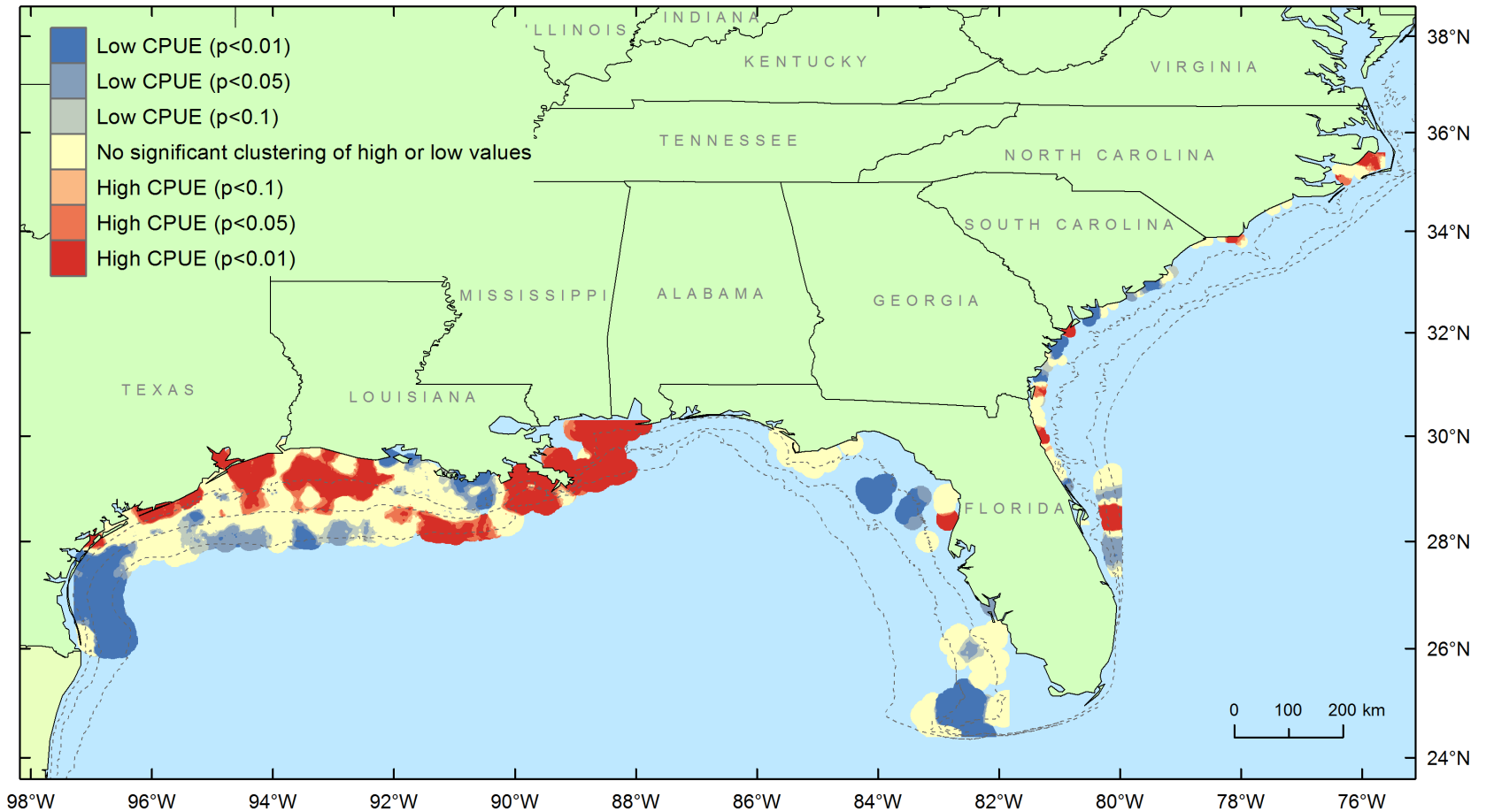
Major Species Categories



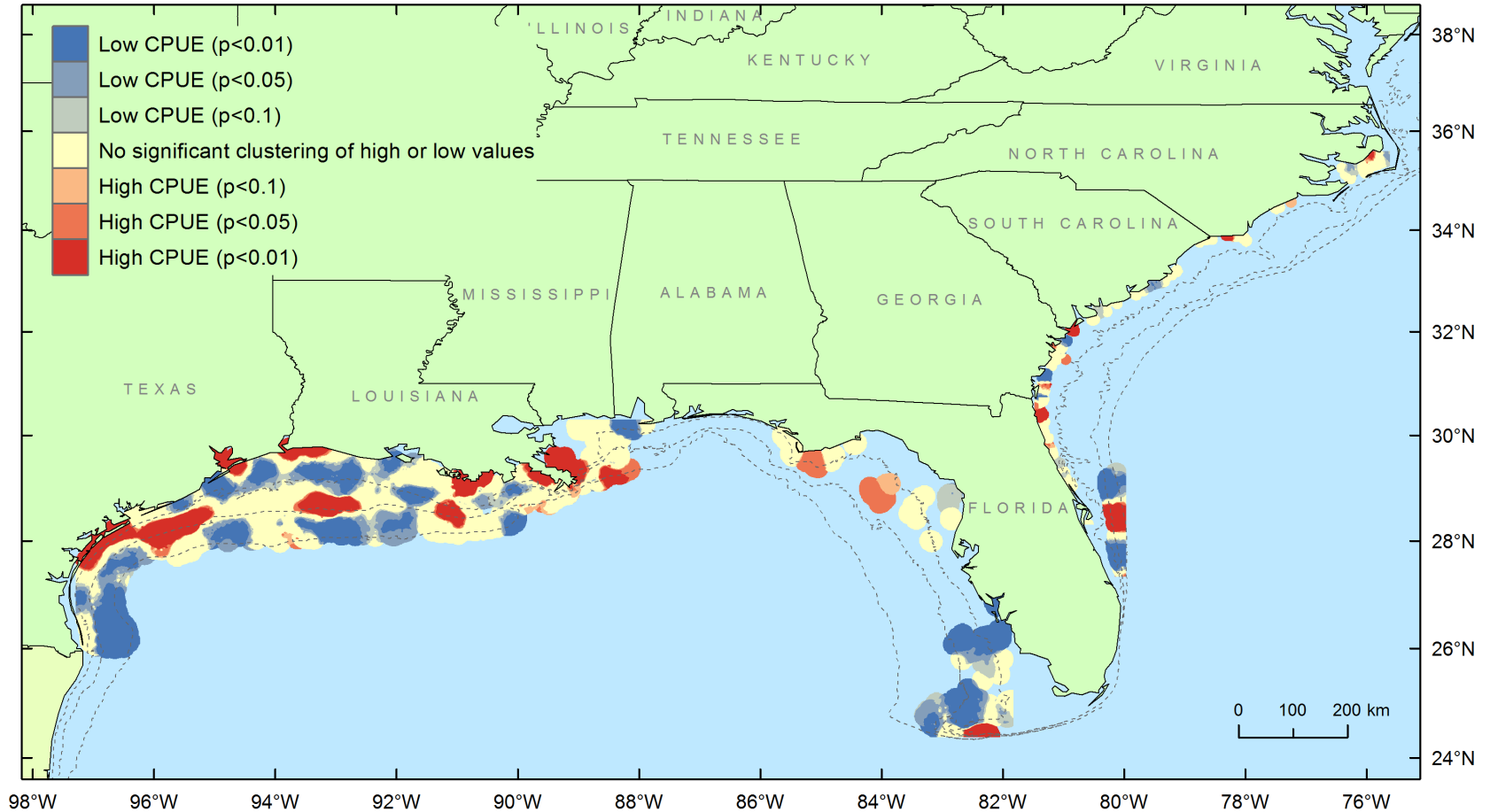
Density Surface Plot of Hours Towed Mandatory Shrimp Observer Program



Discard Hot Spot Analysis



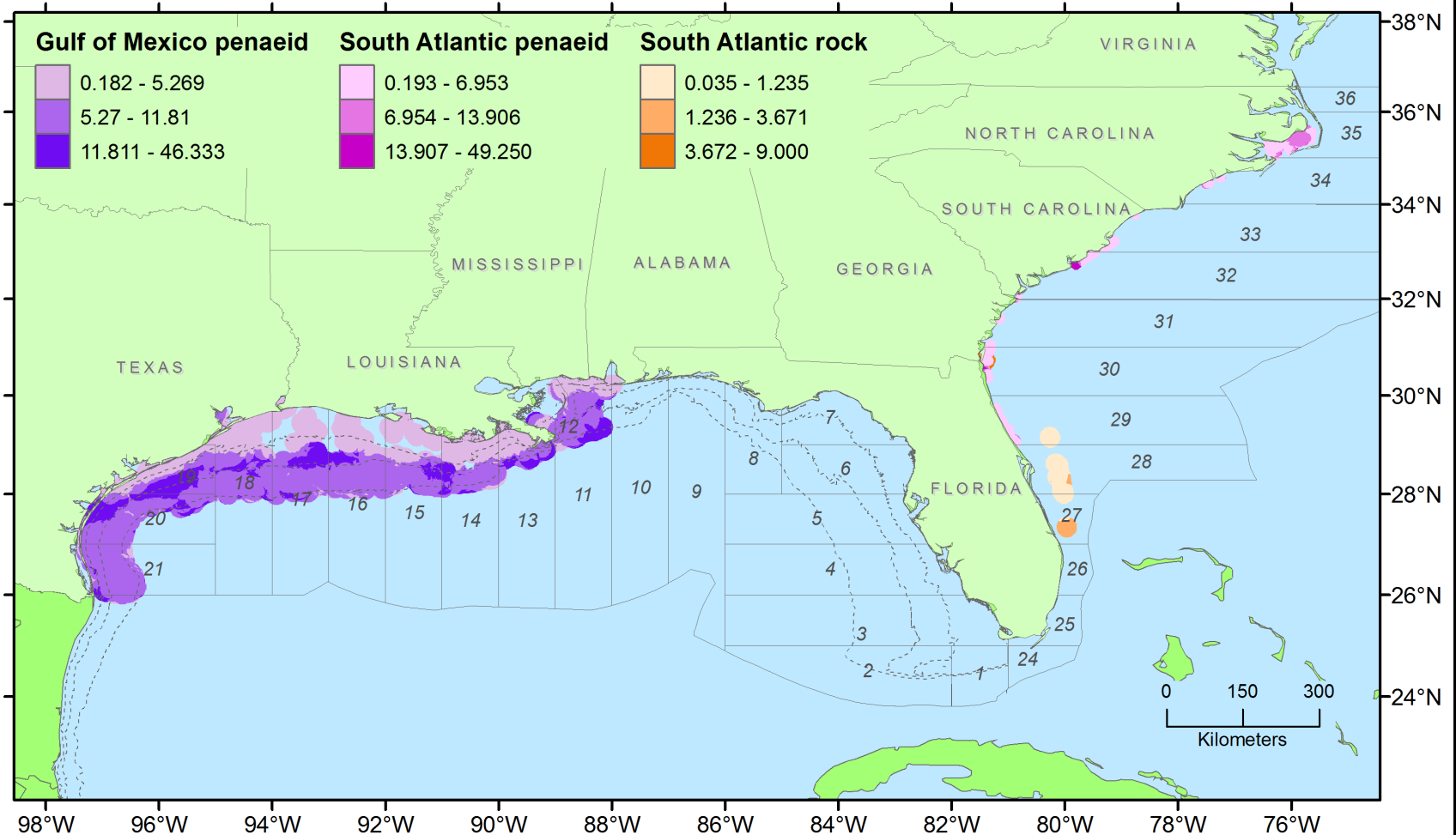
Shrimp Hot Spot Analysis



Brown Shrimp

(*Farfantepenaeus aztecus*)

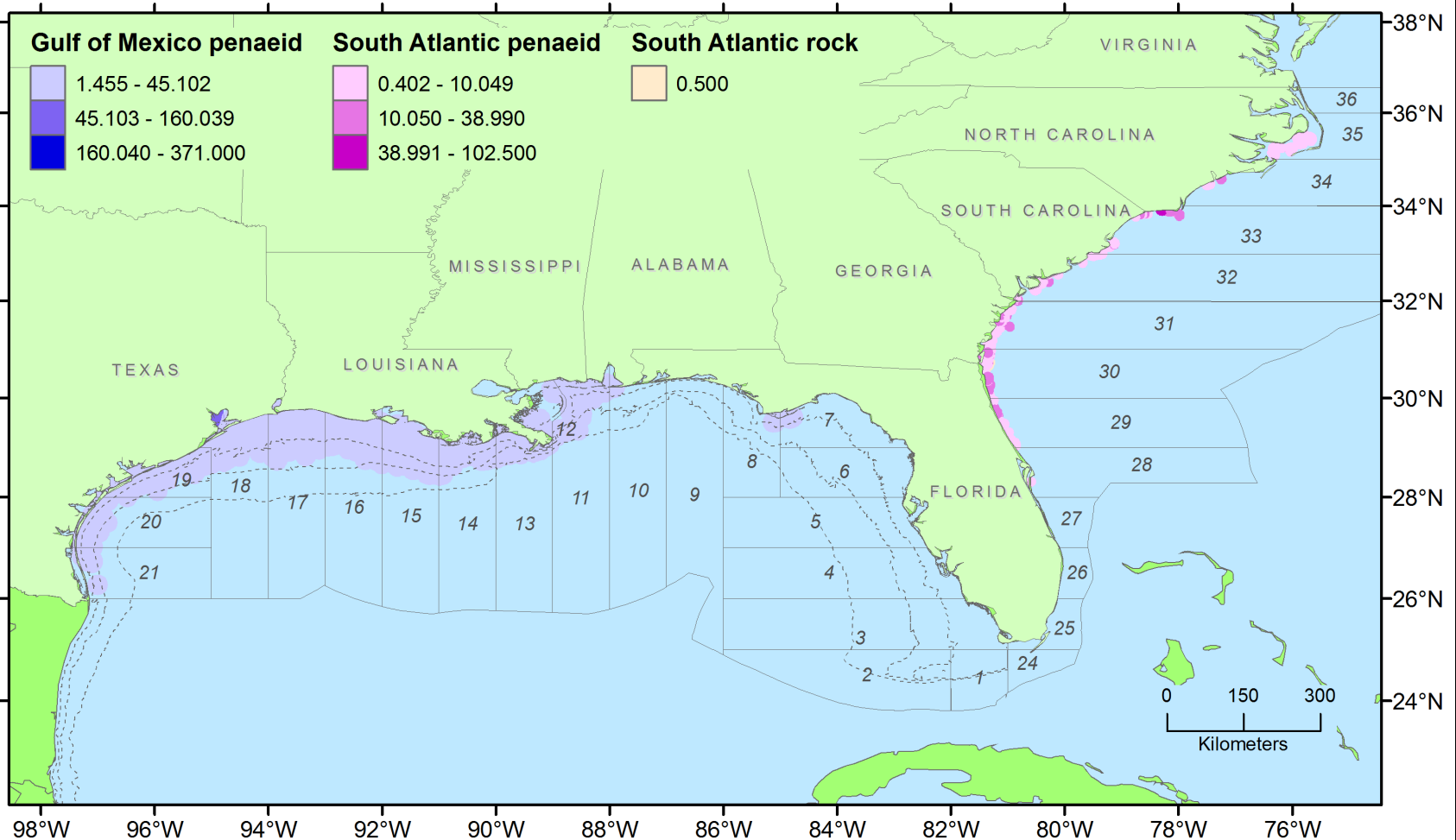
CPUE (kg/h)



White Shrimp

(*Litopenaeus setiferus*)

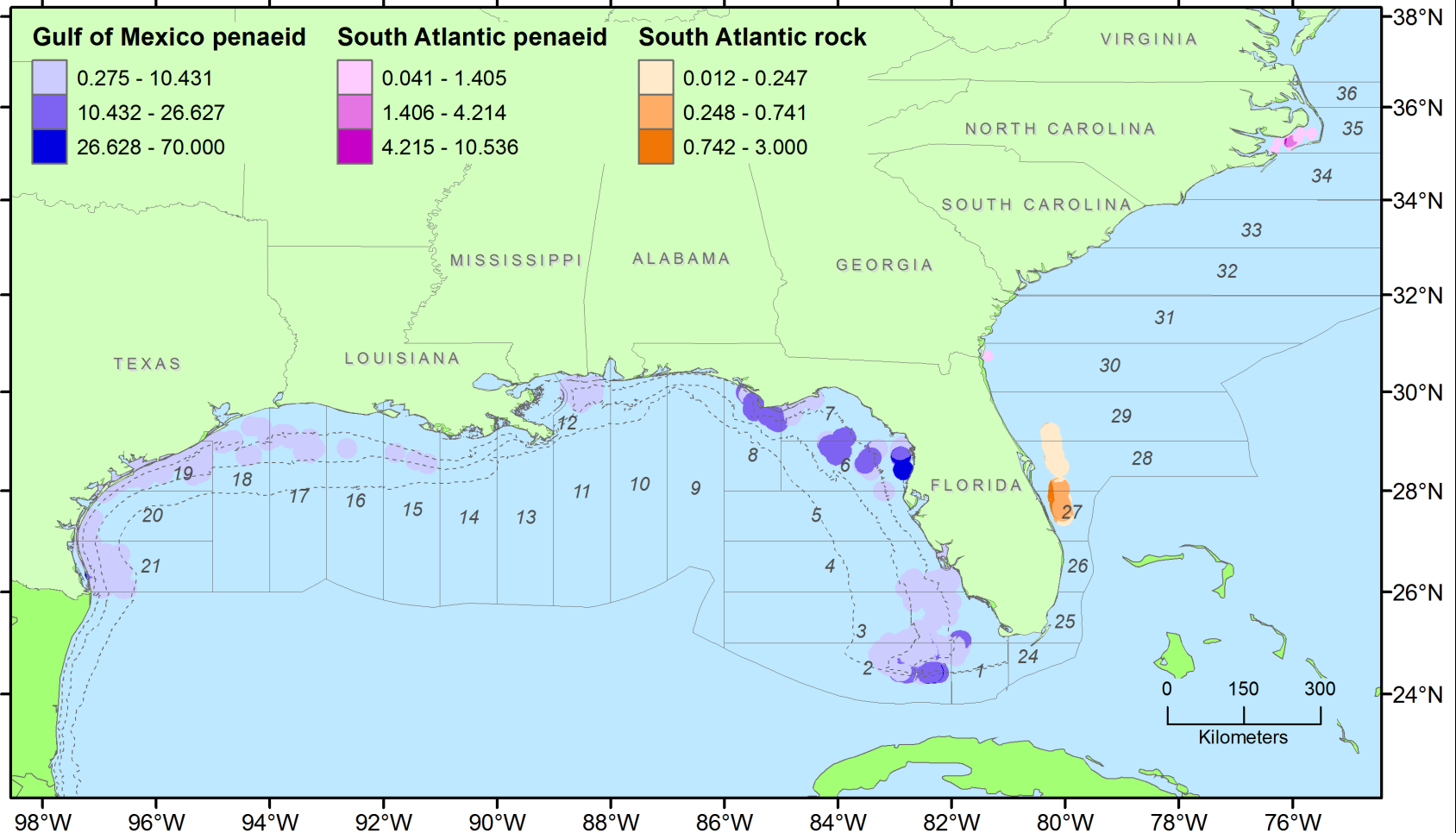
CPUE (kg/h)



Pink Shrimp

(*Farfantepenaeus duorarum*)

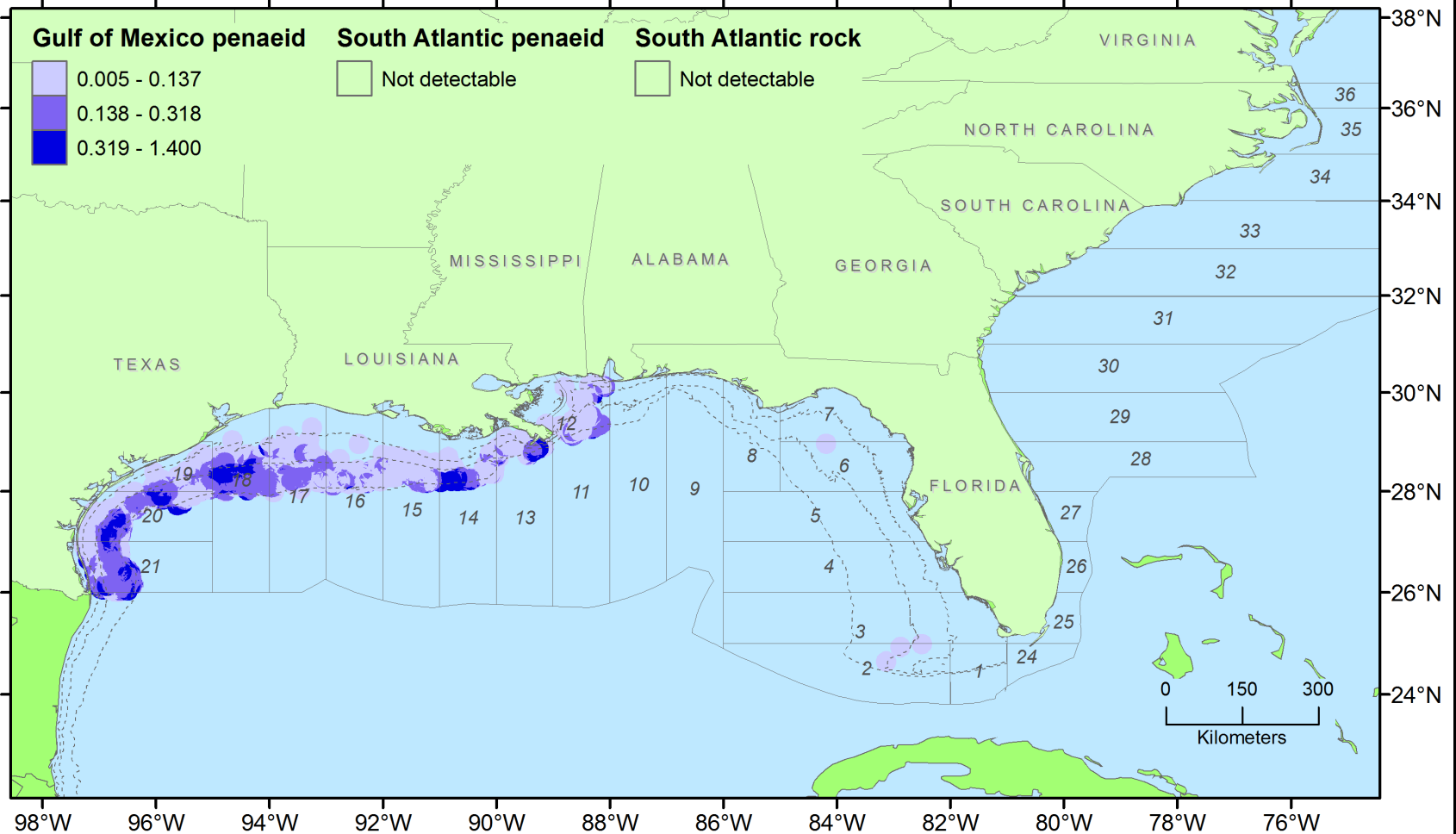
CPUE (kg/h)



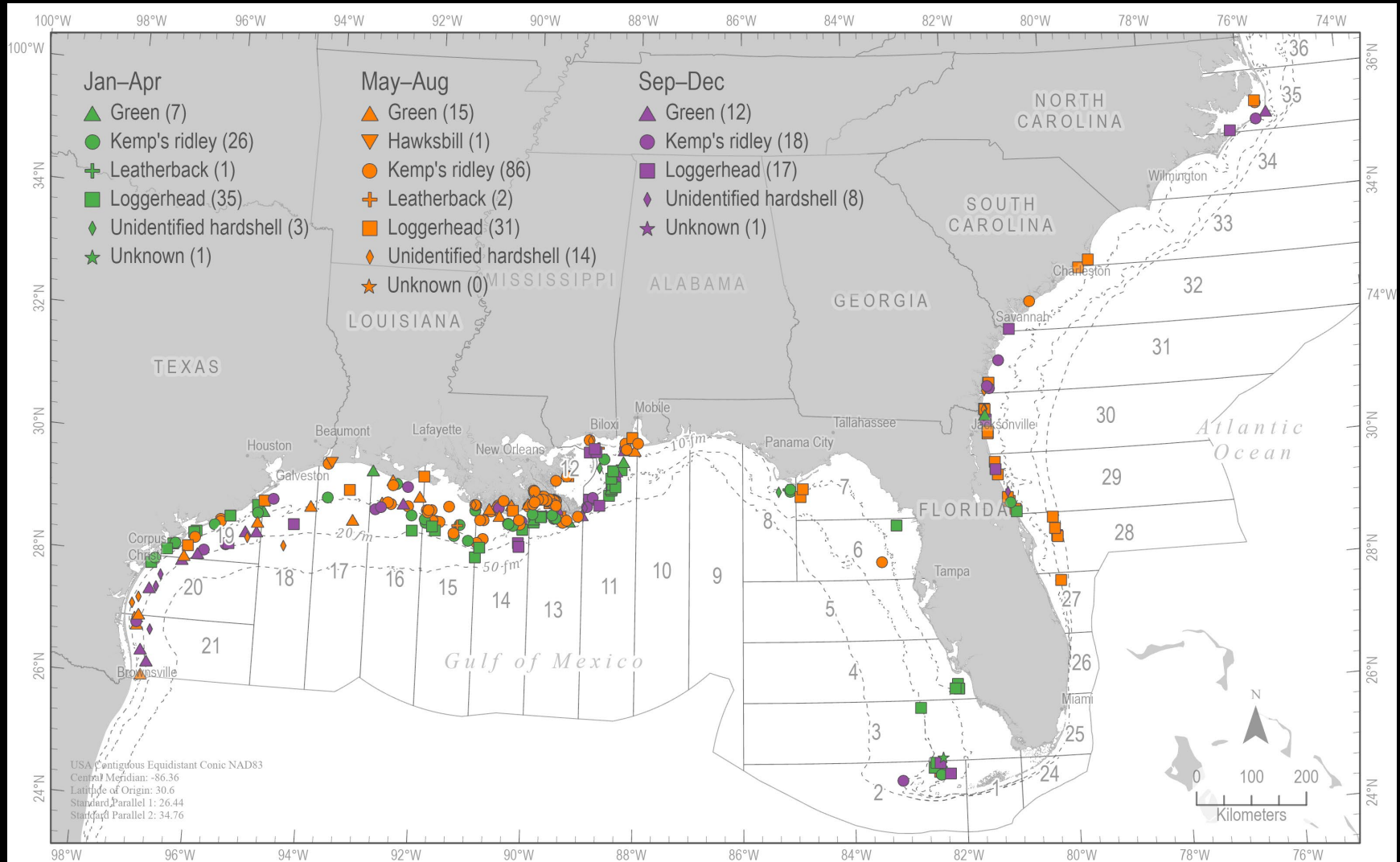
Red Snapper

(*Lutjanus campechanus*)

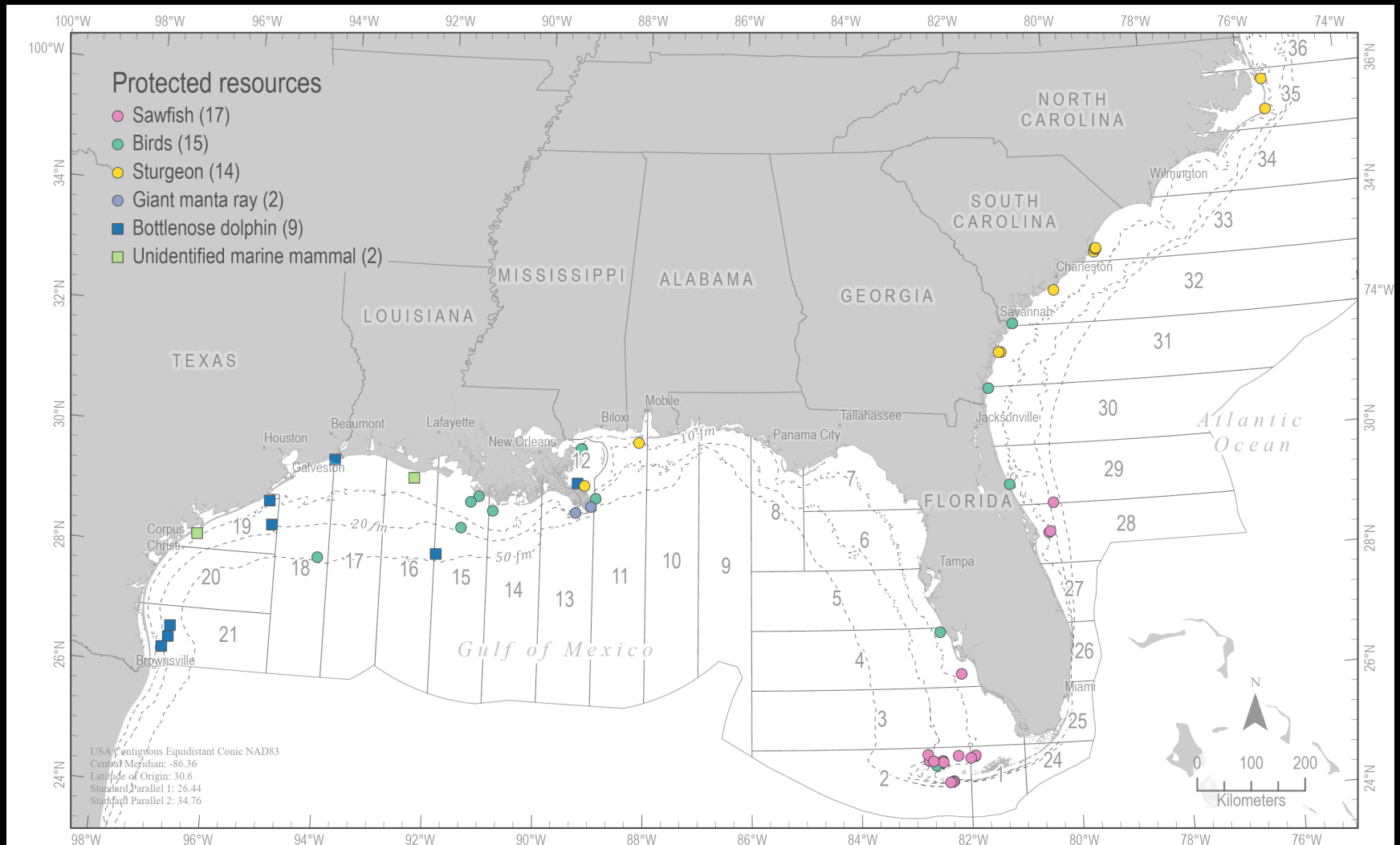
CPUE (kg/h)



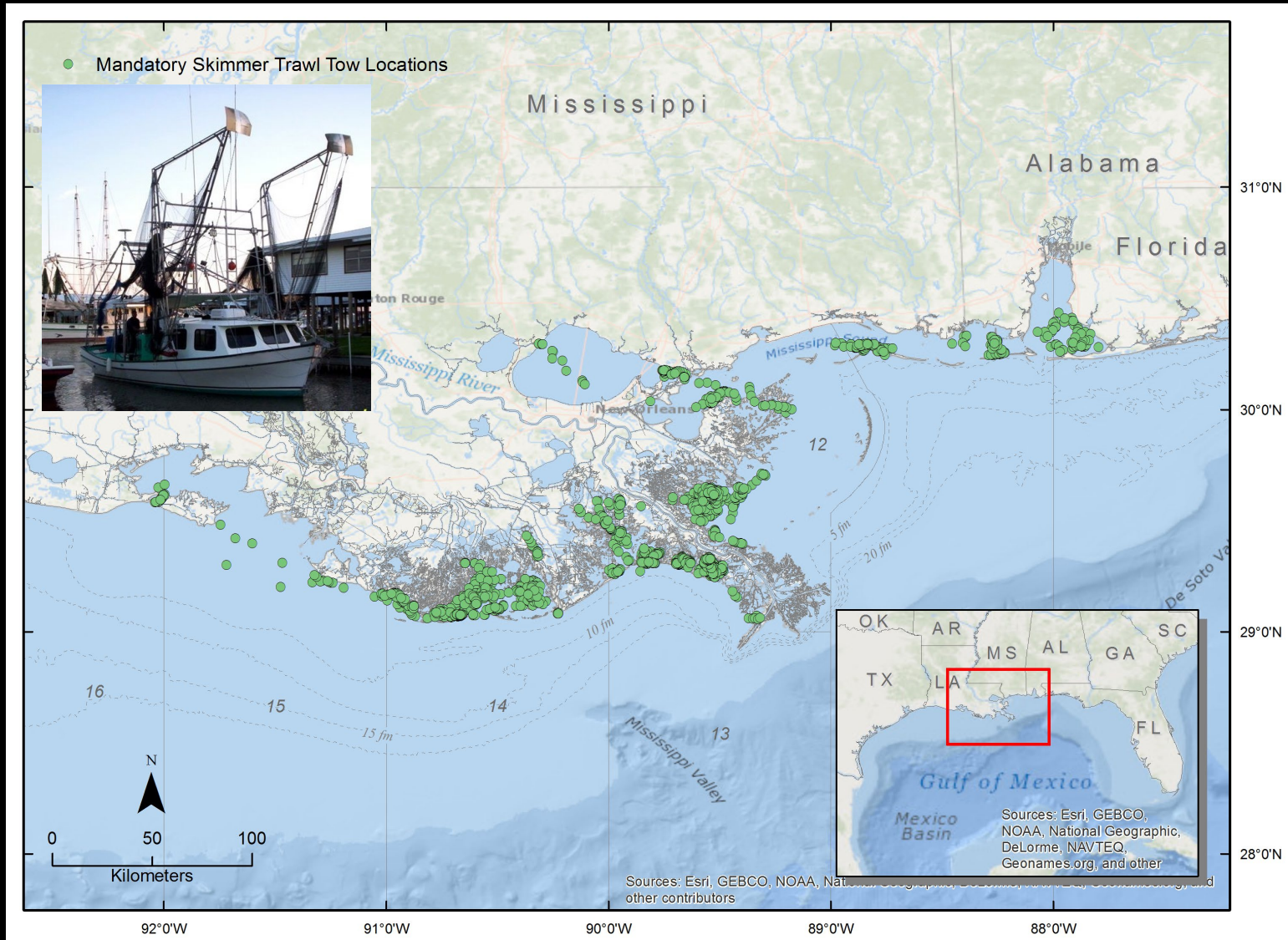
Sea Turtle Interactions (Mandatory)



Protected Species Interactions

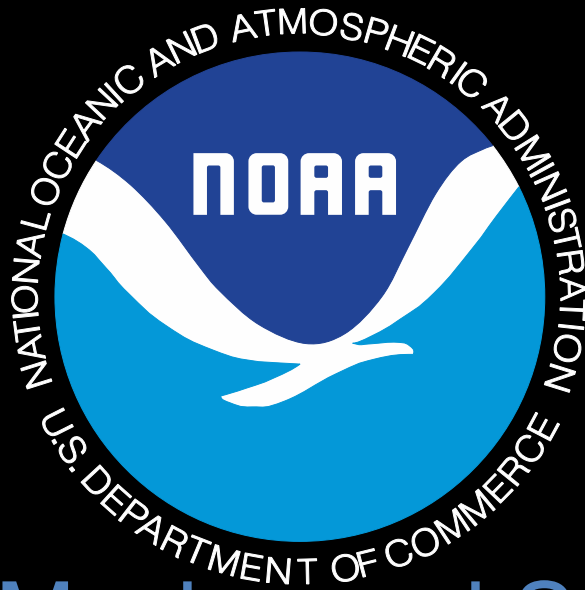


Skimmer Trawl Tow Locations (43 ft. length, 1.9 fms, 1.0 hr towed)



Special Programs (non-mandatory)

- Video monitoring (shrimp-bottom longline)
- Hook Timer (bottom longline)
- Otolith / gonad data collection
- Skimmer Trawl TED evaluation
- Shareholder's Alliance (Reef)
- Seafood Safety DWH : for-hire vessels



U.S. Gulf of Mexico and South Atlantic
Shrimp Observer Program, New
Advanced Technology, LGL
SK/Saltwater/Mote Marine Proposals,
And Pathway Forward to Improve
Estimation

Bycatch in Commercial Fisheries in the Gulf of Mexico

- NMFS Shrimp and Reef Fish Observer Programs provide bycatch data that are critical to both the Gulf of Mexico Fishery Management Council and NMFS in performing annual assessments (SEDARs) of target and bycatch species, including undersize target species and protected species.



LGL - Fishery-SK Proposal Award

Resolving Barriers to
Sustainable Fishery Certification
for the Gulf of Mexico Federal
Shrimp

Major Theme and Goal (LGL SK Proposal)

Major seafood buyers, such as Walmart, Kroger, and Sysco, have made public, time-bound commitments to purchase only from certified sustainable fisheries or fisheries engaged in Fishery Improvement Projects (FIP) that are making good progress towards resolving the barriers to certification. This poses an economic threat to the Gulf of Mexico shrimp fishery.