CRUISE REPORT

Fall 2016
SEAMAP Plankton Survey
Cruise 1602

R/V *Defender*

Louisiana Department of Wildlife and Fisheries
Fisheries Research Laboratory
195 Ludwig Annex
Grand Isle, LA 70358

Chief Scientist
Chloe Dean

SURVEY PERIOD: 09/15/2016 – 09/20/2016

AREA OF OPERATION: Gulf of Mexico (latitudes 28°29.98 to 29°25.27 and longitudes ¯89°33.60 to 92°26.83 with depths between 9.8m to 46.0m).

INTRODUCTION

The Southeast Area Monitoring and Assessment Program (SEAMAP) plankton surveys are conducted biannually to provide information on the occurrence, abundance, and geographical distribution of the eggs, larvae, and juveniles of spring spawning fish, particularly Atlantic bluefin tuna as well as fall spawning fish, particularly King and Spanish Mackerel, lutjanids and sciaenids. Louisiana Department of Wildlife and Fisheries (LDWF), along with other SEAMAP partners, select sampling stations from a list provided by the Gulf States Marine Fisheries Commission (GSMFC) and sample in conjunction with the National Marine Fisheries Service (NMFS) SEAMAP spring and fall plankton surveys.

OBJECTIVES

1. To provide information on the occurrence, abundance, and geographical distribution of eggs, larvae, and juvenile fishes and invertebrates by participating in the SEAMAP spring and fall plankton surveys.
2. To increase understanding of the environment associated with pelagic eggs, larvae, and juvenile fishes and invertebrates by collecting environmental data, water column profiles, and chlorophyll measurements with each plankton collection.
3. To collect detailed observations (i.e. identification, number, volume, bell diameter) of net-caught jellyfish and ctenophores to assess these communities in relationship to plankton catches.
4. To collect volumetric measurements of net caught *Sargassum* spp. to assess species utilizing *Sargassum* spp. habitats.

METHODS

Plankton sampling was conducted at each station using two 60cm, 0.335µm-mesh bongo nets and 1m x 2m, 0.950µm-mesh neuston net. Oblique bongo tows were conducted beginning at the surface to near-bottom depths and then back to the surface at each station. The established maximum depth of tows is 200 meters. A mechanical flowmeter secured off-center in each bongo frame was used to record the volume of water filtered. The neuston gear was towed for 10 minutes with the frame half-submerged at a depth of 0.5 meters. Jellyfish and ctenophores present in bongo and neuston samples were removed from the sample, rinsed, identified, counted, measured (bell diameter in mm), and discarded. *Sargassum* spp. were also removed from the collection, rinsed of all organisms, measured for volume, and discarded.

Samples collected by the right bongo were initially preserved in 10% formalin and then transferred to 95% ethanol after 36 hours. Left bongo samples and neuston samples were initially preserved in 95% ethanol and then transferred to fresh 95% ethanol after 24 hours. These samples were transferred at sea and then transported back to the LDWF Fisheries Research Laboratory (FRL) for preparation and shipment. Sample workup and data processing was conducted in accordance with the NMFS SEAMAP Operations Manual guidelines. Samples were then delivered to the NMFS Pascagoula, MS lab. NMFS archived the left bongo samples at the SEAMAP Invertebrate Plankton Archiving Center (SIPAC) and shipped the right bongo and neuston samples to the Polish Sorting and Identification Center.

Environmental data were collected in conjunction with each plankton station. A full water column profile was recorded with a Seabird CTD. Water parameters measured included temperature, dissolved oxygen (DO), salinity, and conductivity. In the event a DO reading fell below 2.0 Mg/L, the DO was verified with a YSI. Water was collected at the surface, mid, and maximum water depths with a Seabird SBE32 water sampler rosette and then filtered onboard for later spectroscopic analysis for chlorophyll concentration at the LDWF FRL.
Data were coded according to the NMFS SEAMAP Operations Manual guidelines and entered into the LDWF SEAMAP data entry system. Data were then submitted to the Gulf States Marine Fisheries Commission.

SURVEY DESIGN

A Gulf wide systematic grid with sampling stations approximately 30 nautical miles apart is used for this survey. The 30 minute fixed grid was chosen as the most efficient design to sample the Gulf of Mexico to obtain a stock-wide sampling universe for stock assessment indices. LDWF participates in the SEAMAP plankton survey during the spring and fall each year. NMFS provides GSMFC a list of sampling stations, who in turn, work with state SEAMAP partners to select stations that each state can complete. NMFS vessels sample remaining stations. All data go to GSMFC for management and storage. These data are available to the scientific community upon request.

RESULTS

Fall Plankton Survey
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Vessel: R/V *Defender*
Nine plankton stations were sampled by LDWF between latitudes 28°29.98 to 29°25.27 and longitudes -89°33.60 to 92°26.83 with depths between 9.8m to 46.0m (Figure 1, Table 1). Thirty-four jars were transferred to the NMFS Pascagoula, MS on October 6, 2016. All chlorophyll samples were analyzed using spectroscopic methods and entered into the database.

DEVIATIONS

No deviations.

SURVEY PARTICIPANTS

Vessel: R/V *Defender*

Chloe Dean	Chief Scientist	FRL, Grand Isle, LA
Jeremy Miller	Biologist	FRL, Grand Isle, LA
Clint Edds	Biologist	FRL, Grand Isle, LA
Michael Coulon	Biologist	FRL, Grand Isle, LA
Jeff Canulette	Captain	FRL, Grand Isle, LA
Jody Riviere	Captain	FRL, Grand Isle, LA

ACKNOWLEDGEMENTS

Thank you to all LDWF staff and management staff. We also appreciate our dedicated SEAMAP partners and the assistance of the plankton team at NMFS.

Figure 1. SEAMAP plankton survey stations, Fall 2016, Cruise number 1602

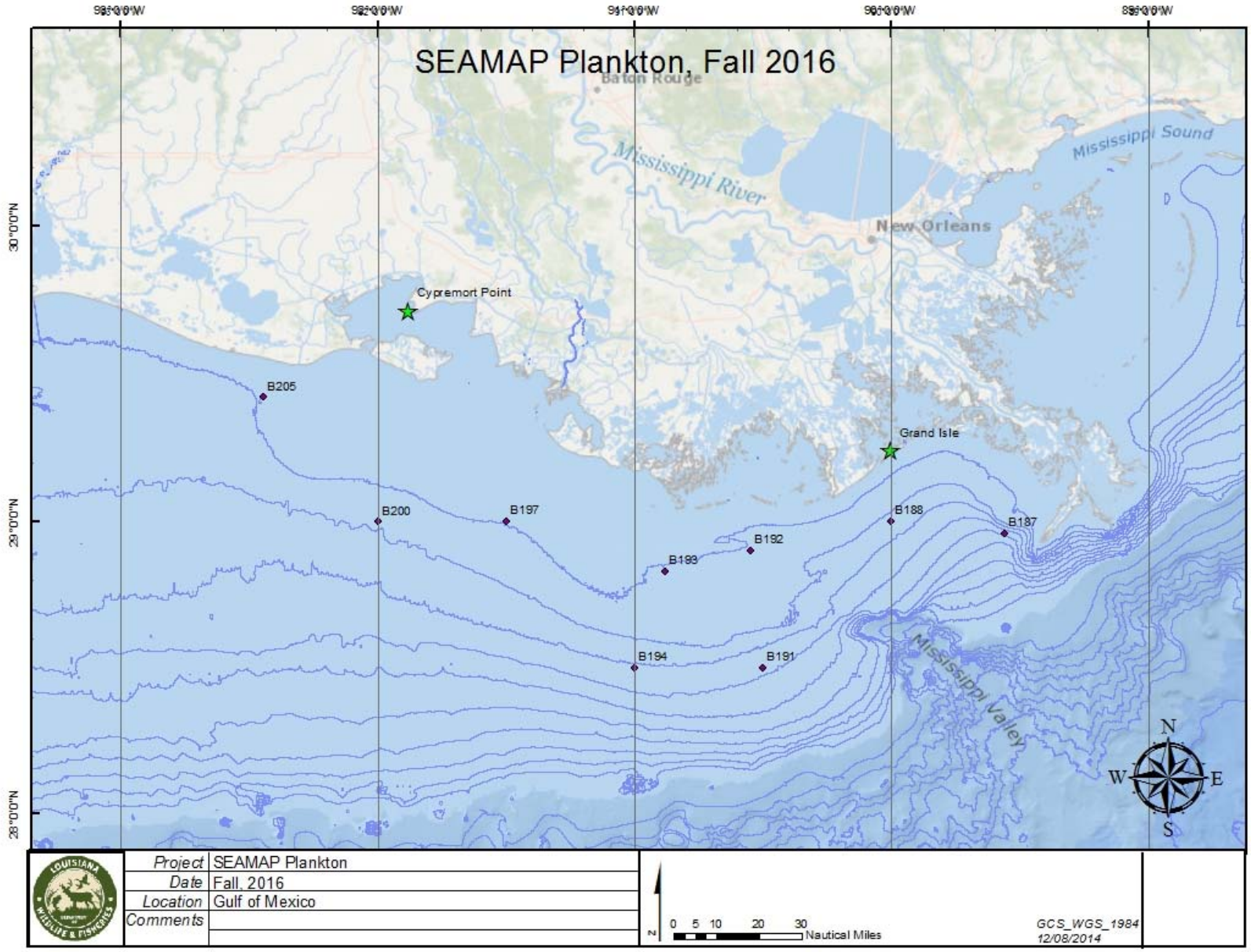

Table 1. SEAMAP plankton survey station details, Fall 2016, Cruise number 1602

Pascagoula #	Station #	Date	Time	Latitude	Longitude	Depth	Salinity Top	Salinity Mid	Salinity Bottom	Temp Top	Temp Mid	Temp Bottom	DO Top	DO Mid	DO Bottom	Chlorophyll Top	Chlorophyll Bottom	Plankton Tows
97001	B205	9/15/2016	1357	29°25.27	92°26.83	9.8	19.84	25.57	26.11	29.14	29.65	29.68	5.60	5.29	4.97	13.93	2.58	B/N
97002	B200	9/19/2016	1319	28°59.84	91°59.97	18.9	28.62	31.43	32.20	28.57	29.24	29.52	5.73	6.08	4.67	1.10	3.00	B/N
97003	B197	9/19/2016	1623	29°00.00	91°30.01	9.8	28.94	30.25	30.68	29.06	28.97	28.93	5.68	6.24	5.88	4.84	2.38	B/N
97004	B193	9/19/2016	1931	28°46.79	90°52.82	16.2	27.69	29.31	30.01	29.49	29.22	29.64	6.71	6.43	3.43	1.22	0.94	B/N
97005	B194	9/19/2016	2131	28°29.98	91°00.01	32.9	29.71	31.91	36.00	29.91	29.39	24.93	5.62	6.11	1.99	0.41	1.19	B/N
97006	B191	9/20/2016	0029	28°30.00	90°29.98	38.1	27.86	35.35	36.14	29.09	29.49	24.95	5.64	5.67	3.99	1.00	0.36	B/N
97007	B192	9/20/2016	1210	28°54.00	90°33.00	14.9	27.50	28.61	30.34	29.38	29.19	29.39	6.42	6.66	4.72	1.58	1.40	B/N
97008	B188	9/20/2016	1508	28°59.99	89°59.98	23.8	25.98	30.90	35.65	28.97	29.77	28.62	6.67	3.77	4.55	3.48	0.43	B/N
97009	B187	9/20/2016	1808	28°57.55	89°33.68	46.0	15.53	35.10	36.02	29.12	29.40	25.86	8.12	6.00	2.48	27.55	0.00	B/N

Table 2. Summary of plankton samples collected during the Spring SEAMAP plankton survey, Fall 2016, Cruise number 1602

SEAMAP Station Number	Pascagoula Station Number	Date	Latitude	Longitude	Gear	Initial Preservative	Secondary Preservative	Sample Number
B205	97001	9/15/2016	29°25.27	92°26.83	Bongo Left	95% Ethanol	95% Ethanol	51807
B205	97001	9/15/2016	29°25.27	92°26.83	Bongo Right	10% Formalin	95% Ethanol	51808
B205	97001	9/15/2016	29°25.27	92°26.83	Neuston	95% Ethanol	95% Ethanol	51809
B200	97002	9/19/2016	28°59.84	91°59.97	Bongo Left	95% Ethanol	95% Ethanol	51810
B200	97002	9/19/2016	28°59.84	91°59.97	Bongo Right	10% Formalin	95% Ethanol	51811
B200	97002	9/19/2016	28°59.84	91°59.97	Neuston	95% Ethanol	95% Ethanol	51812
B197	97003	9/19/2016	29°00.00	91°30.01	Bongo Left	95% Ethanol	95% Ethanol	51813
B197	97003	9/19/2016	29°00.00	91°30.01	Bongo Right	10% Formalin	95% Ethanol	51814
B197	97003	9/19/2016	29°00.00	91°30.01	Neuston	95% Ethanol	95% Ethanol	51815
B193	97004	9/19/2016	28°49.79	90°52.82	Bongo Left	95% Ethanol	95% Ethanol	51816
B193	97004	9/19/2016	28°49.79	90°52.82	Bongo Right	10% Formalin	95% Ethanol	51817
B193	97004	9/19/2016	28°49.79	90°52.82	Neuston	95% Ethanol	95% Ethanol	51818
B194	97005	9/19/2016	28°29.98	91°00.01	Bongo Left	95% Ethanol	95% Ethanol	51819
B194	97005	9/19/2016	28°29.98	91°00.01	Bongo Right	10% Formalin	95% Ethanol	51820
B194	97005	9/19/2016	28°29.98	91°00.01	Neuston	95% Ethanol	95% Ethanol	51821
B191	97006	9/20/2016	28°30.00	90°29.98	Bongo Left	95% Ethanol	95% Ethanol	51822
B191	97006	9/20/2016	28°30.00	90°29.98	Bongo Right	10% Formalin	95% Ethanol	51823
B191	97006	9/20/2016	28°30.00	90°29.98	Neuston	95% Ethanol	95% Ethanol	51824
B192	97007	9/20/2016	28°54.00	90°33.00	Bongo Left	95% Ethanol	95% Ethanol	51825
B192	97007	9/20/2016	28°54.00	90°33.00	Bongo Right	10% Formalin	95% Ethanol	51826
B192	97007	9/20/2016	28°54.00	90°33.00	Neuston	95% Ethanol	95% Ethanol	51827
B188	97008	9/20/2016	28°59.99	89°59.98	Bongo Left	95% Ethanol	95% Ethanol	51828
B188	97008	9/20/2016	28°59.99	89°59.98	Bongo Right	10% Formalin	95% Ethanol	51829
B188	97008	9/20/2016	28°59.99	89°59.98	Neuston	95% Ethanol	95% Ethanol	51830
B187	97009	9/20/2016	28°57.55	89°33.60	Bongo Left	95% Ethanol	95% Ethanol	51831
B187	97009	9/20/2016	28°57.55	89°33.60	Bongo Right	10% Formalin	95% Ethanol	51832
B187	97009	9/20/2016	28°57.55	89°33.60	Neuston	95% Ethanol	95% Ethanol	51833