

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Center
Mississippi Laboratories
Pascagoula Facility
P.O. Drawer 1207
Pascagoula, MS 39568-1207

Small Pelagics Survey
NOAA Ship Chapman Cruise 92-01 (46)
3/5/92 - 4/17/92

INTRODUCTION

The NOAA Ship Chapman departed Pascagoula, Mississippi on March 5, 1992 to conduct a small pelagics survey in the northeastern and central Gulf of Mexico. Bottom trawling activities were conducted with a 90-foot (ft) bottom trawl. Personnel from the National Marine Fisheries Service participated and the cruise was divided into 3 legs for a total of 42 sea days.

OBJECTIVES

1. Collect catch samples with a 90-ft small pelagics trawl.
2. Collect environmental data at all trawl locations.
3. Collect coastal pelagic specimens for food technology.

METHODS

Gear - The 90-ft small pelagics trawl measured 90 ft on the headrope and 107 ft on the footrope. Mesh size of the trawl gradually reduced from 8-inch (in) stretch mesh in the wings and leading meshes of the trawl body, to 2.0-in mesh just ahead of the 3.75-in mesh codend. The codend contained a 7/8-in mesh liner. A 1.25-in mesh fish funnel was attached at the start of the 2-in webbing in the trawl body. The headrope was floated with twenty-four 10-in CIES floats with 17 pounds (lb) of floatation each, and a 9/16-in cable with 3-in rubber cookies was suspended by 12-in drop chains from the footrope to serve as ground gear. The trawl was fished with 4.5m³ "V" doors and rigged with 40 fathom(f) scissor bridles.

Standard evaluations and measurements of the trawl were made by using a Simrad FS3300 scanning netsonde unit.

Experimental Design - The survey area extended from the mid-Florida shelf region east of the Sarasota-Tampa Bay area to

south of Vermilion Bay, LA in depths from 10 - 166f. Stations were preselected at random along transect lines. Trawl sites in unfavorable sea-bottom areas were eliminated after a reasonable search for trawlable bottom. Each site was fished for 30 minutes with a 5 minute pulse of ship's speed at the end of each tow to flush the catch to the codend.

A net sonde was mounted on the headrope for most trawls and enabled the condition of the trawl, the trawl opening and trawl depth to be monitored. The maximum depth that the net sonde was used was limited by the length of the net sonde cable to 150 meters (m). Catches were sorted, species identified, enumerated, weighed and measured for length. Large catches were subsampled following established procedures. Data were recorded on station sheets with the consecutive tow number used to identify a station.

Environmental data collected at each trawl site included temperature and salinity profiles with an STD, surface chlorophyll, and surface, midwater and near-bottom dissolved oxygen measurements from water collected with Niskin bottles.

RESULTS

Eighty eight trawls were completed during the survey (Table 1). Catches were dominated by spanish sardine (Sardinella aurita), round herring (Etrumeus teres), rough scad (Trachurus lathami) and gulf butterfish (Peprilus burti) and round scad (Decapterus punctatus).

Demersal schools composed of seven species were captured between 13-143 fm in Florida Gulf coastal waters and on the continental shelf and slope. The following array shows the general distribution of the species.

		SPANISH SARDINE
		ROUND SCAD
		CHUB MACKEREL
		ROUND HERRING
		ROUGH SCAD
		GULF BUTTERFISH
		SILVER DRIFTFISH
CONT. SLOPE	CONT. SHELF	COASTAL WATERS

Spanish sardine and round scad were present in coastal waters in 10-28 fm, as was chub mackerel which was distributed on the

continental shelf to 68 fm. Round herring and rough scad were trawled on the shelf and continental slope to 143 fm. Gulf butterfish was absent from coastal waters but occurred on the shelf and slope, while silver driftfish was caught exclusively on the slope.

Round scad, Decapterus punctatus and spanish sardine, Sardinella aurita were the two dominant small pelagic species captured by the 90-ft high opening bottom trawl during the first leg of the trawl survey off Tampa Bay, FL (Table 1). Round scad contributed 46.7% of the total catch by weight (6,511 lb) while 36.5% (5,090 lb) consisted of spanish sardine. Round scad was always associated with spanish sardine and was distributed between Venice, FL and Cedar Key, FL in 10-28 fm. The estimated total number of round scad captured was 56,595. The size range of 413 fish was 13.0 - 19.5 cm FL; the modal size was 16.0 cm. Smaller fish having a modal length of 13.5 cm were caught offshore in 24 fm (sta. 10). The two size classes belong to separate age groups. Estimated ages are 1 and 2 years old according to studies based on length frequency distribution by Berkely and Houde.

Spanish sardine was distributed between Venice and Cedar Key in 10-28 fm. The estimated total number of sardines captured was 37,141. The offshore trawl survey catches occurred at the time when sardine schools were reported present on the traditional nearshore purse seine grounds near Tampa Bay. The size range of 258 fish was 10.5 - 18.5 cm FL. The majority were larger fish with modal lengths of 16.5 and 17.0 cm. Smaller fish with a modal length of 14 cm were caught offshore in 24 fm (sta. 10) 66.5 mi W. of Tarpon Springs. The two size classes belong to separate age groups. Estimated ages are 2 and 3 years old according to studies by Grail (1984) using otoliths.

The salinity probe for the STD did not function properly so salinity samples were collected for verification in the laboratory. Samples of fish collected for food technology purposes were boxed and frozen at sea with a commercial-grade plate freezer. Some of the samples were either chilled in refrigerated seawater or chilled in an ice-salt mixture prior to freezing. Approximately 500 lb of various small pelagics were collected during the survey.

CRUISE PARTICIPANTS:

Leg I (3/5/92 - 3/18/92):

Chris Gledhill	Fishery Biologist	NMFS, Pascagoula
Mark Grace	Fishery Biologist	NMFS, Pascagoula
Nelson May	Remote Sensing Spec.	Bay St. Louis, MS
Ken Wilkenson	Electronic Technician	Bay St. Louis, MS
Charlie Roithmayr	Field Party Chief	NMFS, Pascagoula

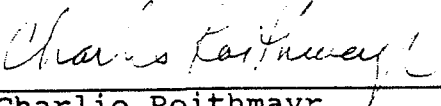
Leg II (3/21/92 - 4/1/92):

Dominy Hataway	Fishery Biologist	NMFS, Pascagoula
Dan Foster	Fishery Biologist	NMFS, Pascagoula
Miriam Hahn	Biological Technician	NMFS, Pascagoula
Mike Jahncke	Food Technologist	NMFS, Pascagoula
Mark Grace	Field Party Chief	NMFS, Pascagoula

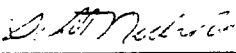
Leg III (4/4/92 - 4/17/92):

Dominy Hataway	Fishery Biologist	NMFS, Pascagoula
Dan Foster	Fishery Biologist	NMFS, Pascagoula
Charlie Roithmayr	Fishery Biologist	NMFS, Pascagoula
Gladys Reese	Field Party Chief	NMFS, Pascagoula


SUBMITTED BY:



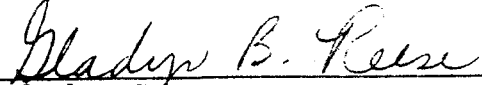
Charlie Roithmayr
Field Party Chief
Leg I



Scott Nichols
Director
Mississippi Laboratories

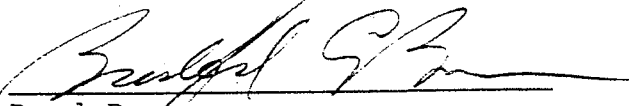


Mark Grace
Field Party Chief
Leg II



Gladys Reese
Field Party Chief
Leg III

APPROVED BY:



Brad Brown
Acting Director SEFC

Date:

9/25/92

CHAPMAN Cruise 92-01 Trawl Station and Species Composition Data
March 5 - April 17, 1992

Station	Latitude	Longitude	Depth FM	Total Catch, Kg ¹	Dominant spp.	Catch, Kg	% Catch
1	2722.50	8421.60	70	523.9	Red Goatfish	187.1	35.7
					Pinfish	137.4	26.2
					Butterfish	107.1	20.4
2	2707.06	8415.04	68	122.5	Pinfish	52.8	43.1
					Rough Scad	26.8	21.9
					Butterfish	20.8	17.0
3	2703.30	8314.10	21	26.3	Knobbed Porgy	12.5	47.6
					Vermillion Snapper	4.3	16.4
4	2710.95	8250.00	10	33.6	Pinfish	13.7	40.8
					Sand Perch	12.3	36.6
					Round Scad	5.4	16.1
5	2711.92	8300.02	14	680.4	Spanish Sardine	323.4	47.5
					Round Scad	187.9	27.6
					Tomtate	31.8	4.7
6	2740.00	8305.00	13	244.9	Tomtate	139.6	57.0
					Round Scad	28.6	11.7
7	2737.82	8312.68	14	1961.8	Spanish Sardine	937.3	47.8
					Round Scad	748.0	38.1
					Tomtate	174.0	8.9
8	2816.30	8336.80	16	55.8	Orange Filefish	13.4	24.1
					Vermillion Snapper	13.2	23.7
9	2814.10	8349.11	17	180.5	Round Scad	74.6	41.3
					Spanish Sardine	37.0	20.5
10	2809.12	8402.43	24	190.1	Spanish Sardine	126.4	66.5
					Round Scad	26.6	14.0
					Sharpnose Shark	12.4	6.5
11	2758.03	8405.26	24	2413.3 ²	Round Scad	1457.6	60.4
					Spanish Sardine	861.5	35.7
					Chub Mackerel	38.6	1.6
12	2802.29	8442.16	61	78.9	Rough Scad	39.1	49.6
					Round Herring	10.4	13.2
					Butterfish	8.9	11.3
13	2745.48	8441.35	104	15.9	Round Herring	7.9	49.7
					Longfin Squid	3.9	24.6
					Butterfish	1.3	8.3
14	2752.67	8453.64	134	7.3	Night Shark	3.3	45.6
					Butterfish	1.1	15.0

¹ Kilograms per 30 minute haul, 1 kg = 2.2046 pound

² fifteen minute haul

Station	Latitude	Longitude	Depth FM	Total Catch, Kg ¹	Dominant spp.	Catch, Kg	% Catch
15	2758.78	8504.75	165	9.5	Shortfin Squid Longfin Squid	5.9 0.8	61.9 8.6
16	2802.19	8503.25	142	15.4	Silver Driftfish Butterfish Longfin Squid	5.8 3.7 1.8	37.7 24.0 12.0
17	2821.08	8455.97	55	91.2	Rough Scad Chub Mackerel	51.7 7.4	56.7 8.2
18	2838.31	8445.96	28	514.8	Round Scad Spanish Sardine	447.3 16.6	86.9 3.2
19	2815.43	8516.32	122	66.7	Rough Scad Butterfish Silver Driftfish	38.2 18.3 7.7	57.3 27.4 11.5
20	2821.70	8515.40	99	6.0	Butterfish Longfin Squid	5.2 0.6	86.7 9.2
21	2829.50	8524.10	106	50.8	Butterfish Rough Scad	29.1 9.3	57.2 18.3
22	2828.70	8535.87	125	34.2	Greater Amberjack	33.5	98.0
23	2836.91	8545.61	134	15.4	Longfin Squid	9.7	62.9
24	2922.44	8740.95	62	47.6	Butterfish Rough Scad	34.0 4.2	71.4 8.9
25	2930.43	8739.71	30	7.7	Sharpnose Shark	6.1	78.8
26	2948.11	8744.02	20	105.7	Longspine Porgy Longfin Squid	96.0 8.2	90.9 7.7
27	2916.80	8618.50	140	11.0	Luminous Hake	4.7	42.4
28	2914.20	8615.80	143	33.1	Luminous Hake Longfin Squid	16.8 7.4	50.7 22.3
29	2923.25	8614.56	97	50.3	Rough Scad Longfin Squid	21.6 15.1	43.0 30.0
30	2848.70	8603.60	164	18.1	Longfin Squid	10.8	59.5
31	2841.50	8549.00	138	63.5	Longfin Squid Silver Driftfish	37.3 8.8	58.8 13.8
32	2844.44	8530.03	93	16.8	Butterfish Round Herring Rough Scad	5.3 2.8 2.7	31.6 16.8 16.2
33	2900.90	8537.00	76	313.4	Round Herring Butterfish Longfin Squid	308.6 4.2 0.8	98.5 1.3 0.3
34	3000.50	8545.90	12	39.9	Longfin Squid	32.4	81.1

¹ Kilograms per 30 minute haul, 1 kg = 2.2046 pound

Station	Latitude	Longitude	Depth FM	Total Catch, Kg ¹	Dominant spp.	Catch, Kg	% Catch
35	2946.31	8549.37	20	536.6	Longspine Porgy Round Scad	305.0 47.2	56.8 8.8
36	2934.90	8611.60	50	185.1	Butterfish Rough Scad	128.3 42.1	69.3 22.8
37	2937.60	8602.30	22	31.3	Longspine Porgy Longfin Squid	28.1 1.2	89.7 3.8
38	2934.58	8554.28	23	124.7	Longspine Porgy Red Snapper	75.0 8.0	60.1 6.4
39	2935.50	8600.30	24	218.2	Longspine Porgy	215.3	98.7
40	2924.90	8540.50	19	806.9	Pinfish Round Scad	235.2 187.2	29.1 23.2
41	2915.90	8555.90	68	331.6	Round Herring Rough Scad Butterfish	158.9 99.4 55.3	47.9 30.0 16.7
42	2942.88	8625.45	65	273.5	Butterfish Rough Scad	158.2 101.2	57.8 37.0
43	2941.30	8628.80	74	73.0	Butterfish Silver Driftfish Rough Scad	57.3 6.7 4.5	78.4 9.2 6.1
44	2956.10	8630.20	43	0.9	Longspine Porgy Longfin Squid	0.6 0.1	65.0 10.0
45	2952.59	8647.07	79	218.2	Butterfish Rough Scad Silver Driftfish	83.2 43.4 40.5	38.1 19.9 18.6
46	2932.90	8836.20	15	24.0	Sharpnose Shark King Mackerel	8.0 4.3	33.2 17.9
47	2933.80	8832.10	23	34.9	Butterfish Sharpnose Shark	18.5 14.0	53.0 40.1
48	2927.91	8825.57	30	51.7	Butterfish	46.8	90.5
49	2928.80	8842.70	12	206.8	Blue Runner Scaled Sardine Thread Herring	77.9 31.6 26.9	37.7 15.3 13.0
50	2919.90	8831.80	33	89.8	Round Herring Butterfish	43.5 14.2	48.4 15.8
51	2918.85	8856.85	13	66.2	Sharpnose Shark	38.9	58.8
52	2911.58	8829.40	85	670.4	Butterfish	640.4	95.5
53	2907.60	8830.80	135	15.4	Scorpionfish	5.4	35.0
54	2904.91	8831.56	185	9.5	Luminous Hake	2.2	23.3

¹ Kilograms per 30 minute haul, 1 kg = 2.2046 pound

Station	Latitude	Longitude	Depth FM	Total Catch, Kg ¹	Dominant spp.	Catch, Kg	% Catch
55	2905.00	8834.90	150	19.1	Luminous Hake	5.2	27.1
56	2859.84	8841.80	158	15.9	Beardfish	5.0	31.7
57	2903.39	8851.37	62	49.3	South Eagle Ray Luminous Hake Sharpnose Shark	21.3 20.4 4.3	43.1 41.4 8.7
58	2903.83	8846.86	82	55.8	Fl. Smoothhound Luminous Hake	28.4 13.9	50.9 24.9
59	2855.50	8850.50	166	15.0	Cuban Dogfish	7.6	50.9
60	2854.80	8854.40	137	54.0	Cuban Dogfish Luminous Hake	14.2 12.2	26.3 22.7
61	2853.08	8901.18	92	51.3	Luminous Hake Fl. Smoothhound	32.7 10.0	63.8 19.5
62	2846.49	8913.83	82	86.2	Fl. Smoothhound Luminous Hake	38.7 18.8	44.9 21.8
63	2842.70	8914.30	93	59.4	Luminous Hake Fl. Smoothhound	27.4 7.3	46.2 12.2
64	2837.52	8912.58	145	13.6	Yellowedge Grouper	6.4	47.0
65	2851.11	9006.98	15	20.4	Striped Anchovy	10.1	49.3
66	2848.70	9027.80	10	336.6	Thread Herring Striped Anchovy	158.6 55.8	47.1 16.6
67	2843.10	9023.65	12	318.4	Scaled Sardine Thread Herring Striped Anchovy	125.7 103.1 67.0	39.5 32.4 21.0
68	2840.98	9015.03	17	42.2	Atlantic Croaker	10.0	23.7
69	2840.78	9015.03	37	126.1	Cutlassfish Butterfish	114.0 3.4	90.4 2.7
70	2812.80	9010.60	71	236.3	Butterfish Rough Scad	169.0 41.2	71.5 17.4
71	2817.41	9021.74	37	88.5	Cutlassfish Harvestfish	33.3 15.3	37.7 17.3
72	2818.32	9033.40	31	56.2	Sand Seatrout Rough Scad	14.1 13.0	25.0 23.1
73	2813.03	9039.18	43	79.4	Sharpnose Shark Spanish Mackerel Harvestfish	28.0 19.0 11.2	35.3 23.9 14.1
74	2758.80	9037.50	147	3.6	Longfin Squid Shortfin Squid	2.8 0.4	77.5 11.3

¹ Kilograms per 30 minute haul, 1 kg = 2.2046 pound

Station	Latitude	Longitude	Depth FM	Total Catch, Kg ¹	Dominant spp.	Catch, Kg	% Catch
75	2757.63	9044.39	143	7.2	Longfin Squid Shortfin Squid	5.1 1.9	71.2 25.9
76	2812.31	9100.77	43	29.5	Butterfish Rough Scad Sharpnose Shark	12.9 11.5 2.3	43.8 39.1 7.8
77	2808.70	9050.80	62	225.4	Rough Scad Butterfish Fl. Smoothhound	104.0 52.8 49.9	46.1 23.4 22.1
78	2802.72	9055.72	72	186.4	Rough Scad Chub Mackerel	145.8 29.9	78.2 16.0
79	2802.98	9107.88	66	102.5	Rough Scad Butterfish Fl. Smoothhound	49.0 40.8 6.5	47.8 39.8 6.3
80	2802.68	9141.43	60	638.7	Butterfish Rough Scad	576.4 29.8	90.2 4.7
81	2808.58	9147.46	47	79.8	Butterfish Sharpnose Shark	34.5 15.6	43.2 19.5
82	2808.20	9214.20	46	11.8	Longspine Porgy Butterfish Sharpnose Shark	5.5 2.3 1.7	46.5 19.6 14.2
83	2827.20	9206.00	28	66.2	Sharpnose Shark	44.0	66.4
84	2828.49	9142.97	29	44.0	Sharpnose Shark Butterfish	38.0 2.3	86.4 5.3
85	2851.97	9147.10	13	69.4	Thread Herring Longfin Squid King Mackerel	25.4 9.0 8.9	36.7 12.9 12.8
86	2843.40	9147.10	15	10.4	Cutlassfish Longfin Squid Butterfish	4.4 1.7 1.2	42.2 16.1 11.3
87	2842.20	9152.10	19	91.2	Sharpnose Shark Round Herring Smalleye Hammerhead	64.0 11.2 10.2	70.2 12.2 11.2
88	2850.27	9213.40	17	59.9	Thread Herring Sharpnose Shark	27.6 20.5	46.1 34.2

¹ Kilograms per 30 minute haul, 1 kg = 2.2046 pound