Mississippi Department of Marine Resources and University of Southern Mississippi Gulf Coast Research Laboratory Inshore Trawl Monitoring Programs: Sampling and Lab Protocols

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Mississippi Department of Marine Resources and University of Southern Mississippi Gulf Coast Research Laboratory Inshore Trawl Monitoring Programs

Sampling and Lab Protocols

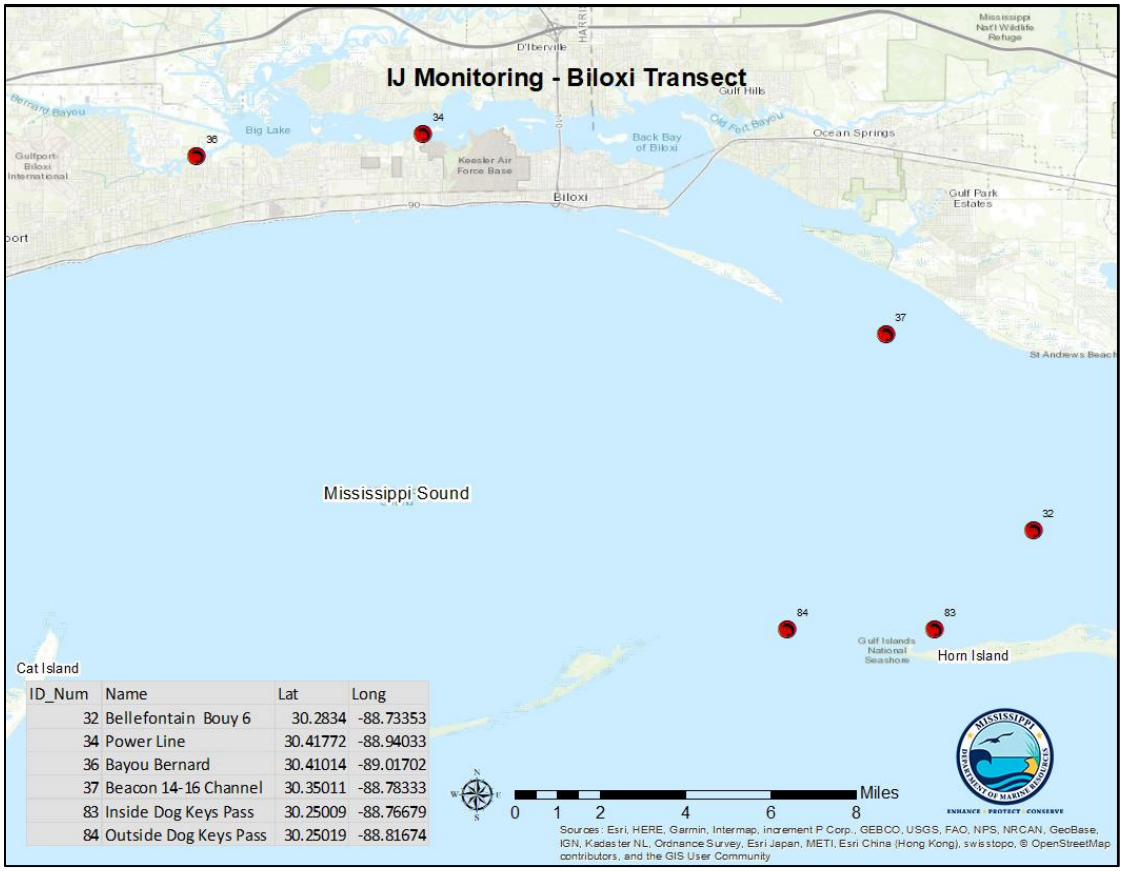
September 14, 2023

Program/Project: **Monitoring and Assessment of Mississippi's Interjurisdictional Marine Resources; Job 1 - Long Term Database-Biloxi Transect, Western Sound Transect and Expanded Western Sound**

Objective: To collect and analyze pertinent environmental data and representatives of commercial and recreational species of marine shellfish (except oysters) and fishes susceptible to capture by previously established standard procedures and to provide management agencies with current biological data required for management decisions.

Procedures:

1. Biological sampling is conducted using a 16-foot lined otter trawl and following standard sampling procedures as developed in P.L. 88-309 projects 2-215- R, 2-296-R, 2-382-R, and 2-393-R. More specifically, it is a trawl with ¾-inch bar mesh, a cod-end liner of ¼"-bar mesh, measuring 16' along the headrope, 22" along the footrope, and 3'-10" along the bib with boards measuring 3' in length. Representative samples of finfish and invertebrate species (except oysters) are collected at six fixed sample stations in the Back Bay of Biloxi and central Mississippi Sound study area (Figure 1), and at six fixed stations along a transect through the Jourdan River, St. Louis Bay, western Mississippi Sound study area (Figure 2), and at eight fixed stations in the (expanded) western Mississippi Sound study area (Figure 3). Sampling is conducted monthly throughout the year and sampling is completed as early in each month as possible.



ID_Num	Name	Lat	Long
32	Bellefontain Bouy 6	30.2834	-88.73353
34	Power Line	30.41772	-88.94033
36	Bayou Bernard	30.41014	-89.01702
37	Beacon 14-16 Channel	30.35011	-88.78333
83	Inside Dog Keys Pass	30.25009	-88.76679
84	Outside Dog Keys Pass	30.25019	-88.81674

Figure 1. Biloxi Bay Transect trawl sample locations and coordinates.

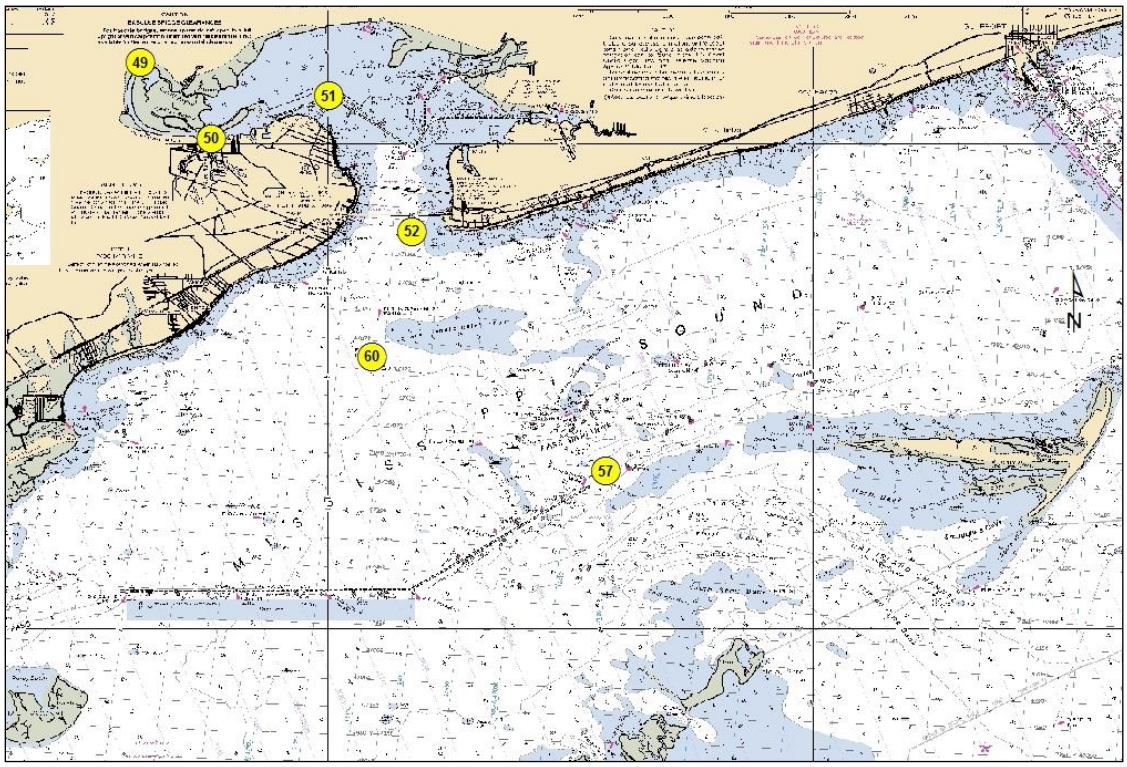
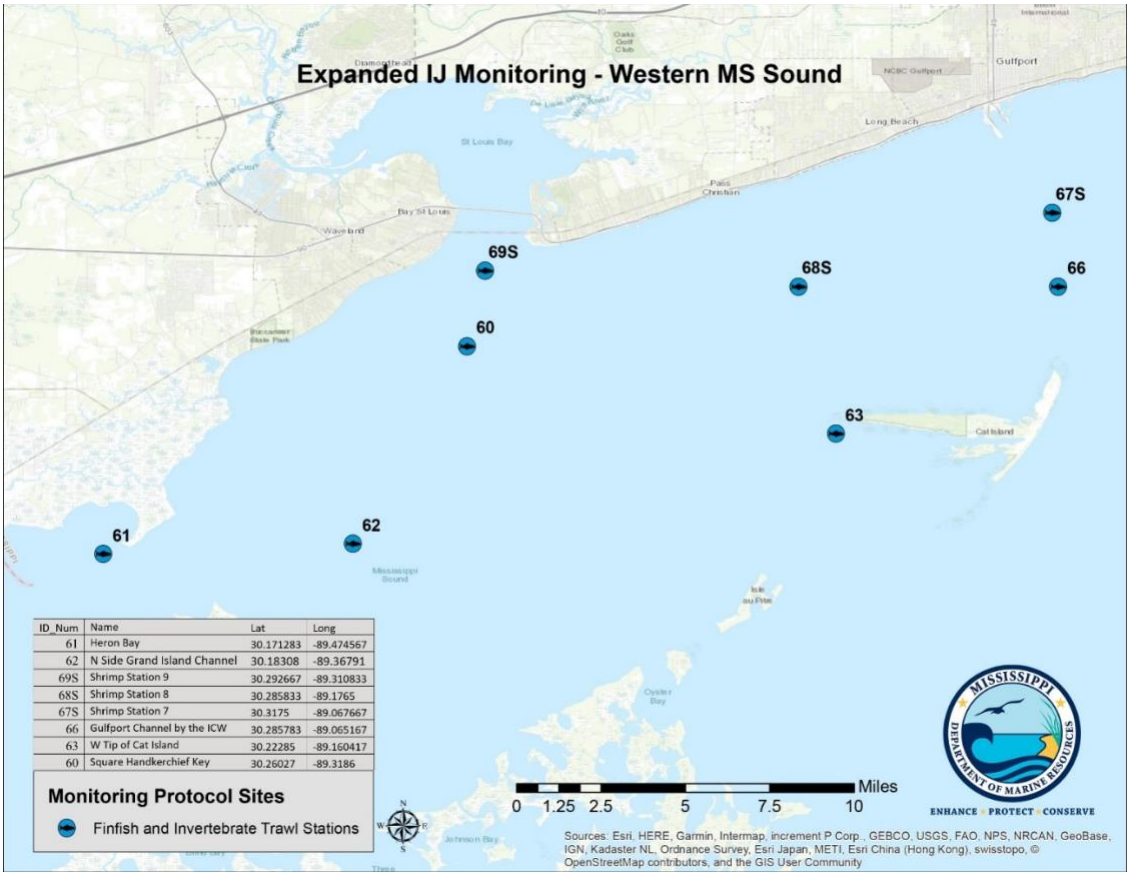


Figure 2. Western Sound Transect sample locations.

Table 1. Western Sound Transect coordinates.

Station	Latitude	Longitude
49	30.36112	-89.3978
50	30.33500	-89.3736
51	30.34972	-89.3331
52	30.30305	-89.3045
57	30.22055	-89.2378
60	30.26000	-89.3183



ID_Num	Name	Lat	Long
61	Heron Bay	30.171283	-89.474567
62	N Side Grand Island Channel	30.18308	-89.36791
69S	Shrimp Station 9	30.292667	-89.310833
68S	Shrimp Station 8	30.285833	-89.1765
67S	Shrimp Station 7	30.3175	-89.067667
66	Gulfport Channel by the ICW	30.285783	-89.065167
63	W Tip of Cat Island	30.22285	-89.160417
60	Square Handkerchief Key	30.26027	-89.3186

Figure 3. Expanded Western Sound trawl sample locations and coordinates.

Field Procedures – The vessel is positioned to be the most stable (into or with the wind depending on sea conditions) and run at idle. Net is deployed off stern and the doors are lifted with the winch. Winch is free spooled with slight tension while force of vessel pulls the net and boards into water. The tow cable is let out according to depth (five-feet of cable to every one-foot of depth) with markings on cable every five feet. The net is towed at a speed of approximately 2.7 to 3.0 knots for a total of 10 minutes.

If a shorter drag time occurs (due to the gear snagging or other potential problems during the tow), recorded the actual tow time and record on the Hydrological Data sheet for that specific station. After 10 minutes, the engines are run at idle while retrieving net and boards with winch. Vessel is set to neutral once boards are out of water to allow retrieval of net by hand. The net is tripped over the picking box. All specimens are placed in a Ziploc bag, labeled with the appropriate station number and placed on ice to be taken to lab for processing.

Hydrological and meteorological conditions consisting of water depth, cloud cover, turbidity, wind speed and direction, and wave amplitude are recorded, and physical-chemical properties are measured for surface and bottom water to include salinity, water temperature, dissolved oxygen, pH and FNU using a handheld multimeter.

Lab Procedures – All samples are bagged and iced when collected and returned to the laboratory for processing. Large specimens will be measured and weighed at sea and returned to the water. When the sample size is too large and the sample can be accurately aliquoted, the sample will be weighed and reduced to a minimum of 20% of total sample weight. The aliquot is retained for laboratory processing and the original sample weight is recorded.

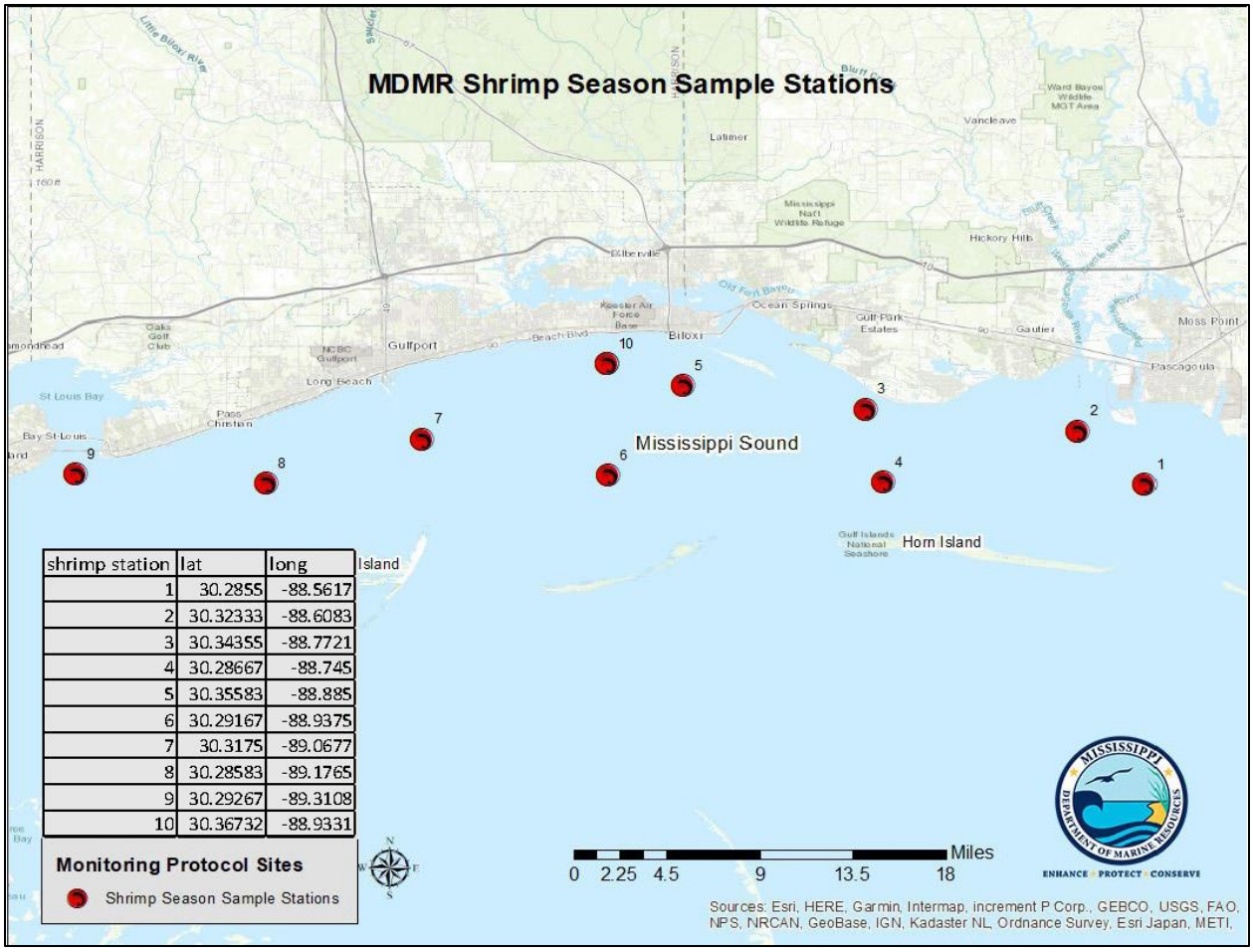
In the laboratory samples are sorted by species. For commercially and/or recreationally important (select) species the standard length (mm), and individual weight (g) of up to 20 individuals recorded and the total weight (g) are recorded. For all other species a length range (mm), weight of 20 (g) and total weight (g) will be recorded. Data is recorded on standardized field and lab data sheets. Field and lab data sheets are QA/QC reviewed by staff prior to compilation with ongoing detail and summary datasets.

Program/Project: **MDMR Shrimp Trawl Monitoring Program**

Objective: To assist in developing recommendations for timing for spring shrimp season opening in Mississippi waters and, as necessary, to develop recommendations for seasonal or area closures when average shrimp size exceeds 68 per pound as described in § 49-15-64.1(2) of the Mississippi Code Ann. of 1972.

Procedures:

Trawl sampling is conducted at 10 stations from the mouth of Bay St. Louis to the mouth of the Pascagoula River (Figure 4). Samples are collected using an otter trawl with ¾-inch bar mesh, measuring 17’5” along the headrope, 22’5” along the footrope, and 3’-10” along the bib with boards measuring 3’ in length. Sample frequency varies based on season and typically occurs weekly from mid to late April, twice per week from early May until the season is opened, and then monthly from season opening through April of the following year.



shrimp station	lat	long
1	30.2855	-88.5617
2	30.32333	-88.6083
3	30.34355	-88.7721
4	30.28667	-88.745
5	30.35583	-88.885
6	30.29167	-88.9375
7	30.3175	-89.0677
8	30.28583	-89.1765
9	30.29267	-89.3108
10	30.36732	-88.9331

Figure 4. Shrimp trawl sample locations and coordinates.

Field procedures –The vessel is positioned into the wind and run at idle. The net is deployed off stern. Winch is free spooled with slight tension while force of vessel pulls the net and boards into water. The tow cable is let out according to depth (five-feet of cable to every one-foot of depth) with markings on cable every five feet. The net is towed at approximately 3.0 knots for a total of 10 minutes. After 10 minutes, the engines are run at idle while retrieving net and boards with winch. Vessel is set to neutral once boards are out of water to allow retrieval of net by hand. The net is opened over the picking box located on the port side of the vessel. All shrimp and Blue Crabs are placed in a Ziploc bag, labeled with the appropriate station number and placed on ice to be taken to lab for processing. Hydrological and meteorological conditions consisting of water depth, cloud cover, turbidity, wind speed and direction, and wave amplitude are recorded, and physical-chemical properties are measured for surface and bottom water to include salinity, water temperature, dissolved oxygen, pH and FNU using a handheld multimeter.

Lab procedures – Shrimp are sorted by species, enumerated and weighed (cumulative weight in grams). Weights are recorded to nearest 0.1 gram. Fifty individuals from each sample are measured (standard length in mm), and the weight of the fifty individuals are weighed separately from the total sample.