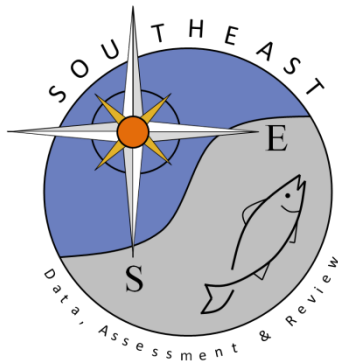


# Fishery-Independent Sampling: Mississippi

SEDAR27-RD-02



## Fisheries Assessment and Monitoring

Mississippi's Fisheries Assessment and Monitoring program or FAM provides for ongoing monitoring and assessment of marine fishery resources in Mississippi territorial waters and has been supported from Interjurisdictional Fisheries funds provided through the Mississippi Department of Marine Resources. Collections of pertinent environmental data and representatives of commercial and non-commercially important species of marine shellfish (except oysters) and fishes were made along a Biloxi Bay transect to provide management agencies with current biological data required for management decisions.

The Biloxi Bay transect extends from the upper reaches of Biloxi Back Bay, toward the Gulf of Mexico, to an area approximately two miles south of the barrier islands outside of Dog Keys Pass (Figure 1). Samples collected with four gear types (BPL, 50' bag seine, 16' lined otter trawl, and 36' lined otter trawl) were taken according to a regular monthly schedule throughout the year. The fixed station locations were part of the Cooperative Gulf of Mexico Estuarine Inventory of Mississippi (Christmas et al. 1973) and were reduced to 12 long-term stations in 1982. Since 2002, the two 36' trawl stations have been eliminated from the sampling program leaving 10 stations that are sampled monthly (trawls and seines) or twice monthly (BPLs).

### Monthly Sample Stations and Methods

Station 1 - East Beach Road at large boat house pier. A beam plankton trawl with 1/16 inch mesh wings and 750 micron cod end is used for stations 1, 4, 11, 13 and 30. Water temperature, dissolved oxygen, and salinity are measured from the surface and recorded on a hydrology card at these stations and the seine stations. Estimated wind direction and force, depth, sea state, and percent of cloud cover are also recorded on the hydrology card in addition to the time, date and station number. The BPL at station 1 is pulled from the pier along the grass-line to the 4 inch thick PVC pole and back staying just outside of your previous path. The BPL is rinsed, the cod-end is detached, and the sample is placed in a jar. BPL and seine samples are placed in jars labeled with the station number, date, and gear type. Sample twice a month with at least two week intervals by truck or boat.

Station 3 - Marsh Point. A fifty foot bag seine with 1/4 inch mesh and 50 feet of rope at each end is used for station 3 and 30. The seine is pulled where the grass begins at Marsh Point on the Biloxi Bay Side. Proper seining technique is as follows. One person feeds the seine out from shore while the other person pulls the starting end out into the water. The person with the starting end walks in a U-shaped pattern making sure all the rope is let out. The person on shore acts as an anchor with the other end of the rope until the person with the starting end reaches shore. Once the ropes at each end have been pulled in, each person should slowly be making their way toward the other with the ends of the seine. Make sure the lead-line stays on the bottom as the seine is being retrieved. When you reach the bag of the seine, carefully slide the lead-line along the bottom to shore and lift the bag up off the ground. Work the catch to the bottom of the bag and collect the sample. Take hydrology and fill out card. Sample once a month by boat.

Station 4 - Southeast end of Deer Island. Notice the PVC markers on shore. The BPL is pulled from pole to pole and back staying just outside of your previous path in about two feet of water.

Take hydrology and fill out card. Sample twice a month with at least two week intervals by boat.

Station 11 - St. Andrews. Notice the PVC marker on shore. The BPL is pulled from the pole west to the cement barrier at the next house in about two feet of water. One way, not there and back. Take hydrology and fill out card. Sample twice a month with at least two week intervals by truck or boat.

Station 13 - Horn Island. Notice the PVC marker on shore. The BPL is pulled through the grass beds and lifted out of the water when moving from one grass bed to the next for a distance relative to the other BPL stations. Take hydrology and fill out card. Sample twice a month with at least two week intervals by boat.

Station 30 - Fort Bayou. A BPL and a seine are pulled at this station. Notice the PVC markers on shore. The BPL is pulled from pole to pole and back staying just outside of your previous path in about two feet of water. The seine is pulled about 25 feet to the east of where the BPL is pulled. Follow seine method described for station 3. Take hydrology and fill out card. This station is sampled once a month by boat.

Station 32 - Marker 8 Intercoastal. A standard 16 foot trawl with 1/4 inch liner, 100 feet of trawl rope, 36 X 18 inch plank board trawl doors and the Gravois 1 are the used for stations 32, 34, 36, and 37. Let out six feet of trawl rope for every one foot of station depth for the trawl stations. The 16 foot trawl stations are towed for 10 minutes at about 1200 rpm's. Station 32 is towed west from marker 8. Trawl samples are put into a garbage bag, labeled with the station number, and placed on ice. Water temperature, dissolved oxygen, and salinity are measured from the surface and the bottom and recorded on hydrology card at the trawl stations (32, 34, 36, and 37). A 2.2 liter Beta bottom water sampling bottle is used to measure depth and to collect the water from one foot off the bottom, and a secchi disk is used to measure transparency at the trawl stations. Estimated wind direction and speed, sea state, and percent of cloud cover are recorded on a hydrology card in addition to the depth, transparency, time, date, and station number. Sample once a month.

Station 34 - Keesler marker 26. This trawl is towed from marker 26 for 10 minutes down the channel. Take hydrology and fill out card. Sample once a month.

Station 36 - Bayou Bernard. This trawl is towed from the inlet near the recreational area down the bayou to the power lines that cross the bayou. The bayou meanders at this station, so keep the trawl in the center of the bayou. This trawl usually takes a little longer than 10 minutes. Take hydrology and fill out card. Sample once a month.

Station 37 - Biloxi Bay Marker 14. This trawl is towed for 10 minutes from marker 14 up the channel. Take hydrology and fill out card. Sample once a month.

### **Previous Monthly 36' Trawl Stations (ended 2002)**

Station 83 - Dog Keys Pass Green Can. The sampling gear for station 83 and 84 is a standardized 35 foot trawl with 1/4 inch liner and 5 1/2 X 2 1/2 foot plank board trawl doors. The Hermes vessel and captain are used for these two stations. This trawl is towed for 30 minutes

from the green can heading north. Take hydrology and fill out card. Sample once a month.

Station 84 - Fair-way buoy three miles south of Dog Keys Pass. This trawl is towed for 30 minutes from the Fair-well buoy heading east. Take hydrology and fill out card. Sample once a month.

### **Current Laboratory Protocol (January 2009)**

- 1) All species (including all invertebrate species) will be processed (no COMM, NON-COMM designations).
- 2) Record total number and total weight for each species.
- 3) If there are any questions regarding a species identification, bag and label (station no, date) that specimen and send it to GCRL for identification.
- 4) Aliquots may be used to determine total number, if necessary.  
To determine total number collected: (Total Weight includes the weight of the 20 sub-sampled individuals.)
- 5) Standard Length (SL) in millimeters (mm) and Individual Weight in grams (g) for up to 20 individuals per species, including minimum and maximum sizes, are to be measured for all species.
- 6) If there are more than 20 of a particular species AND there are two distinct size classes evident for those specimens [one being small, young-of-the-year (YOY)], process those size classes separately to avoid biasing the expansion of the aliquot data. For instance, if you collect three 150-mm menhaden and fifty 30-mm menhaden, process the three 150-mm menhaden separately and then subsample (aliquot) 20 of the 30-mm menhaden. Be sure to separate those data on the data sheet by coding the smaller size class with "YOY" after the species name (e.g. "Brevoortia patronus YOY").
- 7) GCRL-FAM codes are to be recorded for up to 20 of each commercial crab (sex, growth, maturity and missing parts) and shrimp (sex and missing parts) species. If you do not have those data codes, a key will be provided.
- 8) For any questions regarding field or laboratory procedures, contact John Anderson (872-2450), Harriet Perry (872-4218) or Read Hendon (872-4202).

### **Old Laboratory Protocol (January 1982 to December 2008)**

Each sample is brought back to the Gulf Coast Research Laboratory. BPL's and seines are preserved in 10-15 percent formalin for at least 24 hours. Specimens from BPL's and seines are picked with forceps, sorted into petri dishes and identified with the use of the dissecting scope and dichotomus keys. Each specimen should be positively identified. Mysids, grass shrimps, amphipods, isopods, polychaetes, and jellyfish were not worked up. Trawl samples are picked on

the sorting table, positively identified, and sorted into colanders.

On the Fisheries Assessment Monitoring raw data sheets fill in the station number, date, and gear type for each station. Species are recorded as commercial or non-commercial. A list of all the species is provided. Standard length in millimeters and weight in grams of up to 50 specimens of each species, including the minimum and maximum sizes, are measured for commercial species. The total number (calculated in instances where aliquots are used) and the total weight of both commercial species and non-commercial species are recorded. Codes for sex, growth, maturity, and missing parts are recorded for up to 50 specimens for each commercial crab and shrimp. Methods for determining these codes are provided. A range in standard length of the smallest and largest specimen is taken for non-commercial species.

The raw data sheets are divided into commercial and non-commercial, placed in numerical order by station, and checked for mistakes with the raw data check sheet after all of the samples for the month have been worked up. The data from the hydrology cards is recorded onto hydrology sheets in a coded format which is provided. A raw data sheet tracking form is filled out and placed in a folder with the raw data, the raw data check, and the hydrology sheets. The folder is given to the Senior Technician and Systems Coordinator for verification and data entry into the data base at the end of each month. The raw data sheets are checked against printouts for errors and corrected. The corrected printouts are stored in the appropriate folders.

Table 1. Summary of Fisheries Assessment and Monitoring Sampling.

Station	Location	Gear Type	Frequency	GPS Latitude	GPS Longitude
1	East Beach Road	BPL	Semi-monthly	N 30 23.657	W 88 48.593
3	Marsh Point	Seine	Monthly	N 30 23.327	W 88 48.702
4	East Deer Island	BPL	Semi-monthly	N 30 21.721	W 88 49.053
11	St. Andrew	BPL	Semi-monthly	N 30 20.564	W 88 42.903
13	Horn Island	BPL	Semi-monthly	N 30 14.904	W 88 44.895
30	Fort Bayou	BPL & Seine	Monthly	N 30 25.367	W 88 51.140
32	Marker 8 Inter-coastal	16' Trawl	Monthly	N 30 17.229	W 88 44.705
34	Keesler Marker 26	16' Trawl	Monthly	N 30 25.040	W 88 55.918
36	Bayou Bernard	16' Trawl	Monthly	N 30 24.605	W 89 01.020
37	Biloxi Bay Marker 14	16' Trawl	Monthly	N 30 21.392	W 88 47.004
83	Green Can Dog Keys	36' Trawl	Monthly	N 30 15.323	W 88 46.454
84	Fair-way Buoy	36' Trawl	Monthly	N 30 12.919	W 88 47.492

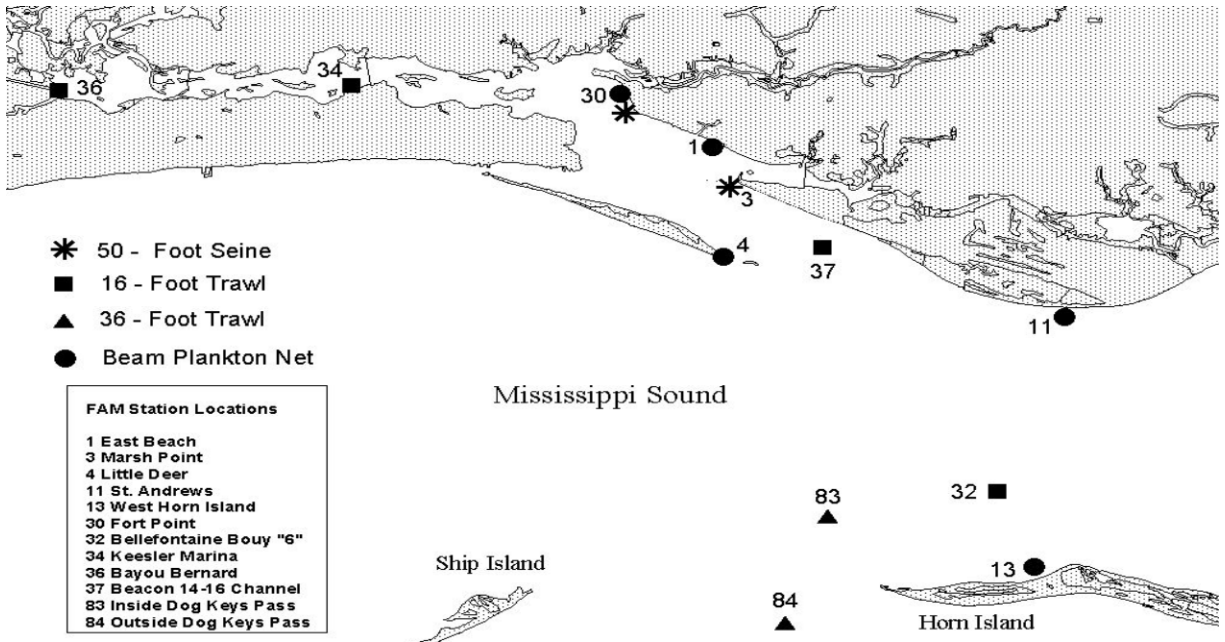


Figure 2. Fisheries Assessment and Monitoring Sampling Stations.