2017 ANNUAL CRUISE REPORT

SEAMAP Plankton Survey

R/V *Defender*

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

Chief Scientist
Jeremy Miller

SURVEY PERIOD: 09/16/2017 – 09/17/2017

AREA OF OPERATION: Gulf of Mexico (latitudes 28°30.00 to 29°46.81 and longitudes -89°33.62 to 92°00.01 with depths between 10.2m to 45.5m).

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. 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. 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. 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. 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
09/16/2017 – 09/17/2017
Vessel: R/V *Defender*
Eight plankton stations were sampled by LDWF between latitudes 28°30.00 to 29°46.81 and longitudes -89°33.62 to 92°00.01 with depths between.10.2m to 45.5m (Figure 1, Table 1). Twenty-six jars were transferred to the NMFS Pascagoula, MS on October 6, 2017. All chlorophyll samples were analyzed using spectroscopic methods and entered into the database.

DEVIATIONS

No deviations.

SURVEY PARTICIPANTS

Vessel: R/V *Defender*

Suzy Delaune	Chief Scientist	FRL, Grand Isle, LA
Paige O'Malley	Biologist	FRL, Grand Isle, LA
Clint Edds	Biologist	FRL, Grand Isle, LA
Jeff Canulette	Captain	FRL, Grand Isle, LA
Phil Kent	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 2017, Cruise number 1702

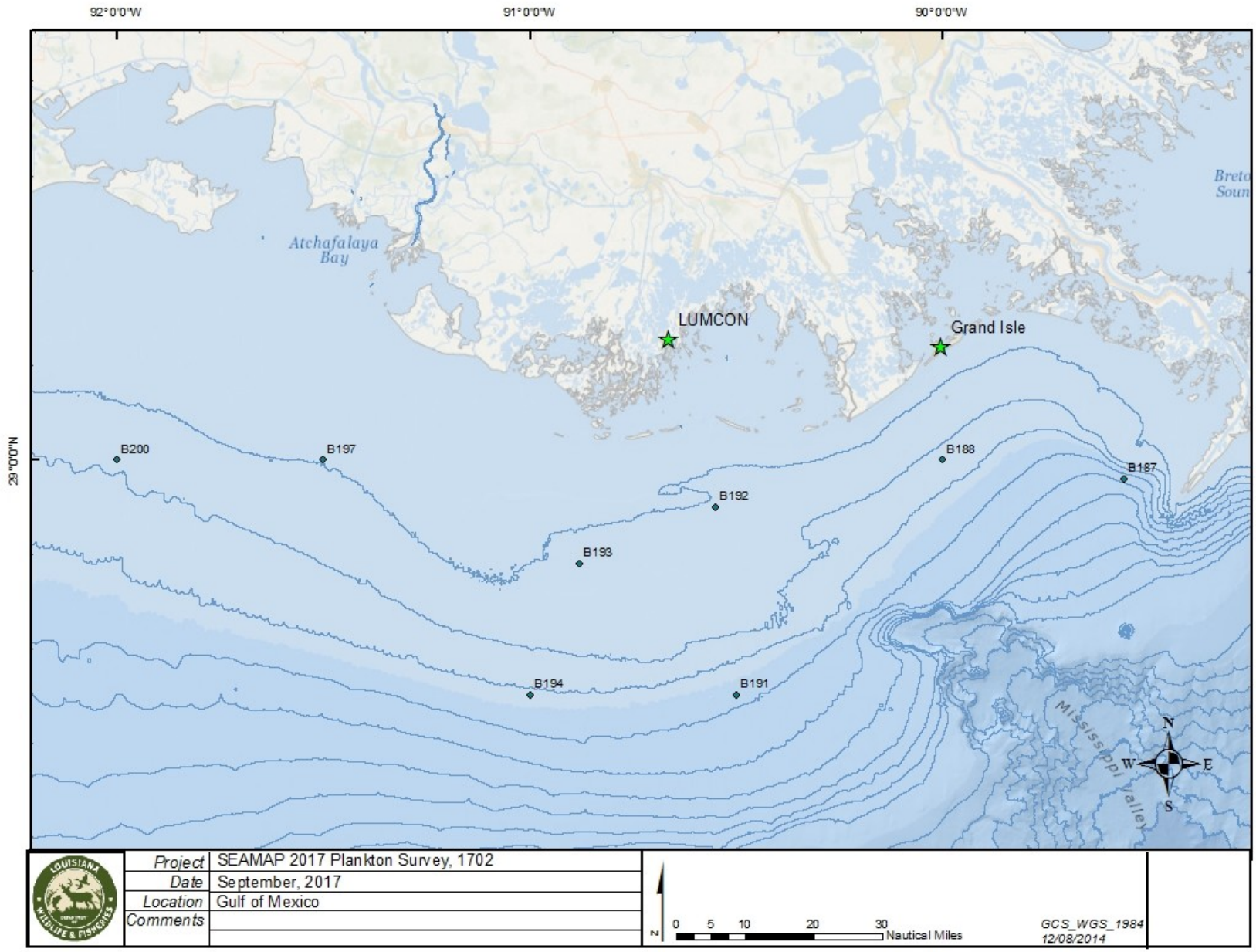

Table 1. SEAMAP plankton survey station details, Fall 2017, Cruise number 1702

							Salinty			Temperature			DO			Chlorophyll		
Station #	Pascagoula #	Date	Time	Latitude	Longitude	Depth	Top	Mid	Bottom	Top	Mid	Bottom	Top	Mid	Bottom	Top	Bottom	Plankton Tows
B200	97001	9/16/2017	1325	29°00.00	92°00.01	19	29.89	30.45	31.74	27.53	27.45	27.92	5.88	6.07	4.62	0.42	0.77	B/N
B197	97002	9/16/2017	1655	29°00.03	91°30.07	10.2	21.16	28.07	28.77	27.56	26.48	26.72	6.64	5.1	5.01	3.12	1.9	B/N
B193	97003	9/16/2017	2114	28°46.81	90°52.85	15.8	28.07	31.1	33.09	28.28	28.08	28.34	7.49	6.52	5.37	0.38	1.34	B/N
B194	97004	9/16/2017	2328	28°30.04	91°00.09	32.2	28.34	32.73	35.89	28.09	27.89	26.25	7.3	4.24	3.38	0.69	0.25	B/N
B191	97005	9/17/2017	1205	28°30.00	90°29.99	37.9	34.54	35.52	36.07	27.97	28.15	25.79	5.58	5.17	3.49	0.63	1.22	B/N
B192	97006	9/17/2017	1446	28°54.03	90°33.01	15.5	27.15	28.7	30.21	27.66	27.3	27.59	6.74	4.37	4.04	0.89	3.92	B/N
B188	97007	9/17/2017	1752	29°00.05	90°00.06	23.5	24.9	31.83	35.38	28.28	28.24	28.25	9.19	6.45	4.61	5.37	0.51	B/N
B187	97008	9/17/2017	2056	28°57.60	89°33.62	45.4	25.92	35.84	36.3	29.18	28.22	22.29	7.19	3.73	3.23	0.61	0.15	B/N

Table 2. Summary of plankton samples collected during the SEAMAP plankton survey, Fall 2017, Cruise number 1702

SEAMAP Station Number	Pascagoula Station Number	Date	Latitude	Longitude	Gear	Initial Preservative	Secondary Preservative	Sample Number
B200	97001	9/16/2017	29°00.00	92°00.01	Bongo Left	95% Ethanol	95% Ethanol	52565
B200	97001	9/16/2017	29°00.00	92°00.01	Bongo Right	10% Formalin	95% Ethanol	52566
B200	97001	9/16/2017	29°00.00	92°00.01	Neuston	95% Ethanol	95% Ethanol	52567
B197	97002	9/16/2017	29°00.03	91°30.07	Bongo Left	95% Ethanol	95% Ethanol	52568
B197	97002	9/16/2017	29°00.03	91°30.07	Bongo Right	10% Formalin	95% Ethanol	52569
B197	97002	9/16/2017	29°00.03	91°30.07	Neuston	95% Ethanol	95% Ethanol	52570
B193	97003	9/16/2017	28°46.81	90°52.85	Bongo Left	95% Ethanol	95% Ethanol	52571
B193	97003	9/16/2017	28°46.81	90°52.85	Bongo Right	10% Formalin	95% Ethanol	52572
B193	97003	9/16/2017	28°46.81	90°52.85	Neuston	95% Ethanol	95% Ethanol	52573
B194	97004	9/16/2017	28°30.04	91°00.09	Bongo Left	95% Ethanol	95% Ethanol	52574
B194	97004	9/16/2017	28°30.04	91°00.09	Bongo Right	10% Formalin	95% Ethanol	52575
B194	97004	9/16/2017	28°30.04	91°00.09	Neuston	95% Ethanol	95% Ethanol	52576
B191	97005	9/17/2017	28°30.00	90°29.99	Bongo Left	95% Ethanol	95% Ethanol	52577
B191	97005	9/17/2017	28°30.00	90°29.99	Bongo Right	10% Formalin	95% Ethanol	52578
B191	97005	9/17/2017	28°30.00	90°29.99	Neuston	95% Ethanol	95% Ethanol	52579
B192	97006	9/17/2017	28°54.03	90°33.01	Bongo Left	95% Ethanol	95% Ethanol	52580
B192	97006	9/17/2017	28°54.03	90°33.01	Bongo Right	10% Formalin	95% Ethanol	52581
B192	97006	9/17/2017	28°54.03	90°33.01	Neuston	95% Ethanol	95% Ethanol	52582
B188	97007	9/17/2017	29°00.05	90°00.06	Bongo Left	95% Ethanol	95% Ethanol	52583
B188	97007	9/17/2017	29°00.05	90°00.06	Bongo Right	10% Formalin	95% Ethanol	52584
B188	97007	9/17/2017	29°00.05	90°00.06	Neuston	95% Ethanol	95% Ethanol	52585
B187	97008	9/17/2017	28°57.60	89°33.62	Bongo Left	95% Ethanol	95% Ethanol	52586
B187	97008	9/17/2017	28°57.60	89°33.62	Bongo Right	10% Formalin	95% Ethanol	52587
B187	97008	9/17/2017	28°57.60	89°33.62	Neuston	95% Ethanol	95% Ethanol	52588