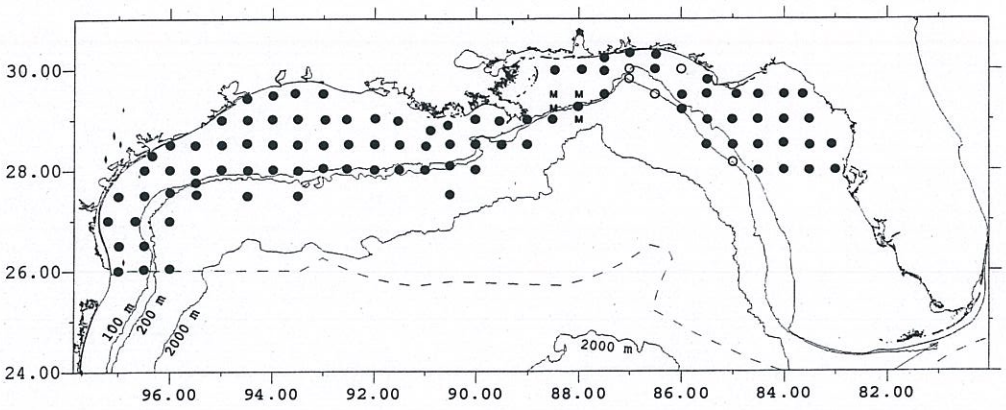
CRUISE RESULTS

Southeast Area Monitoring and Assessment Program (SEAMAP) 2004 Fall Ichthyoplankton Survey

NOAA Ship *Gordon Gunter* Cruise GU-04-04 (29)
31 August - 30 September 2004



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INTRODUCTION

The NOAA Ship *Gordon Gunter* departed Pascagoula, MS on 31 August 2004 to initiate the Southeast Area Monitoring and Assessment Program (SEAMAP) Fall Ichthyoplankton Survey in the northern Gulf of Mexico. The SEAMAP Program is a cooperative State/Federal/University program designed to collect biological and environmental data from waters of the U.S. Gulf of Mexico. During the Fall Survey, plankton samples are collected from a systematic grid of stations to assess distribution, occurrence and abundance of the early life stages of a variety of species of fishes and invertebrates. The survey specifically targets larvae of red drum, red and other snapper species, and king and Spanish mackerel. A total of 29 successful sea days were worked over two legs during the cruise: Leg 1, 31 August - 14 September and Leg 2, 18 - 30 September 2004. Several sampling days of the survey were missed due to two hurricanes entering the Gulf of Mexico. The first hurricane prevented the ship from porting in Pascagoula, shortening Leg 1 by one day, and delaying the start of Leg 2 by one day. The second hurricane forced the ship to divert to the western Gulf of Mexico and precluded further sampling of the stations located off of southern Florida.

OBJECTIVES

1. Collect ichthyoplankton samples with bongo and neuston nets for Gulf-wide estimates of abundance, frequency of occurrence, and distribution of the larvae and small juveniles of red drum, red and other snapper species, king and Spanish mackerel and other taxa.

2. Collect vertical profiles of environmental data (temperature, salinity, dissolved oxygen, fluorescence, and transmissivity), using an SBE 9/11plus CTD at all plankton stations, and realtime profiles of temperature, salinity and depth during bongo tows using an SBE 19 Seacat Profiler.

3. Measure chlorophyll a at three levels of the water column: surface, bottom (to a maximum of 200 m), midwater and/or the chlorophyll maximum using bench top fluorometry at all plankton stations.

4. Collect additional bongo ichthyoplankton samples at designated locations to a maximum depth of 300 m, targeting mesopelagic fish species not generally sampled at regular SEAMAP ichthyoplankton stations (as time permits at the end of the cruise).

METHODS

Environmental Data Collection

Environmental data were collected at each designated ichthyoplankton station in accordance with procedures outlined in the SEAMAP data collections manual. Each regular SEAMAP station included a CTD cast to near bottom or a maximum depth of 200 m. The Seabird SBE 9/11 Plus CTD was used with a dual suite of the following sensors: SBE 03

temperature sensor, SBE 04 conductivity sensor, SBE digiquartz pressure sensor, SBE 43 dissolved oxygen sensor, Wetlabs Wetstar fluorometer, and Wetlabs C-Star transmissometer. Information from shipboard sensors was accessed via the Scientific Computer System (SCS), which continuously displayed and recorded the ship's position, heading, speed, wind direction, wind speed, barometric pressure, sea surface temperature, air temperature and water depth. Each sampling event was conducted through the SCS and data (environmental and biological) for each event was then ingested into Microsoft Access for later analysis. Water samples were taken, using Nisken bottles attached to a carousal sampler, at the surface, midwater, and near-bottom (up to 200 m maximum) for bench top fluorometric analysis using the Welshmeyer method. Temperature, salinity and depth were recorded in real time during all bongo net tows using a Seabird SBE19 Seacat Profiler. Oxygen titration was conducted at least once a week to check the oxygen readings from the SBE 43 dissolved oxygen sensor insitu.

Ichthyoplankton Sample Collection

Ichthyoplankton sample and data collection were implemented in accordance with procedures outlined in the SEAMAP data collections manual. A predefined cruise track of 142 SEAMAP stations approximately 30 nautical miles apart in a systematic grid pattern were targeted for the survey. Seventy-five stations were planned for Leg 1 and 67 stations were planned for Leg 2 . Stations which reoccur yearly as problematic due to water depth, wrecks, or major ship traffic (i.e., ship channels) were relocated to adjacent areas (no more than 3 nautical miles away). Primary station operations consisted of a CTD profile, a bongo tow with attached (on towing cable above the frame) Seacat Profiler, and a neuston tow. Plankton samples were taken with the standard SEAMAP 61 cm bongo outfitted with two 0.335 mm mesh nets and towed in an oblique path from near bottom or 200 m maximum depth to the surface. Vessel speed was adjusted during the bongo tow to maintain a 45-degree wire angle in order to uniformly sample the water column. Water temperature, salinity and depth were monitored and recorded during each bongo tow. Neuston samples were taken using a 0.947 mm mesh net attached to a 1 x 2 m metal frame and towed for 10 minutes at a vessel speed (~ 2 kts) sufficient to keep the net opening half submerged in the water and thus maintaining a sampling depth of 0.5 m. At 33 preselected stations all samples were initially preserved in 95% ETOH and transferred to fresh 95% ETOH after 24 hours. Samples at the remaining stations were initially preserved in 10% formalin and transferred to 95% ETOH after at least 48 hours.

RESULTS

Environmental Data

One hundred and one , SBE 9/11 plus CTD and 101, SBE 19 Seacat profiles were taken during the cruise. CTD profiles were post-processed at sea by the Field Party Chief using Seabird's SEASAVE processing software. All environmental data and data from the ship's SCS were returned to the NMFS Pascagoula Laboratory for editing, analysis and archival. Only two replicates for surface, midwater, and near bottom were processed using the Welshmeyer method due to the low number of filters on board. Eighty-nine stations were completed in this manner and no samples were processed for the last 12 stations due to lack of filters.

Ichthyoplankton survey

Over the course of the *Gordon Gunter* survey, ichthyoplankton samples were collected at 101 of the original 142 planned SEAMAP stations (Figure 1). This resulted in the collection of 202 bongo samples (101 right and 101 left) and 95 neuston samples (Table 1). Sixty stations were sampled during Leg 1 (Table 2) and 41 stations were sampled during Leg 2 (Table 3). At six stations during the second leg, weather conditions prohibited neuston sampling.

Table 1. Summary of ichthyoplankton collections taken during *Gordon Gunter* cruise 04-04 (29), 31 August - 30 September 2004.

Leg	CTD casts	Right - Bongo	Left - Bongo	Neuston
1	60	60	60	60
2	41	41	41	35
Totals	101	101	101	95

State contributions to the overall 2004 SEAMAP Fall Ichthyoplankton Survey include bongo and neuston samples taken at 4 stations by Gulf Coast Research Laboratory in Mississippi. Three of these stations were part of the original 142 planned federal survey stations and the fourth station was a SEAMAP station, but not one regularly sampled during the fall survey. No sampling could be undertaken by the Alabama Department of Conservation and Natural Resources due to hurricanes in the northern Gulf of Mexico during the survey period. No sampling was conducted by the Louisiana Department of Fisheries and Wildlife because the research vessel could not be scheduled in the fall survey timeline (i.e., late August to mid-October).

Plankton samples were assigned SEAMAP numbers at sea (Federal samples) or back at the Pascagoula Laboratory (state collected samples). Right bongos and neustons, will be shipped to ZSIOP Gdynia, Poland for sorting. Remaining left bongo samples will be deposited in the SEAMAP Invertebrate Archive at Gulf Coast Research Laboratory, University of Southern Mississippi, Ocean Springs, MS for archival.

CRUISE PARTICIPANTS

Leg 1 (31 August - 14 September 2004)

Name / Title / Organization

Pam Bond / Field Party Chief / NMFS, Pascagoula, MS
Alonzo Hamilton / Fishery Biologist / NMFS, Pascagoula, MS
Glenn Zapfe / Fishery Biologist / JCWS[1], Pascagoula, MS
Kim Johnson / Fishery Biologist / NMFS, Pascagoula, MS
Lanora Lang / Fishery Biologist / JCWS[1], Pascagoula, MS

[1] - Johnson Controls World Services

Leg 2 (18 - 30 September 2004)

Name / Title / Organization

Glenn Zapfe / Field Party Chief / JCWS[1], Pascagoula, MS
Pam Bond / Fishery Biologist / NMFS, Pascagoula, MS
Joanne Lyczkowski-Shultz / Fishery Biologist / NMFS, Pascagoula, MS
David Hanisko / Fishery Biologist / Pascagoula, MS
Lanora Lang / Fishery Biologist / JCWS[1], Pascagoula, MS

[1] - Johnson Controls World Services

Submitted by:

Pamela J. Bond
Field Party Chief

Glenn A. Zapfe
Field Party Chief

Approved by:

Scott Nichols, Director
Mississippi Laboratories

for Nancy Thompson, Director
Southeast Science and Research Center

Table 2. Summary of plankton sampling effort during the Fall SEAMAP Ichthyoplankton Survey conducted from the NOAA Ship *Gordon Gunter*, cruise GU-04-04, Leg 1, 31 August - 13 September 2004. P-Sta.# = Pascagoula station number; S-Sta.# = SEAMAP station number; Smp.# = SEAMAP sample number; R-B = Right Bongo; L-B = Left Bongo; NN = Neuston; Pres. = Initial preservative; Form = Formalin; ETOH = Ethyl alcohol.

P-Sta.#	S-Sta. #	Smp. #	Gear	Pres.	Date
001	B30	31283	R - B	10% Form	3 Sept. 04
"	"	31284	L - B	10% Form	"
"	"	31285	NN	10% Form	"
002	B316	31286	R - B	95% ETOH	3 Sept. 04
"	"	31287	L - B	95% ETOH	"
"	"	31288	NN	95% ETOH	"
003	B32	31289	R - B	95% ETOH	3 Sept. 04
"	"	31290	L - B	95% ETOH	"
"	"	31291	NN	95% ETOH	"
004	B238	31292	R - B	95% ETOH	3 Sept. 04
"	"	31293	L - B	95% ETOH	"
"	"	31294	NN	95% ETOH	"
005	B239	31295	R - B	95% ETOH	3 Sept. 04
"	"	31296	L - B	95% ETOH	"
"	"	31297	NN	95% ETOH	"
006	B31	31299	R - B	10% Form	3 Sept. 04
"	"	31298	L - B	10% Form	"
"	"	31300	NN	10% Form	"
007	B328	31302	R - B	10% Form	4 Sept. 04
"	"	31301	L - B	10% Form	"
"	"	31303	NN	10% Form	"
008	B51	31304	R - B	10% Form	4 Sept. 04
"	"	31305	L - B	10% Form	"
"	"	31306	NN	10% Form	"

P-Sta.#	S-Sta. #	Smp. #	Gear	Pres.	Date
009	B235	31307	R - B	95% ETOH	4 Sept. 04
"	"	31308	L - B	95% ETOH	"
"	"	31309	NN	95% ETOH	"
010	B234	31310	R - B	95% ETOH	4 Sept. 04
"	"	31311	L - B	95% ETOH	"
"	"	31312	NN	95% ETOH	"
011	B233	31313	R - B	95% ETOH	4 Sept. 04
"	"	31314	L - B	95% ETOH	"
"	"	31315	NN	95% ETOH	"
012	B327	31316	R - B	10% Form	4 Sept. 04
"	"	31317	L - B	10% Form	"
"	"	31318	NN	10% Form	"
013	B230	31319	R - B	10% Form	4 Sept. 04
"	"	31320	L - B	10% Form	"
"	"	31321	NN	10% Form	"
014	B231	31322	R - B	95% ETOH	5 Sept. 04
"	"	31323	L - B	95% ETOH	"
"	"	31324	NN	95% ETOH	"
015	B232	31325	R - B	95% ETOH	5 Sept. 04
"	"	31326	L - B	95% ETOH	"
"	"	31327	NN	95% ETOH	"
016	B225	31328	R - B	95% ETOH	5 Sept. 04
"	"	31329	L - B	95% ETOH	"
"	"	31330	NN	95% ETOH	"

Table 2 continued.

P-Sta.#	S-Sta. #	Smp. #	Gear	Pres.	Date
017	B326	31331	R - B	95% ETOH	5 Sept. 04
"	"	31332	L - B	95% ETOH	"
"	"	31333	NN	95% ETOH	"
018	B226	31334	R - B	95% ETOH	5 Sept. 04
"	"	31335	L - B	95% ETOH	"
"	"	31336	NN	95% ETOH	"
019	B228	31337	R - B	95% ETOH	5 Sept. 04
"	"	31338	L - B	95% ETOH	"
"	"	31339	NN	95% ETOH	"
020	B221	31340	R - B	10% Form	6 Sept. 04
"	"	31341	L - B	10% Form	"
"	"	31342	NN	10% Form	"
021	B222	31343	R - B	95% ETOH	6 Sept. 04
"	"	31344	L - B	95% ETOH	"
"	"	31345	NN	95% ETOH	"
022	B223	31346	R - B	95% ETOH	6 Sept. 04
"	"	31347	L - B	95% ETOH	"
"	"	31348	NN	95% ETOH	"
023	B243	31349	R - B	10% Form	6 Sept. 04
"	"	31350	L - B	10% Form	"
"	"	31351	NN	10% Form	"
024	B217	31352	R - B	95% ETOH	6 Sept. 04
"	"	31353	L - B	95% ETOH	"
"	"	31354	NN	95% ETOH	"
025	B218	31355	R - B	95% ETOH	6 Sept. 04
"	"	31356	L - B	95% ETOH	"
"	"	31357	NN	95% ETOH	"

P-Sta.#	S-Sta. #	Smp. #	Gear	Pres.	Date
026	B219	31358	R - B	10% Form	7 Sept. 04
"	"	31359	L - B	10% Form	"
"	"	31360	NN	10% Form	"
027	B220	31361	R - B	10% Form	7 Sept. 04
"	"	31362	L - B	10% Form	"
"	"	31363	NN	10% Form	"
028	B213	31364	R - B	10% Form	7 Sept. 04
"	"	31365	L - B	10% Form	"
"	"	31366	NN	10% Form	"
029	B214	31367	R - B	10% Form	7 Sept. 04
"	"	31368	L - B	10% Form	"
"	"	31369	NN	10% Form	"
030	B215	31370	R - B	95% ETOH	7 Sept. 04
"	"	31371	L - B	95% ETOH	"
"	"	31372	NN	95% ETOH	"
031	B216	31373	R - B	95% ETOH	7 Sept. 04
"	"	31374	L - B	95% ETOH	"
"	"	31375	NN	95% ETOH	"
032	B244	31377	R - B	10% Form	8 Sept. 04
"	"	31376	L - B	10% Form	"
"	"	31378	NN	10% Form	"
033	B209	31379	R - B	95% ETOH	8 Sept. 04
"	"	31380	L - B	95% ETOH	"
"	"	31381	NN	95% ETOH	"
034	B210	31382	R - B	95% ETOH	8 Sept. 04
"	"	31383	L - B	95% ETOH	"
"	"	31384	NN	95% ETOH	"

Table 2 continued.

P-Sta.#	S-Sta. #	Smp. #	Gear	Pres.	Date
035	B211	31385	R - B	10% Form	8 Sept. 04
"	"	31386	L - B	10% Form	"
"	"	31387	NN	10% Form	"
036	B212	31388	R - B	10% Form	8 Sept. 04
"	"	31389	L - B	10% Form	"
"	"	31390	NN	10% Form	"
037	B206	31391	R - B	10% Form	8 Sept. 04
"	"	31392	L - B	10% Form	"
"	"	31393	NN	10% Form	"
038	B207	31394	R - B	10% Form	9 Sept. 04
"	"	31395	L - B	10% Form	"
"	"	31396	NN	10% Form	"
039	B208	31397	R - B	95% ETOH	9 Sept. 04
"	"	31398	L - B	95% ETOH	"
"	"	31399	NN	95% ETOH	"
040	B23	31400	R - B	95% ETOH	9 Sept. 04
"	"	31401	L - B	95% ETOH	"
"	"	31402	NN	95% ETOH	"
041	B202	31403	R - B	95% ETOH	9 Sept. 04
"	"	31404	L - B	95% ETOH	"
"	"	31405	NN	95% ETOH	"
042	B203	31406	R - B	95% ETOH	9 Sept. 04
"	"	31407	L - B	95% ETOH	"
"	"	31408	NN	95% ETOH	"
043	B204	31409	R - B	10% Form	9 Sept. 04
"	"	31410	L - B	10% Form	"
"	"	31411	NN	10% Form	"

P-Sta.#	S-Sta. #	Smp. #	Gear	Pres.	Date
044	B200	31412	R - B	10% Form	10 Sept. 04
"	"	31413	L - B	10% Form	"
"	"	31414	NN	10% Form	"
045	B201	31415	R - B	95% ETOH	10-Sept. 04
"	"	31416	L - B	95% ETOH	"
"	"	31417	NN	95% ETOH	"
046	B22	31418	R - B	95% ETOH	10 Sept. 04
"	"	31419	L - B	95% ETOH	"
"	"	31420	NN	95% ETOH	"
047	B195	31421	R - B	95% ETOH	10 Sept. 04
"	"	31422	L - B	95% ETOH	"
"	"	31423	NN	95% ETOH	"
048	B196	31424	R - B	95% ETOH	10 Sept. 04
"	"	31425	L - B	95% ETOH	"
"	"	31426	NN	95% ETOH	"
049	B197	31427	R - B	10% Form	10 Sept. 04
"	"	31428	L - B	10% Form	"
"	"	31429	NN	10% Form	"
050	B193	31430	R - B	10% Form	11 Sept. 04
"	"	31431	L - B	10% Form	"
"	"	31432	NN	10% Form	"
051	B192	31433	R - B	10% Form	11 Sept. 04
"	"	31434	L - B	10% Form	"
"	"	31435	NN	10% Form	"
052	B191	31436	R - B	10% Form	11 Sept. 04
"	"	31437	L - B	10% Form	"
"	"	31438	NN	10% Form	"

Table 2 continued.

P-Sta.#	S-Sta. #	Smp. #	Gear	Pres.	Date
053	B194	31439	R - B	95% ETOH	11 Sept. 04
"	"	31440	L - B	95% ETOH	"
"	"	31441	NN	95% ETOH	"
054	B17	31442	R - B	95% ETOH	11 Sept. 04
"	"	31443	L - B	95% ETOH	"
"	"	31444	NN	95% ETOH	"
055	B247	31445	R - B	10% Form	11 Sept. 04
"	"	31446	L - B	10% Form	"
"	"	31447	NN	10% Form	"
056	B190	31448	R - B	95% ETOH	12 Sept. 04
"	"	31449	L - B	95% ETOH	"
"	"	31450	NN	95% ETOH	"

P-Sta.#	S-Sta. #	Smp. #	Gear	Pres.	Date
057	B16	31451	R - B	95% ETOH	12 Sept. 04
"	"	31452	L - B	95% ETOH	"
"	"	31453	NN	95% ETOH	"
058	B189	31454	R - B	10% Form	12 Sept. 04
"	"	31455	L - B	10% Form	"
"	"	31456	NN	10% Form	"
059	B188	31457	R - B	10% Form	12 Sept. 04
"	"	31458	L - B	10% Form	"
"	"	31459	NN	10% Form	"
060	B187	31460	R - B	10% Form	12 Sept. 04
"	"	31461	L - B	10% Form	"
"	"	31462	NN	10% Form	"

Table 3. Summary of plankton sampling effort during the Fall SEAMAP Ichthyoplankton Survey conducted from the NOAA Ship *Gordon Gunter*, cruise GU-03-03, Leg 2, 16 September - 29 September 2004. P-Sta.# = Pascagoula station number; S-Sta.# = SEAMAP station number; Smp.# = SEAMAP sample number; R-B = Right Bongo; L-B = Left Bongo; NN = Neuston; Pres. = Initial preservative; Form = Formalin; ETOH = Ethyl alcohol; Date is GMT station date.

P-Sta.#	S-Sta. #	Smp. #	Gear	Pres.	Date
061	B186	31463	R - B	10% Form	20 Sept. 04
"	"	31464	L - B	10% Form	"
"	"	31465	NN	10% Form	"
062	B184	31466	R - B	10% Form	20 Sept. 04
"	"	3167	L - B	10% Form	"
"	"	31468	NN	10% Form	"
063	B183	31469	R - B	10% Form	20 Sept. 04
"	"	31470	L - B	10% Form	"
"	"	31471	NN	10% Form	"
064	B180	31472	R - B	10% Form	20 Sept. 04
"	"	31473	L - B	10% Form	"
"	"	31474	NN	10% Form	"
065	B322	31475	R - B	10% Form	20 Sept. 04
"	"	31476	L - B	10% Form	"
"	"	31477	NN	10% Form	"
066	B174	31478	R - B	10% Form	20 Sept. 04
"	"	31479	L - B	10% Form	"
"	"	No Neuston due to rough seas			"
067	B320	31480	R - B	10% Form	21 Sept. 04
"	"	31481	L - B	10% Form	"
"	"	No Neuston due to rough seas			"
068	B172	31482	R - B	10% Form	21 Sept. 04
"	"	31483	L - B	10% Form	"
"	"	No Neuston due to rough seas			"

P-Sta.#	S-Sta. #	Smp. #	Gear	Pres.	Date
069	B319	31484	R - B	10% Form	21 Sept. 04
"	"	31485	L - B	10% Form	"
"	"	31486	NN	10% Form	"
070	B318	31487	R - B	10% Form	21 Sept. 04
"	"	31488	L - B	10% Form	"
"	"	31489	NN	10% Form	"
071	B168	31490	R - B	10% Form	21 Sept. 04
"	"	31491	L - B	10% Form	"
"	"	31492	NN	10% Form	"
072	B169	31493	R - B	10% Form	21 Sept. 04
"	"	31494	L - B	10% Form	"
"	"	No Neuston due to rough seas			"
073	B167	31495	R - B	10% Form	22 Sept. 04
"	"	31496	L - B	10% Form	"
"	"	No Neuston due to rough seas			"
074	B157	31497	R - B	10% Form	22 Sept. 04
"	"	31498	L - B	10% Form	"
"	"	31499	NN	10% Form	"
075	B158	31500	R - B	10% Form	22 Sept. 04
"	"	31501	L - B	10% Form	"
"	"	31502	NN	10% Form	"
076	B156	31503	R - B	10% Form	23 Sept. 04
"	"	31504	L - B	10% Form	"
"	"	31505	NN	10% Form	"

Table 3 continued.

P-Sta.#	S-Sta. #	Smp. #	Gear	Pres.	Date
077	B140	31506	R - B	10% Form	23 Sept. 04
"	"	31507	L - B	10% Form	"
"	"	31508	NN	10% Form	"
078	B138	31509	R - B	10% Form	23 Sept. 04
"	"	31510	L - B	10% Form	"
"	"	31511	NN	10% Form	"
079	B115	31512	R - B	10% Form	23 Sept. 04
"	"	31513	L - B	10% Form	"
"	"	31514	NN	10% Form	"
080	B116	31515	R - B	10% Form	23 Sept. 04
"	"	31516	L - B	10% Form	"
"	"	31517	NN	10% Form	"
081	B137	31518	R - B	10% Form	23 Sept. 04
"	"	31519	L - B	10% Form	"
"	"	31520	NN	10% Form	"
082	B141	31521	R - B	10% Form	23 Sept. 04
"	"	31522	L - B	10% Form	"
"	"	31523	NN	10% Form	"
083	B155	31524	R - B	10% Form	23 Sept. 04
"	"	31525	L - B	10% Form	"
"	"	31526	NN	10% Form	"
084	B159	31527	R - B	10% Form	24 Sept. 04
"	"	31528	L - B	10% Form	"
"	"	31529	NN	10% Form	"
085	B160	31530	R - B	10% Form	24 Sept. 04
"	"	31531	L - B	10% Form	"
"	"	31532	NN	10% Form	"

P-Sta.#	S-Sta. #	Smp. #	Gear	Pres.	Date
086	B154	31533	R - B	10% Form	24 Sept. 04
"	"	31534	L - B	10% Form	"
"	"	31535	NN	10% Form	"
087	B142	31536	R - B	10% Form	24 Sept. 04
"	"	31537	L - B	10% Form	"
"	"	31538	NN	10% Form	"
088	B136	31539	R - B	10% Form	24 Sept. 04
"	"	31540	L - B	10% Form	"
"	"	31541	NN	10% Form	"
089	B117	31542	R - B	10% Form	24 Sept. 04
"	"	31543	L - B	10% Form	"
"	"	31544	NN	10% Form	"
090	B113	31545	R - B	10% Form	24 Sept. 04
"	"	31546	L - B	10% Form	"
"	"	31547	NN	10% Form	"
091	B112	31548	R - B	10% Form	25 Sept. 04
"	"	31549	L - B	10% Form	"
"	"	31550	NN	10% Form	"
092	B118	31551	R - B	10% Form	25 Sept. 04
"	"	31552	L - B	10% Form	"
"	"	31553	NN	10% Form	"
093	B135	31554	R - B	10% Form	25 Sept. 04
"	"	31555	L - B	10% Form	"
"	"	31556	NN	10% Form	"
094	B143	31557	R - B	10% Form	25 Sept. 04
"	"	31558	L - B	10% Form	"
"	"	31559	NN	10% Form	"

Table 3 continued.

P-Sta.#	S-Sta. #	Smp. #	Gear	Pres.	Date
095	B153	31560	R - B	10% Form	25 Sept. 04
"	"	31561	L - B	10% Form	"
"	"	No Neuston due to rough seas			"
096	B178	31562	R - B	10% Form	27 Sept. 04
"	"	31563	L - B	10% Form	"
"	"	31564	NN	10% Form	"
097	B177	31565	R - B	10% Form	28 Sept. 04
"	"	31566	L - B	10% Form	"
"	"	31567	NN	10% Form	"
098	B173	31568	R - B	10% Form	28 Sept. 04
"	"	31569	L - B	10% Form	"
"	"	31570	NN	10% Form	"

P-Sta.#	S-Sta. #	Smp. #	Gear	Pres.	Date
099	B321	31571	R - B	10% Form	28 Sept. 04
"	"	31572	L - B	10% Form	"
"	"	31573	NN	10% Form	"
100	B166	31574	R - B	10% Form	28 Sept. 04
"	"	31575	L - B	10% Form	"
"	"	31576	NN	10% Form	"
101	B165	31577	R - B	10% Form	29 Sept. 04
"	"	31578	L - B	10% Form	"
"	"	31579	NN	10% Form	"

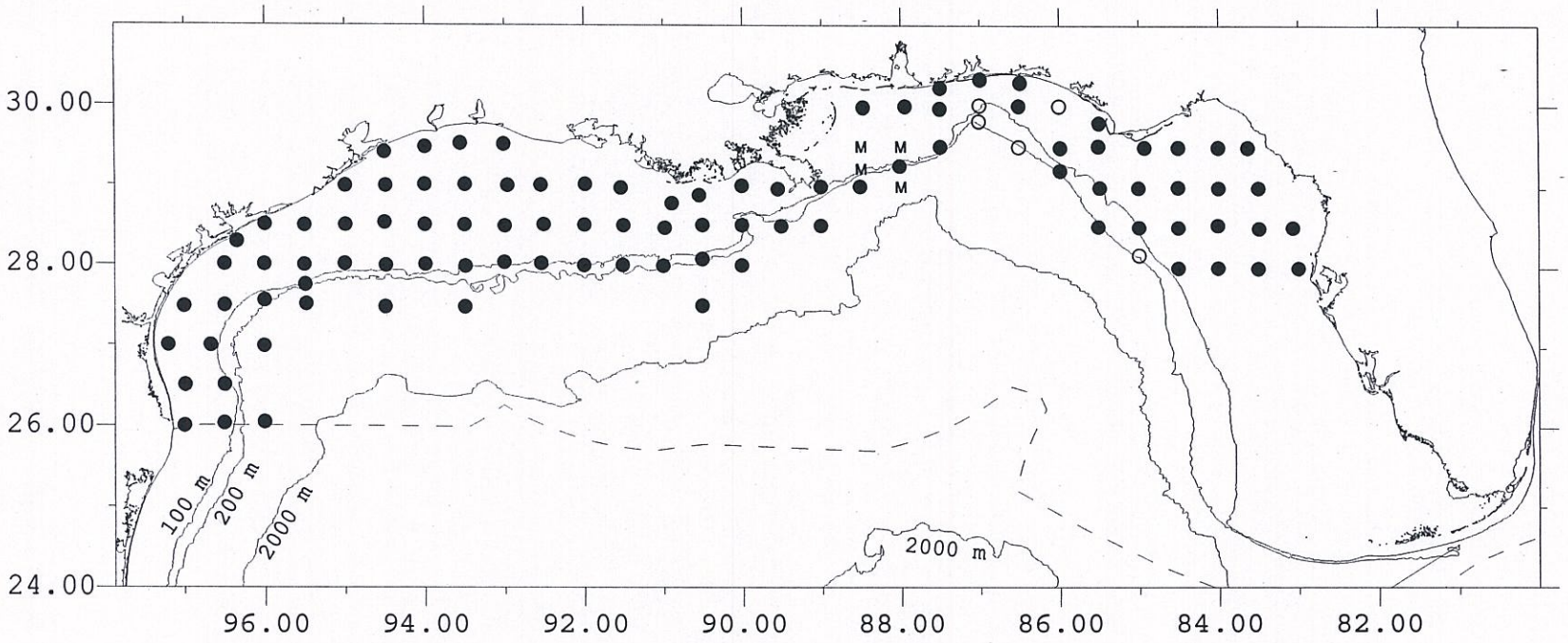

Figure 1. Ichthyoplankton stations occupied during the 2004 SEAMAP Fall Ichthyoplankton Survey. Dots represent completed stations of the NOAA ship *Gordon Gunter* cruise GU-04-04 (29), August 31 to September 30, 2004. The open circles represent stations where only a bongo tow and CTD cast were completed due to weather conditions. Stations marked with an "M" were state contributions collected by the Gulf Coast Research Laboratory, University of Southern Mississippi.