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National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
Mississippi Laboratories
Pascagoula Facility
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Reef Fish Survey
NOAA Ship CHAPMAN Cruise 97-04(80)
6/20/97 - 8/18/97

INTRODUCTION

The NOAA Ship CHAPMAN departed Pascagoula, Mississippi on June 20, 1997 to conduct the fifth annual SEAMAP trap/video reef fish survey. A total of 54 out of 57 scheduled sea-days were completed. Two days were lost to the first leg because of generator problems, these days were added to the end of the fourth leg. Two days at the end of leg two were lost due to adverse weather associated with Hurricane Danny. The ship returned to Pascagoula on August 18, 1997; one day earlier than scheduled after finishing the assigned work.

OBJECTIVES

1. Determine the relative abundance of reef fish populations and habitat using a fish trap/video recording system (T/V) or four-camera rig (4C).
2. Determine the relative abundance and vertical distribution of reef fish using a Simrad EK500 fisheries acoustic system (FAS).
3. Map reefs using a Simrad EK500 fisheries acoustic system.
4. Collect environmental data at each station.

METHODS

Natural reef fish habitat from Brownsville, Texas to the southern tip of Florida at 81°00' W longitude and 24°02' N latitude between 9 m and 110 m was marked on navigation charts. The Gulf of Mexico within the above boundaries was divided into four

areas: Texas (west of 94° 00' W longitude), Louisiana (between 94°00 W and 89°30' W longitude), Northeast (east of 89°30' W longitude and north of 27°30 N latitude) and Southeast (east of 89°30' W longitude and south of 27°30 N latitude). Each of these areas were divided into 10 by 10 nautical mile blocks (Primary Sample Units) and those blocks containing natural reef fish habitat were available to be selected for sampling. Each reef habitat block was divided into 100-m^2 sample units and each of those units is then characterized as "reef" or "nonreef". The number of "reef" sites in a block is a measure of the size of that block. Blocks were selected proportional to the number of reef sites it contained. Reefs were mapped within each selected block by first systematically surveying them at night with the FAS along transects that ran across isobaths. The spacing of transects depended on the size of the area surveyed and varied from 0.20 nautical mile to 1 nautical mile. Reef sites were selected by first randomly selecting a transect and then randomly selecting a point along that transect within a specified depth range. Eight to ten reef sites were then chosen from selected transects using a stratified-random procedure, with strata defined by four depth ranges (< 40 m; 40 - 60 m; 60 - 80 m and 80 - 110 m). The number of sites within each depth stratum depended on the depth range of the reef sampled. Navigation used was GPS with P-codes.

Sampling used either a 4-camera rig (4C) or a trap/video (T/V), and began one hour after sunup and ended one hour before sunset. The 4C rig consisted of a frame with 4 Hi-8mm cameras in underwater housings mounted orthogonally, with cameras mounted at a height of 25 cm above the bottom. The T/V gear consisted of a Hi-8 mm video camera in an underwater housing mounted outside a single funnel fish trap (2.13 m long by 0.76 m square). The T/V or 4C gear were baited with squid and soaked on bottom for at least 30 minutes.

The fisheries acoustic system (Simrad EK500) was used to survey sample sites, and operated at 38 kHz. A total of two passes over each site were made with the FAS, with the second pass attempting to replicate the course of the first pass. Transects were 0.1 nautical miles in length centered over the video site. The 4C or T/V gear was deployed during the first pass.

Associated environmental data collected at each site with a CTD included profiles of salinity, temperature, dissolved oxygen, light transmittance, irradiance (PAR), fluorescence and depth.

RESULTS

A total of 302 sites were sampled, 28 sites with the T/V and 274 sites with the 4C rig (Figure 1, Tables 1 and 2). Forty-three primary blocks were mapped and sampled with an two additional blocks mapped but not sampled (Table 3). Two FAS transects over soaking camera gear were conducted at 290 stations. The FAS data could not be

archived at four stations due to the computer crashing and the GPS signal to the FAS was lost at eight stations (Tables 1 and 2).

Temperature, salinity, depth, dissolved oxygen, light transmittance, irradiance (PAR), and fluorescence profiles were measured with a CTD at 303 sites. Only a CTD was used at the first site sampled during the survey to obtain a speed-of-sound profile for the FAS. The fluorometer on the CTD broke during the third leg and was removed, no chlorophyl samples were collected.

A total of twelve species were captured in the fish traps (Table 4). Fish capture was highest in the Northeast area. Red porgy (Pagrus pagrus) dominated the catch east of the Mississippi River. Red snapper (Lutjanus campechanus) and Grey triggerfish (Balistes capriscus) dominated the catch west of the Mississippi River.

Substrate samples were incidently collected at 44 stations (Table 5). These samples were collected by the 4C rig upon retrival of the gear. These were saved to be identified to help with the habitat classification of reef sites from the video.

Opportunistic sightings of marine mammals and sea turtles were recorded during the course of the cruise. A total of thirty dolphin sightings (Figure 2) and ten sea turtle sightings (Figure 3) were documented.

CRUISE PARTICIPANTS (NOAA only):

Leg 1: (6/20/97 - 7/03/97): 14 sea-days

Chris Gledhill	Chief Scientist	NMFS, Pascagoula, MS
Kevin Rademacher	Field Party Chief	JohnCon/NOAA, Pascagoula, MS
Melissa Bahnick	Fishery Biologist	JohnCon/NOAA, Pascagoula, MS
Ken Wilkinson	Electronics Tech.	JohnCon/NOAA, Stennis SC, MS

Leg 2: (7/05/97 - 7/18/97): 14 sea-days

Kevin Rademacher	Field Party Chief	JohnCon/NOAA, Pascagoula, MS
Melissa Bahnick	Fishery Biologist	JohnCon/NOAA, Pascagoula, MS
Ken Wilkinson	Electronic Tech.	JohnCon/NOAA, Stennis SC, MS
Denice Drass	Fishery Biologist	JohnCon/NOAA, Pascagoula, MS

Leg 3: (7/23/97 - 8/04/97): 13 sea-days

Kevin Rademacher	Field Party Chief	JohnCon/NOAA, Pascagoula, MS
Melissa Bahnick	Fishery Biologist	JohnCon/NOAA, Pascagoula, MS
Ken Wilkinson	Electronics Tech.	JohnCon/NOAA, Stennis SC, MS
David Hanisko	Fishery Biologist	JohnCon/NOAA, Pascagoula, MS

Leg 4: (8/06/97 - 8/18/97): 13 sea-days

Kevin Rademacher	Field Party Chief	JohnCon/NOAA, Pascagoula, MS
Melissa Bahnick	Fishery Biologist	JohnCon/NOAA, Pascagoula, MS
Ken Wilkinson	Electronics Tech.	JohnCon/NOAA, Stennis SC, MS

CRUISE PARTICIPANTS (Cooperators):

Leg 1: (6/20/97 - 7/03/97): 14 sea-days

Terri Koepke	Teacher, Texas	NOAA Teacher @ Sea
Jennifer Miller	UNC Wil. Student	Cooperator

Leg 2: (7/057/97 - 7/18/97): 14 sea-days

Carol Rapheal	Teacher, Virginia	NOAA Teacher @ Sea
Lisa Clements	Teacher, Arizona	NOAA Teacher @ Sea

Leg 3: (7/23/97 - 8/04/97): 13 sea-days

Greg Moen	Teacher, Minnesota	NOAA Teacher @ Sea

Leg 4: (8/06/97 - 8/18/97): 13 sea-days

Debora Mosher	Teacher, Virginia	NOAA Teacher @ Sea
Sister Jeremy Mahala	Teacher, Pennsylvania	NOAA Teacher @ Sea

SUBMITTED BY:

Kevin R. Rademacher
Field Party Chief

Dr. Scott Nichols, Director
Mississippi Laboratories

APPROVED BY:

Dr. Bradford E. Brown
Director SEFSC

10/6/97
Date

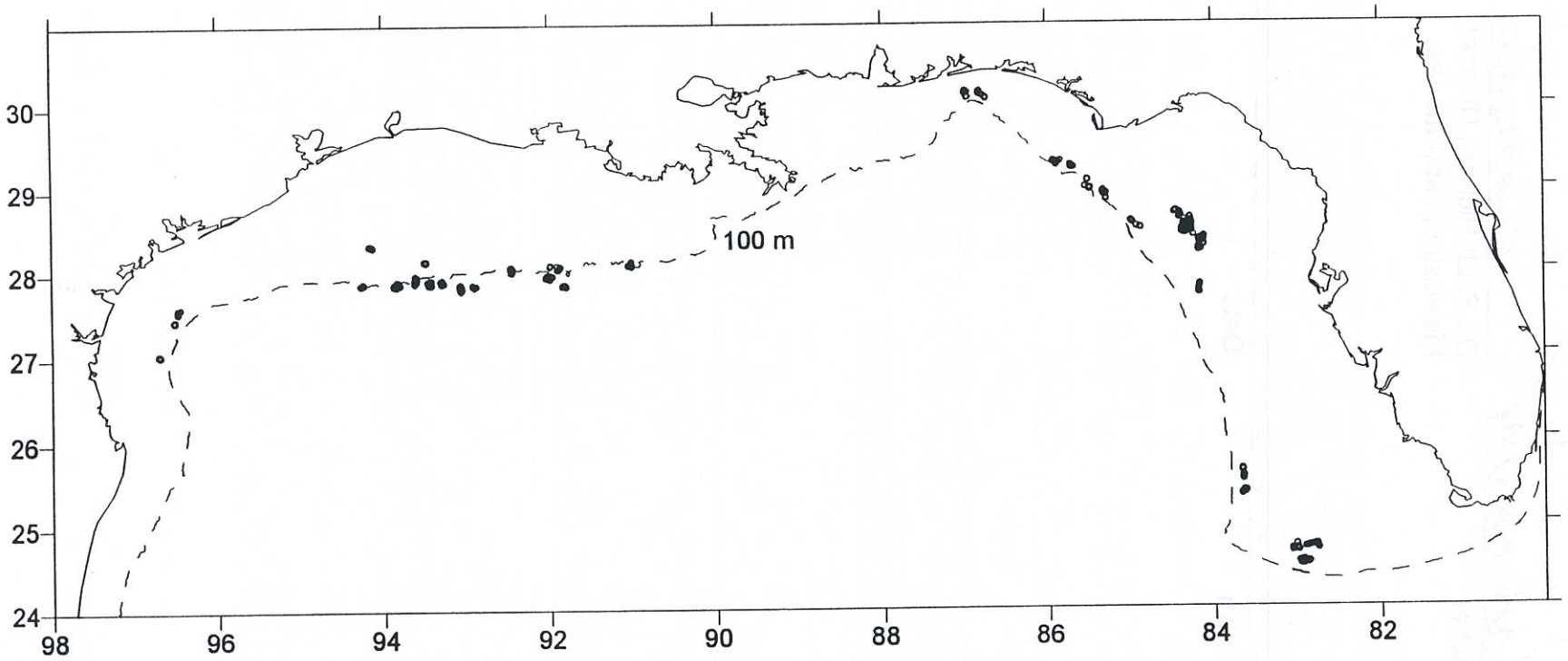

Figure 1. Sites sampled during CHAPMAN 97-04(80), (n = 302).

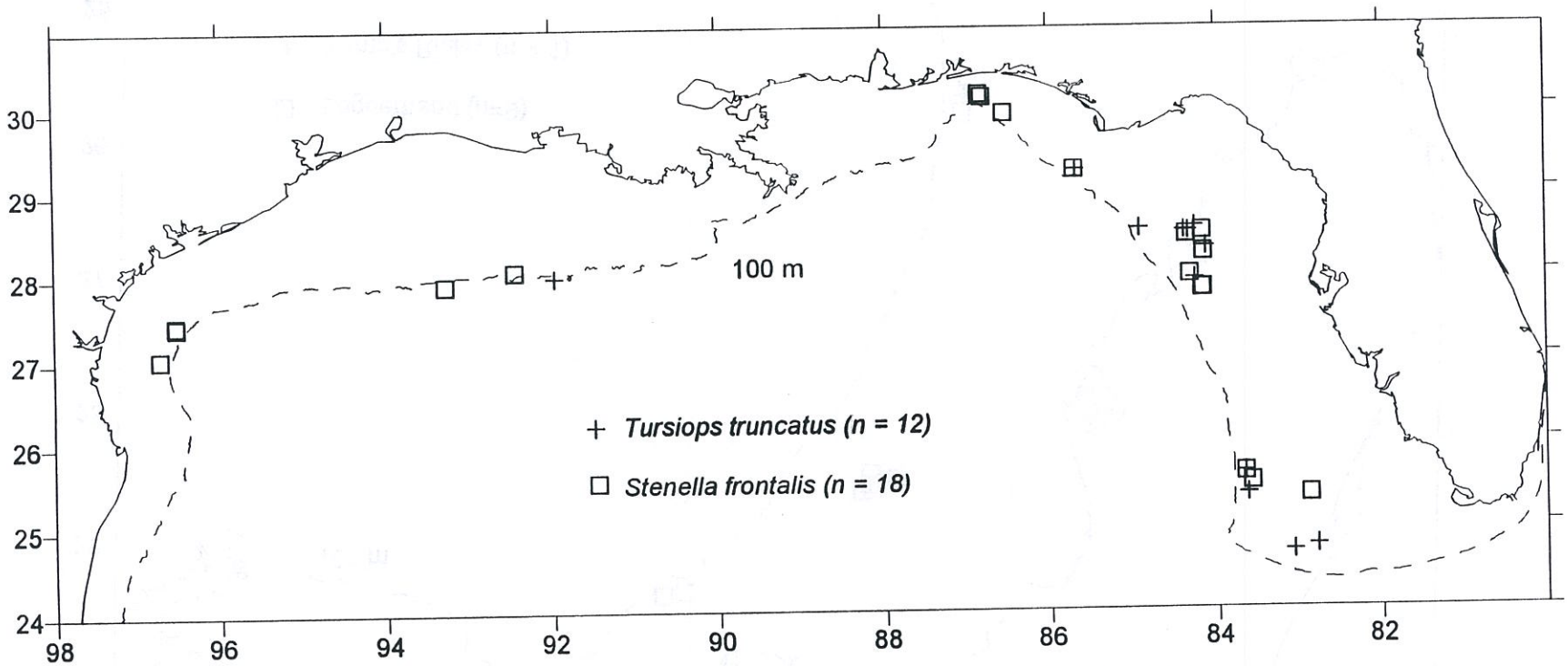

Figure 2. Opportunistic sightings of dolphins during CHAPMAN 97-04(80).

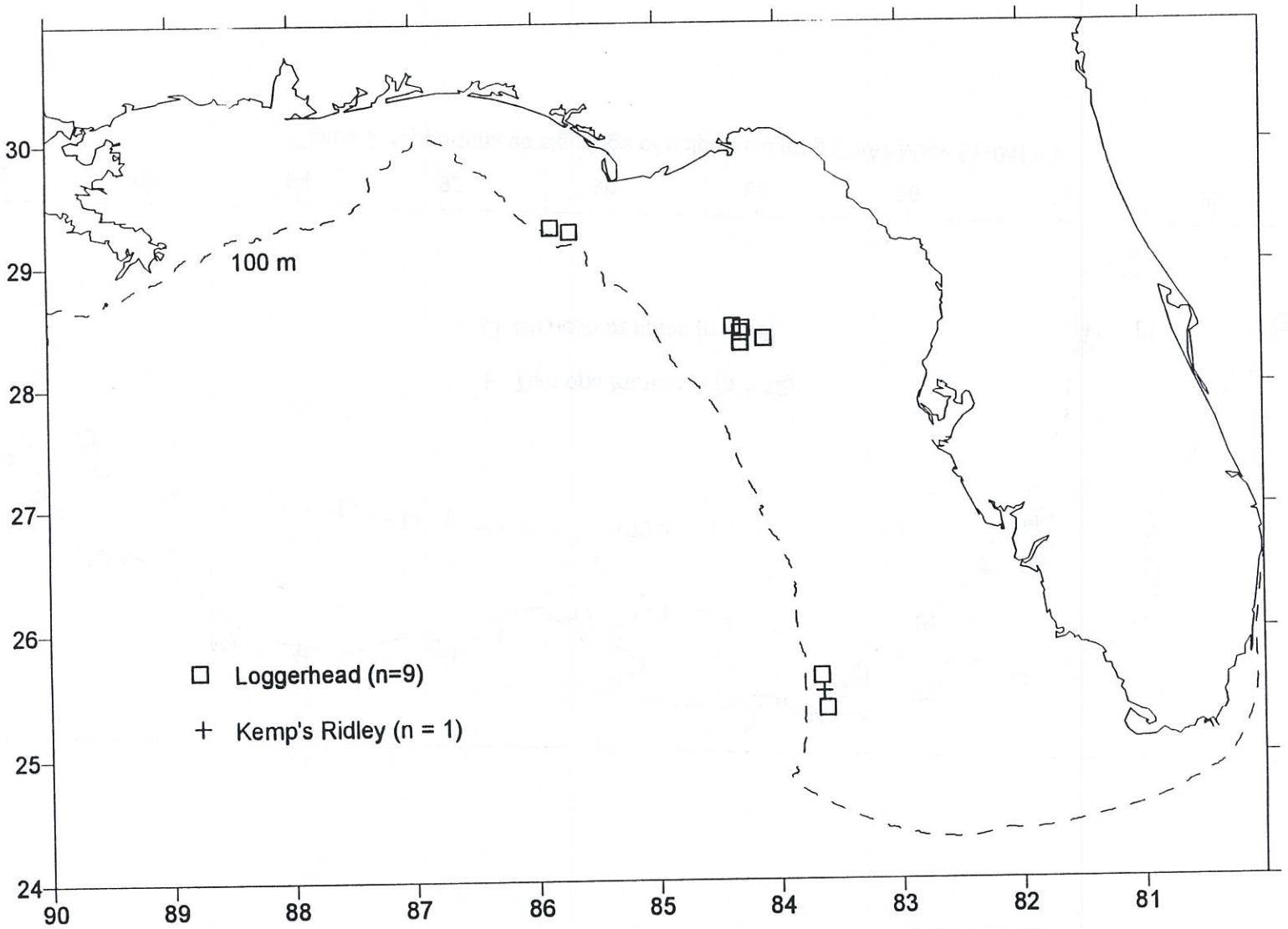

Figure 3. Opportunistic sightings of sea turtles during CHAPMAN 97-04(80).

Table 1. Stations sampled during Chapman Cruise 97-04 (CTD: Environmental Profiler; 4C: 4 camera rig; TV: Trap video; TR: Trap; FAS: Fisheries Acoustic System)

STA	DATE	LATITUDE	LONGITUDE	DEPTH meters	GEAR
001	20 June, 1997	30° 10.14'	86° 59.07'	26.5	CTD
002	21 June, 1997	30° 05.78'	86° 57.39'	53.2	4C
003	21 June, 1997	30° 05.54'	86° 57.83'	53.0	4C, TR
004	21 June, 1997	30° 09.39'	86° 57.85'	31.9	4C
005	21 June, 1997	30° 08.43'	86° 59.28'	31.8	4C
006	22 June, 1997	30° 10.08'	86° 48.78'	30.5	4C, FAS
007	22 June, 1997	30° 09.76'	86° 49.15'	34.9	4C, FAS
008	22 June, 1997	30° 08.28'	86° 49.16'	43.2	4C, FAS
009	22 June, 1997	30° 07.53'	86° 47.80'	51.9	4C, FAS
010	22 June, 1997	30° 07.65'	86° 47.20'	45.4	4C, FAS
011	22 June, 1997	30° 07.08'	86° 46.28'	42.6	4C, FAS
012	22 June, 1997	30° 05.60'	86° 44.20'	54.0	4C, FAS
013	22 June, 1997	30° 04.77'	86° 44.19'	57.4	4C, TR, FAS
014	23 June, 1997	29° 16.45'	85° 42.67'	67.4	4C, FAS
015	23 June, 1997	29° 16.13'	85° 42.17'	59.1	4C, FAS
016	23 June, 1997	29° 16.08'	85° 42.17'	58.5	4C, FAS
017	23 June, 1997	29° 14.36'	85° 42.17'	70.8	4C, FAS
018	23 June, 1997	29° 14.31'	85° 41.60'	68.6	4C, TR, FAS
019	23 June, 1997	29° 15.18'	85° 41.09'	61.5	4C, FAS
020	23 June, 1997	29° 14.80'	85° 41.16'	69.1	4C, FAS
021	23 June, 1997	29° 14.61'	85° 40.15'	64.5	4C, FAS
022	24 June, 1997	28° 59.46'	85° 29.04'	68.5	4C, FAS
023	24 June, 1997	28° 58.96'	85° 28.77'	70.0	4C, FAS
024	24 June, 1997	28° 58.69'	85° 28.52'	111.9	4C, FAS
025	24 June, 1997	28° 59.46'	85° 28.23'	59.7	4C, FAS
026	25 June, 1997	28° 42.63'	84° 26.37'	34.2	4C, FAS
027	25 June, 1997	28° 42.44'	84° 26.44'	34.2	4C, FAS
028	25 June, 1997	28° 41.46'	84° 27.53'	34.9	4C, FAS
029	25 June, 1997	28° 41.09'	84° 23.79'	28.0	4C, TR, FAS
030	25 June, 1997	28° 40.90'	84° 23.55'	27.0	4C, FAS
031	25 June, 1997	28° 40.66'	84° 23.50'	26.5	4C, FAS
032	25 June, 1997	28° 40.59'	84° 23.93'	31.1	4C, FAS
033	25 June, 1997	28° 40.30'	84° 23.50'	27.8	4C, FAS
034	25 June, 1997	28° 40.13'	84° 23.94'	30.0	4C, FAS
035	26 June, 1997	28° 30.75'	84° 21.13'	31.7	4C, FAS
036	26 June, 1997	28° 31.73'	84° 20.12'	28.0	4C, FAS
037	26 June, 1997	28° 32.29'	84° 20.47'	28.5	4C, FAS
038	26 June, 1997	28° 32.78'	84° 20.87'	27.0	4C, TR, FAS

Table 1. Continued.

STA	DATE	LATITUDE	LONGITUDE	DEPTH meters	GEAR
039	26 June, 1997	28° 33.80'	84° 20.14'	27.7	4C, FAS
040	26 June, 1997	28° 35.70'	84° 20.55'	29.6	4C, FAS
041	26 June, 1997	28° 37.70'	84° 24.10'	33.3	4C, FAS
042	26 June, 1997	28° 38.75'	84° 22.67'	25.0	4C, FAS
043	26 June, 1997	28° 39.26'	84° 23.49'	27.8	4C, FAS
044	27 June, 1997	28° 31.80'	84° 19.00'	37.8	4C, FAS
045	27 June, 1997	28° 32.89'	84° 15.14'	30.5	4C, TR, FAS
046	27 June, 1997	28° 32.89'	84° 14.75'	29.3	4C, FAS
047	27 June, 1997	28° 33.26'	84° 15.01'	31.1	4C, FAS
048	27 June, 1997	28° 33.78'	84° 15.78'	25.7	4C, FAS
049	27 June, 1997	28° 34.20'	84° 16.33'	24.2	4C, FAS
050	27 June, 1997	28° 35.20'	84° 15.60'	32.7	4C, FAS
051	27 June, 1997	28° 37.20'	84° 15.81'	32.8	4C, FAS
052	27 June, 1997	28° 37.74'	84° 16.41'	29.4	4C, FAS
053	28 June, 1997	28° 29.72'	84° 20.60'	33.7	4C, FAS
054	28 June, 1997	28° 29.72'	84° 20.60'	30.2	4C, TR, FAS
055	28 June, 1997	28° 29.24'	84° 21.91'	30.2	4C, FAS
056	28 June, 1997	28° 28.73'	84° 22.21'	31.0	4C, FAS
057	28 June, 1997	28° 27.00'	84° 22.20'	40.1	4C, FAS
058	28 June, 1997	28° 27.40'	84° 20.40'	43.9	4C, FAS
059	28 June, 1997	28° 26.70'	84° 21.29'	39.2	4C, TR, FAS
060	28 June, 1997	28° 26.20'	84° 20.70'	40.9	4C, FAS
061	28 June, 1997	28° 26.76'	84° 20.08'	38.4	4C, FAS
062	29 June, 1997	28° 24.82'	84° 13.67'	34.7	4C, FAS
063	29 June, 1997	28° 26.25'	84° 19.34'	33.9	4C, FAS
064	29 June, 1997	28° 27.24'	84° 18.13'	30.0	4C, FAS
065	29 June, 1997	28° 28.28'	84° 18.76'	30.2	4C, FAS
066	29 June, 1997	28° 28.32'	84° 16.99'	26.6	4C, TR, FAS
067	29 June, 1997	28° 28.70'	84° 16.90'	30.0	4C, FAS
068	29 June, 1997	28° 27.80'	84° 14.80'	30.7	4C, FAS
069	29 June, 1997	28° 29.30'	84° 15.20'	27.3	4C, FAS
070	30 June, 1997	28° 20.79'	84° 09.79'	32.8	4C, FAS
071	30 June, 1997	28° 21.26'	84° 08.12'	32.7	4C, TR, FAS
072	30 June, 1997	28° 21.27'	84° 06.47'	33.3	4C, FAS
073	30 June, 1997	28° 21.71'	84° 06.71'	36.0	4C, FAS
074	30 June, 1997	28° 21.77'	84° 08.40'	36.7	4C, FAS
075	30 June, 1997	28° 22.40'	84° 09.30'	36.5	4C, FAS
076	30 June, 1997	28° 22.14'	84° 09.70'	33.8	4C, FAS

Table 1. Continued.

STA	DATE	LATITUDE	LONGITUDE	DEPTH meters	GEAR
077	30 June, 1997	28° 23.23'	84° 06.66'	35.0	4C, FAS
078	30 June, 1997	28° 23.77'	84° 06.00'	32.3	4C, FAS
079	1 July, 1997	28° 19.46'	84° 07.95'	36.1	4C, FAS
080	1 July, 1997	28° 19.37'	84° 09.49'	32.9	4C, FAS
081	1 July, 1997	28° 17.93'	84° 06.47'	33.9	4C, TR, FAS
082	1 July, 1997	28° 17.41'	84° 06.45'	33.5	4C, FAS
083	1 July, 1997	28° 15.50'	84° 10.00'	39.1	4C, FAS
084	1 July, 1997	28° 14.60'	84° 08.90'	35.6	4C, FAS
085	1 July, 1997	28° 14.30'	84° 09.00'	33.7	4C, FAS
086	1 July, 1997	28° 14.37'	84° 08.40'	36.1	4C, FAS
087	1 July, 1997	28° 13.60'	84° 10.00'	38.4	4C, FAS
088	6 July, 1997	24° 32.02'	82° 59.03'	26.7	4C, FAS
089	6 July, 1997	24° 30.00'	82° 57.96'	27.7	4C, FAS
090	6 July, 1997	24° 30.01'	82° 56.43'	22.3	4C, FAS
091	6 July, 1997	24° 32.01'	82° 57.16'	22.5	4C, TR, FAS
092	6 July, 1997	24° 32.49'	82° 57.17'	19.0	4C, FAS
093	6 July, 1997	24° 32.50'	82° 56.30'	22.2	4C, FAS
094	6 July, 1997	24° 31.51'	82° 55.27'	27.9	4C, FAS
095	6 July, 1997	24° 31.01'	82° 53.21'	22.7	4C, FAS
096	6 July, 1997	24° 31.49'	82° 52.78'	21.6	4C, FAS
097	7 July, 1997	24° 41.30'	82° 45.87'	22.0	4C, FAS
098	7 July, 1997	24° 42.46'	82° 46.77'	15.3	4C, FAS
099	7 July, 1997	24° 43.49'	82° 46.57'	24.4	4C, TR, FAS
100	7 July, 1997	24° 43.09'	82° 47.35'	12.0	4C, FAS
101	7 July, 1997	24° 44.18'	82° 46.95'	23.5	4C, FAS
102	7 July, 1997	24° 43.82'	82° 47.53'	18.0	4C, FAS
103	7 July, 1997	24° 43.98'	82° 47.71'	18.2	4C, FAS
104	7 July, 1997	24° 43.64'	82° 49.03'	23.0	4C, FAS
105	8 July, 1997	24° 43.36'	82° 50.50'	15.3	4C, FAS
106	8 July, 1997	24° 43.33'	82° 50.78'	13.0	4C, FAS
107	8 July, 1997	24° 43.09'	82° 52.06'	13.0	4C, FAS
108	8 July, 1997	24° 42.77'	82° 53.07'	12.0	4C, FAS
109	8 July, 1997	24° 42.27'	82° 54.00'	14.7	4C, FAS
110	8 July, 1997	24° 42.21'	82° 55.00'	15.1	4C, FAS
111	8 July, 1997	24° 40.01'	82° 59.85'	22.0	4C, FAS
112	8 July, 1997	24° 40.01'	82° 59.93'	19.1	4C, FAS
113	9 July, 1997	24° 41.01'	83° 00.53'	19.0	4C
114	9 July, 1997	24° 40.51'	83° 00.95'	16.9	4C

Table 1. Continued.

STA	DATE	LATITUDE	LONGITUDE	DEPTH meters	GEAR
115	9 July, 1997	24° 40.52'	83° 01.39'	18.0	4C
116	9 July, 1997	24° 44.02'	83° 01.30'	15.0	4C
117	9 July, 1997	24° 40.01'	83° 03.56'	16.2	4C
118	9 July, 1997	24° 39.57'	83° 04.15'	14.7	4C
119	9 July, 1997	24° 40.55'	83° 04.22'	17.6	4C
120	9 July, 1997	24° 41.10'	83° 04.22'	17.4	4C
121	10 July, 1997	25° 20.47'	83° 39.83'	80.8	4C, FAS
122	10 July, 1997	25° 21.58'	83° 37.72'	73.0	4C, TR, FAS
123	10 July, 1997	25° 22.39'	83° 36.94'	76.4	4C, FAS
124	10 July, 1997	25° 22.49'	83° 38.04'	76.6	4C, FAS
125	11 July, 1997	25° 31.01'	83° 38.93'	78.2	4C, FAS
126	11 July, 1997	25° 32.96'	83° 38.67'	77.3	4C, FAS
127	11 July, 1997	25° 36.95'	83° 39.53'	76.4	4C, TR, FAS
128	11 July, 1997	25° 38.00'	83° 39.72'	78.8	4C, FAS
129	12 July, 1997	27° 42.94'	84° 10.23'	55.3	4C, FAS
130	12 July, 1997	27° 44.90'	84° 10.24'	51.5	4C, TR, FAS
131	12 July, 1997	27° 44.98'	84° 10.23'	52.3	4C, FAS
132	12 July, 1997	27° 45.09'	84° 10.24'	52.1	4C, FAS
133	12 July, 1997	27° 45.13'	84° 10.28'	52.5	4C, FAS
134	13 July, 1997	27° 43.01'	84° 09.60'	53.1	4C, FAS
135	13 July, 1997	27° 46.26'	84° 09.84'	48.0	4C, TR, FAS
136	13 July, 1997	27° 46.73'	84° 09.75'	49.7	4C, FAS
137	13 July, 1997	27° 47.29'	84° 09.71'	49.9	4C, FAS
138	13 July, 1997	27° 47.71'	84° 09.67'	51.0	4C, FAS
139	13 July, 1997	27° 48.24'	84° 09.12'	51.5	4C, FAS
140	13 July, 1997	27° 48.69'	84° 09.45'	51.2	4C, FAS
141	13 July, 1997	27° 49.21'	84° 09.16'	51.9	4C, FAS
142	14 July, 1997	28° 30.47'	84° 51.90'	59.8	4C, FAS
143	14 July, 1997	28° 31.48'	84° 54.73'	67.3	4C, FAS
144	14 July, 1997	28° 34.56'	84° 57.53'	69.5	4C, TR, FAS
145	14 July, 1997	28° 34.55'	84° 58.07'	74.7	4C, FAS
146	14 July, 1997	28° 35.52'	84° 58.83'	76.0	4C, FAS
147	15 July, 1997	28° 55.92'	85° 16.72'	63.5	4C, FAS
148	15 July, 1997	28° 55.32'	85° 16.77'	72.6	4C, TR, FAS
149	15 July, 1997	28° 51.69'	85° 16.79'	95.2	4C, FAS
150	15 July, 1997	28° 55.82'	85° 17.16'	67.0	4C, FAS
151	15 July, 1997	28° 54.53'	85° 17.80'	69.5	4C, FAS
152	15 July, 1997	28° 54.59'	85° 18.20'	67.9	4C, FAS

Table 1. Continued.

STA	DATE	LATITUDE	LONGITUDE	DEPTH meters	GEAR
153	15 July, 1997	28° 57.69'	85° 18.72'	63.2	4C, FAS
154	15 July, 1997	28° 56.64'	85° 19.25'	69.2	4C, FAS
155	16 July, 1997	29° 00.47'	85° 31.98'	86.0	4C, FAS
156	16 July, 1997	29° 04.99'	85° 30.17'	66.6	4C, FAS
157	16 July, 1997	29° 05.53'	85° 30.22'	68.2	4C, FAS
158	17 July, 1997	29° 19.34'	85° 50.00'	61.0	4C, FAS
159	17 July, 1997	29° 18.10'	85° 51.47'	64.1	4C, FAS
160	17 July, 1997	29° 18.65'	85° 51.97'	63.9	4C, FAS
161	17 July, 1997	29° 17.93'	85° 52.52'	67.7	4C, TR, FAS
162	17 July, 1997	29° 16.42'	85° 52.96'	69.0	4C, FAS
163	17 July, 1997	29° 18.58'	85° 54.02'	65.9	4C, FAS
164	17 July, 1997	29° 19.58'	85° 55.00'	64.8	4C, FAS
165	17 July, 1997	29° 18.51'	85° 55.48'	75.2	4C, FAS
166	26 July, 1997	27° 02.79'	96° 42.90'	78.1	4C, FAS
167	26 July, 1997	27° 02.77'	96° 42.74'	70.7	4C, FAS
168	26 July, 1997	27° 02.54'	96° 42.18'	67.0	4C, TR, FAS
169	26 July, 1997	27° 02.47'	96° 42.48'	67.8	4C, FAS
170	26 July, 1997	27° 02.52'	96° 43.01'	71.8	4C, FAS
171	26 July, 1997	27° 02.26'	96° 42.67'	74.6	4C, FAS
172	26 July, 1997	27° 02.00'	96° 42.18'	68.8	4C, FAS
173	26 July, 1997	27° 02.00'	96° 42.01'	71.1	4C, FAS
174	27 July, 1997	27° 26.10'	96° 31.37'	78.2	4C, FAS
175	27 July, 1997	27° 26.33'	96° 31.32'	66.1	4C, FAS
176	27 July, 1997	27° 26.24'	96° 31.57'	61.7	4C, TR, FAS
177	27 July, 1997	27° 26.29'	96° 31.67'	72.2	4C, FAS
178	27 July, 1997	27° 26.54'	96° 31.72'	69.5	4C, FAS
179	27 July, 1997	27° 26.52'	96° 31.40'	64.2	4C, FAS
180	27 July, 1997	27° 26.48'	96° 31.15'	76.0	4C, FAS
181	27 July, 1997	27° 26.73'	96° 31.25'	71.2	4C, FAS
182	28 July, 1997	27° 35.56'	96° 27.03'	59.9	4C, FAS
183	28 July, 1997	27° 35.48'	96° 27.21'	65.4	4C, FAS
184	28 July, 1997	27° 34.80'	96° 28.92'	64.2	4C, FAS
185	28 July, 1997	27° 34.43'	96° 28.43'	62.5	4C, TR, FAS
186	28 July, 1997	27° 34.09'	96° 28.64'	64.5	4C, FAS
187	28 July, 1997	27° 33.11'	96° 28.68'	68.8	4C, FAS
188	28 July, 1997	27° 32.55'	96° 28.86'	60.9	4C, FAS
189	30 July, 1997	27° 51.23'	94° 16.26'	101.1	4C, FAS
190	30 July, 1997	27° 51.41'	94° 15.71'	96.5	4C, FAS

Table 1. Continued.

STA	DATE	LATITUDE	LONGITUDE	DEPTH meters	GEAR
191	30 July, 1997	27° 51.46'	94° 15.28'	77.0	4C, FAS
192	30 July, 1997	27° 52.46'	94° 14.72'	101.0	4C, FAS
193	30 July, 1997	27° 51.92'	94° 14.24'	84.0	4C, FAS
194	31 July, 1997	27° 51.97'	93° 52.08'	91.0	4C, FAS
195	31 July, 1997	27° 50.47'	93° 50.26'	83.3	4C, FAS
196	31 July, 1997	27° 51.01'	93° 50.32'	77.9	4C, FAS
197	31 July, 1997	27° 50.76'	93° 51.43'	81.3	4C, FAS
198	31 July, 1997	27° 51.46'	93° 52.20'	87.5	4C, FAS
199	31 July, 1997	27° 52.04'	93° 51.38'	53.6	4C, FAS
200	31 July, 1997	27° 52.29'	93° 51.05'	50.0	4C, FAS
201	31 July, 1997	27° 52.80'	93° 50.59'	77.0	4C, FAS
202	1 August, 1997	27° 52.52'	93° 49.01'	22.3	4C, FAS
203	1 August, 1997	27° 52.26'	93° 49.52'	47.4	4C, FAS
204	1 August, 1997	27° 51.99'	93° 49.02'	53.8	4C, TR, FAS
205	1 August, 1997	27° 51.53'	93° 47.76'	96.4	4C, FAS
206	1 August, 1997	27° 53.03'	93° 48.55'	75.2	4C, FAS
207	1 August, 1997	27° 53.77'	93° 49.31'	76.8	4C, FAS
208	2 August, 1997	27° 54.57'	93° 35.89'	19.8	4C, FAS
209	2 August, 1997	27° 53.53'	93° 37.05'	86.2	4C, TR, FAS
210	2 August, 1997	27° 53.01'	93° 37.05'	92.0	4C, FAS
211	2 August, 1997	27° 55.02'	93° 37.14'	47.4	4C, FAS
212	2 August, 1997	27° 57.90'	93° 36.86'	68.6	4C, FAS
213	2 August, 1997	27° 55.97'	93° 35.51'	48.0	4C, FAS
214	2 August, 1997	27° 55.50'	93° 36.08'	43.0	4C, FAS
215	2 August, 1997	27° 57.00'	93° 35.60'	57.6	4C, FAS
216	3 August, 1997	28° 18.75'	94° 07.57'	48.5	4C, FAS
217	3 August, 1997	28° 18.75'	94° 07.78'	49.8	4C, FAS
218	3 August, 1997	28° 19.69'	94° 08.33'	41.5	4C, TR, FAS
219	3 August, 1997	28° 19.22'	94° 08.55'	43.0	4C, FAS
220	3 August, 1997	28° 19.74'	94° 08.74'	37.6	4C, FAS
221	3 August, 1997	28° 19.41'	94° 08.97'	37.2	4C, FAS
222	3 August, 1997	28° 19.46'	94° 09.51'	42.3	4C, FAS
223	3 August, 1997	28° 19.98'	94° 09.81'	45.0	4C, FAS
224	3 August, 1997	28° 19.81'	94° 10.03'	47.1	4C, FAS
225	7 August, 1997	28° 08.23'	93° 29.98'	58.6	4C, FAS
226	7 August, 1997	28° 08.27'	93° 29.99'	60.0	4C, FAS
227	7 August, 1997	28° 08.56'	93° 29.55'	51.8	4C, T R, FAS
228	7 August, 1997	28° 08.66'	93° 29.50'	56.0	4C, FAS

Table 1. Continued.

STA	DATE	LATITUDE	LONGITUDE	DEPTH meters	GEAR
229	7 August, 1997	28° 08.47'	93° 28.93'	52.0	4C, FAS
230	7 August, 1997	28° 08.26'	93° 29.23'	57.6	4C, FAS
231	7 August, 1997	28° 07.89'	93° 29.02'	61.0	4C, FAS
232	8 August, 1997	27° 53.74'	93° 27.46'	61.9	4C, FAS
233	8 August, 1997	27° 53.38'	93° 26.95'	76.9	4C, FAS
234	8 August, 1997	27° 51.82'	93° 26.94'	99.0	TV, FAS
235	8 August, 1997	27° 51.46'	93° 26.48'	109.1	TV, FAS
236	8 August, 1997	27° 51.58'	93° 24.99'	101.0	TV, FAS
237	8 August, 1997	27° 54.67'	93° 24.98'	90.0	4C, FAS
238	8 August, 1997	27° 54.67'	93° 26.01'	78.0	4C, FAS
239	9 August, 1997	27° 52.56'	93° 17.76'	49.0	4C, FAS
240	9 August, 1997	27° 53.22'	93° 16.75'	80.4	4C, FAS
241	9 August, 1997	27° 52.75'	93° 16.99'	59.4	TV, FAS
242	9 August, 1997	27° 52.78'	93° 16.21'	93.7	TV, FAS
243	9 August, 1997	27° 54.46'	93° 17.03'	108.0	TV, FAS
244	9 August, 1997	27° 54.99'	93° 17.38'	83.0	4C, FAS
245	9 August, 1997	27° 54.50'	93° 18.21'	72.6	4C, FAS
246	10 August, 1997	27° 50.87'	93° 03.83'	62.0	4C, FAS
247	10 August, 1997	27° 51.49'	93° 04.26'	75.9	4C, FAS
248	10 August, 1997	27° 51.15'	93° 04.34'	77.0	4C, TR, FAS
249	10 August, 1997	27° 50.49'	93° 03.56'	86.0	4C, FAS
250	10 August, 1997	27° 50.74'	93° 04.08'	78.2	4C, FAS
251	10 August, 1997	27° 50.88'	93° 04.35'	77.0	4C, FAS
252	10 August, 1997	27° 50.27'	93° 04.37'	68.0	4C, FAS
253	11 August, 1997	27° 47.51'	93° 03.68'	85.4	4C, FAS
254	11 August, 1997	27° 47.90'	93° 03.95'	62.6	4C, TR, FAS
255	11 August, 1997	27° 48.26'	93° 04.02'	69.0	4C, FAS
256	11 August, 1997	27° 48.07'	93° 03.30'	59.2	4C, FAS
257	11 August, 1997	27° 48.52'	93° 03.14'	57.0	4C, FAS
258	11 August, 1997	27° 48.76'	93° 03.72'	79.0	4C, FAS
259	11 August, 1997	27° 49.19'	93° 03.64'	77.2	4C, FAS
260	11 August, 1997	27° 49.72'	93° 03.80'	70.0	4C, FAS
261	12 August, 1997	27° 51.19'	92° 55.29'	70.0	TV, FAS
262	12 August, 1997	27° 51.00'	92° 55.16'	106.0	TV, FAS
263	12 August, 1997	27° 50.50'	92° 53.93'	102.4	TV, FAS
264	12 August, 1997	27° 50.00'	92° 53.99'	109.1	TV, FAS
265	12 August, 1997	27° 50.25'	92° 53.57'	107.4	TV, FAS

Table 1. Continued.

STA	DATE	LATITUDE	LONGITUDE	DEPTH meters	GEAR
266	12 August, 1997	27° 50.60'	92° 53.05'	103.1	TV, FAS
267	12 August, 1997	27° 50.76'	93° 52.10'	101.0	TV, FAS
268	13 August, 1997	28° 03.51'	92° 27.98'	58.0	4C, FAS
269	13 August, 1997	28° 04.12'	92° 27.50'	75.0	4C, FAS
270	13 August, 1997	28° 01.70'	92° 27.48'	86.2	TV, FAS
271	13 August, 1997	28° 00.41'	92° 26.98'	89.1	TV, FAS
272	13 August, 1997	28° 00.68'	92° 27.00'	89.3	TV, FAS
273	13 August, 1997	28° 02.90'	92° 26.92'	81.0	4C, FAS
274	13 August, 1997	28° 02.36'	92° 26.47'	82.0	4C, FAS
275	14 August, 1997	28° 04.02'	91° 52.02'	78.2	4C, FAS
276	14 August, 1997	28° 04.25'	91° 52.49'	83.0	4C, FAS
277	14 August, 1997	28° 02.61'	91° 53.00'	88.5	TV, FAS
278	14 August, 1997	28° 02.39'	91° 53.48'	84.1	4C, FAS
279	14 August, 1997	28° 02.14'	91° 54.01'	85.9	TV, FAS
280	14 August, 1997	28° 04.84'	91° 54.50'	85.3	4C, FAS
281	14 August, 1997	28° 05.41'	91° 59.21'	74.0	4C, FAS
282	14 August, 1997	28° 04.70'	91° 59.72'	76.5	4C, FAS
283	15 August, 1997	27° 57.98'	92° 01.94'	63.2	4C, FAS
284	15 August, 1997	27° 57.49'	91° 58.78'	92.7	TV, FAS
285	15 August, 1997	27° 57.49'	91° 57.86'	107.0	TV, FAS
286	15 August, 1997	27° 58.49'	92° 00.67'	105.5	TV, FAS
287	15 August, 1997	27° 57.04'	92° 01.42'	63.9	4C, FAS
288	15 August, 1997	27° 56.51'	92° 02.77'	77.0	4C, FAS
289	15 August, 1997	27° 56.02'	92° 01.87'	82.0	4C, FAS
290	15 August, 1997	27° 55.48'	91° 59.81'	95.9	TV, FAS
291	16 August, 1997	27° 50.00'	91° 48.00'	105.4	TV, FAS
292	16 August, 1997	27° 50.25'	91° 50.43'	84.5	TV, FAS
293	16 August, 1997	27° 50.44'	91° 50.48'	83.6	TV, FAS
294	16 August, 1997	27° 50.76'	91° 50.24'	77.8	TV, FAS
295	16 August, 1997	27° 51.02'	91° 48.96'	99.1	TV, FAS
296	16 August, 1997	27° 51.25'	91° 49.32'	103.3	TV, FAS
297	17 August, 1997	28° 05.84'	91° 01.51'	57.7	4C, TR, FAS
298	17 August, 1997	28° 05.55'	91° 02.41'	60.2	4C, FAS
299	17 August, 1997	28° 04.92'	91° 02.98'	89.6	4C, FAS
300	17 August, 1997	28° 04.78'	91° 01.87'	76.2	4C, FAS
301	17 August, 1997	28° 05.19'	91° 01.50'	64.9	4C, FAS
302	17 August, 1997	28° 07.61'	91° 00.98'	88.2	4C, FAS
303	17 August, 1997	28° 04.43'	91° 00.46'	84.0	4C, FAS

Table 1. Continued.

STA	DATE	LATITUDE	LONGITUDE	DEPTH meters	GEAR
266	12 August, 1997	27° 50.60'	92° 53.05'	103.1	TV, FAS
267	12 August, 1997	27° 50.76'	93° 52.10'	101.0	TV, FAS
268	13 August, 1997	28° 03.51'	92° 27.98'	58.0	4C, FAS
269	13 August, 1997	28° 04.12'	92° 27.50'	75.0	4C, FAS
270	13 August, 1997	28° 01.70'	92° 27.48'	86.2	TV, FAS
271	13 August, 1997	28° 00.41'	92° 26.98'	89.1	TV, FAS
272	13 August, 1997	28° 00.68'	92° 27.00'	89.3	TV, FAS
273	13 August, 1997	28° 02.90'	92° 26.92'	81.0	4C, FAS
274	13 August, 1997	28° 02.36'	92° 26.47'	82.0	4C, FAS
275	14 August, 1997	28° 04.02'	91° 52.02'	78.2	4C, FAS
276	14 August, 1997	28° 04.25'	91° 52.49'	83.0	4C, FAS
277	14 August, 1997	28° 02.61'	91° 53.00'	88.5	TV, FAS
278	14 August, 1997	28° 02.39'	91° 53.48'	84.1	4C, FAS
279	14 August, 1997	28° 02.14'	91° 54.01'	85.9	TV, FAS
280	14 August, 1997	28° 04.84'	91° 54.50'	85.3	4C, FAS
281	14 August, 1997	28° 05.41'	91° 59.21'	74.0	4C, FAS
282	14 August, 1997	28° 04.70'	91° 59.72'	76.5	4C, FAS
283	15 August, 1997	27° 57.98'	92° 01.94'	63.2	4C, FAS
284	15 August, 1997	27° 57.49'	91° 58.78'	92.7	TV, FAS
285	15 August, 1997	27° 57.49'	91° 57.86'	107.0	TV, FAS
286	15 August, 1997	27° 58.49'	92° 00.67'	105.5	TV, FAS
287	15 August, 1997	27° 57.04'	92° 01.42'	63.9	4C, FAS
288	15 August, 1997	27° 56.51'	92° 02.77'	77.0	4C, FAS
289	15 August, 1997	27° 56.02'	92° 01.87'	82.0	4C, FAS
290	15 August, 1997	27° 55.48'	91° 59.81'	95.9	TV, FAS
291	16 August, 1997	27° 50.00'	91° 48.00'	105.4	TV, FAS
292	16 August, 1997	27° 50.25'	91° 50.43'	84.5	TV, FAS
293	16 August, 1997	27° 50.44'	91° 50.48'	83.6	TV, FAS
294	16 August, 1997	27° 50.76'	91° 50.24'	77.8	TV, FAS
295	16 August, 1997	27° 51.02'	91° 48.96'	99.1	TV, FAS
296	16 August, 1997	27° 51.25'	91° 49.32'	103.3	TV, FAS
297	17 August, 1997	28° 05.84'	91° 01.51'	57.7	4C, TR, FAS
298	17 August, 1997	28° 05.55'	91° 02.41'	60.2	4C, FAS
299	17 August, 1997	28° 04.92'	91° 02.98'	89.6	4C, FAS
300	17 August, 1997	28° 04.78'	91° 01.87'	76.2	4C, FAS
301	17 August, 1997	28° 05.19'	91° 01.50'	64.9	4C, FAS
302	17 August, 1997	28° 07.61'	91° 00.98'	88.2	4C, FAS
303	17 August, 1997	28° 04.43'	91° 00.46'	84.0	4C, FAS

Table 2. Data collected during Chapman Cruise 97-04.

Data	Number of Stations
Trap/Video drops	28
4 camera drops	274
Fish Traps	31
Fisheries Acoustic	290
CTD	303

Table 3. List of reef fish survey blocks visited during CHAPMAN Cruise 97-04(80).

BLOCK	AREA	BLOCK	AREA
29	Dry Tortugas, FL	39	Dream Bank, TX
44	Dry Tortugas, FL	53	Southern Bank, TX
45	Dry Tortugas, FL	62	Hospital & Aranasas Banks, TX
46	Dry Tortugas Bank, FL	70	Geyer Bank, LA
124	SW Florida shelf	82	Baker Bank, TX (Surveyed only)
144	SW Florida shelf	92	Sweet Bank, LA
333	The Elbow, FL	93	Parker & Sweet Banks, LA
334	The Elbow, FL	94	Parker Bank, LA
371	Florida Middle Ground	99	Elvers Bank, LA
386	Florida Middle Ground	100	Geyer Bank, LA
387	Florida Middle Ground	101	Bright Bank, LA
388	Florida Middle Ground	102	28 fathom Bank, LA
403	Florida Middle Ground	103	East Flower Garden, LA
404	Florida Middle Ground	104	West Flower Garden, LA
407	Apalachicola shelf, FL	105	West Flower Garden, LA
421	Florida Middle Ground	107	Applebaum Bank, TX
445	Apalachicola shelf, FL	129	Ewing Bank, LA
446	Apalachicola shelf, FL	134	Alderdice Bank, LA
469	Apalachicola shelf, FL	137	Bouma Bank, LA
490	Apal. shelf(Surveyed only)	143	29 fathom Bank, LA
491	Apalachicola shelf, FL	188	Claypile Bank, TX
492	Apalachicola shelf, FL		
632	Head of Desoto Canyon		
633	Head of Desoto Canyon		

Table 4. Average catch per hour in numbers and weight from fish traps by area during Chapman Cruise 97-04. n= the # of traps fished in an area.

SPECIES	COMMON NAME	NUMBER/HOUR MEAN	NUMBER/HOUR S. E.	WEIGHT(kg)/HOUR MEAN	WEIGHT(kg)/HOUR S. E.
Texas Area (n=4)					
Lutjanus campechanus	Red snapper	2.405	2.117	0.962	0.778
Rhomboplites aurorubens	Vermilion snapper	0.074	0.074	0.022	0.022
Balistes capriscus	Gray triggerfish	0.668	0.668	0.498	0.059
Louisiana Area (n=39)					
Mycteroperca phenax	Scamp	0.005	0.005	0.009	0.009
Lutjanus campechanus	Red snapper	0.259	0.254	0.311	0.297
Rhomboplites aurorubens	Vermilion snapper	0.025	0.018	0.015	0.010
Pristipomoides aquilonaris	Wenchman	0.061	0.042	0.004	0.003
Pagrus pagrus	Red porgy	0.040	0.031	0.059	0.045
Balistes capriscus	Gray triggerfish	0.067	0.054	0.049	0.048
Gymnothorax kolpos	Blacktail moray	0.028	0.028	0.010	0.010
Northeast Gulf of Mexico (n=54)					
Epinephelus morio	Red grouper	0.017	0.017	0.026	0.026
Centropristis ocyurus	Bank sea bass	0.085	0.060	0.008	0.005
Lutjanus campechanus	Red snapper	0.109	0.074	0.087	0.068
Rhomboplites aurorubens	Vermilion snapper	0.024	0.024	0.008	0.008
Pagrus pagrus	Red porgy	1.868	0.790	0.506	0.200
Calamus nodosus	Knobbed porgy	0.024	0.024	0.017	0.017
Balistes capriscus	Gray triggerfish	0.017	0.017	0.024	0.024
Eastern Gulf of Mexico (n=15)					
Centropristis ocyurus	Bank sea bass	0.066	0.066	0.015	0.015
Ocyurus chrysurus	Yellowtail snapper	0.095	0.016	0.021	0.021
Haemulon plumieri	White grunt	0.048	0.048	0.015	0.015
Chaetodon sedentarius	Reef Butterfyfish	0.033	0.033	0.001	0.001

Table 5. Substrate samples incidentaly collected during Chapman Cruise 07-04(80).

STATION	AREA	DEPTH	COLLECTED
14	Apalachicola shelf	67m	Coral.
16	Apalachicola shelf	75m	Brittle star & Bryozoan.
17	Apalachicola shelf	73m	Octocoral.
18	Apalachicola shelf	67m	Octocorals & Bryozoans.
25	Apalachicola shelf	62m	Coral & Algae.
41	Fl. Middle Ground	35m	Algae & encrusted shell.
49	Fl. Middle Ground	23m	Coral.
53	Fl. Middle Ground	30m	Algae.
70	Fl. Middle Ground	33m	Algae, Octocoral/Bryozoan & unkn epifauna.
74	Fl. Middle Ground	33m	Rhodolith(red coralline algal nodule).
88	Dry Tortugas	25m	Algae & Worm tube.
98	Dry Tortugas	14m	Algae, Sponge, Bryozoan & Antipatharian.
122	SW Florida shelf	75m	Algae.
125	SW Florida shelf	78m	Algae.
128	SW Florida shelf	77m	Algae, Bryozoan & encrusted rubble.
131	The Elbow	51m	Coral rubble.
134	The Elbow	53m	Coral, Algae & unknown epifauna.
136	The Elbow	51m	Coral.
139	The Elbow	52m	Gastropod & Algae.
141	The Elbow	52m	Algae & Hydrocoral.
149	Apalachicola shelf	93m	Encrusted rubble.
150	Apalachicola shelf	65m	Octocoral.
158	Apalachicola shelf	61m	Bryozoan.
164	Apalachicola shelf	64m	Starfish, Octocoral & Bryozoan.
192	Applebaum Bank	100m	Crinoid, & Antipatharians.
199	West Flower Garden	55m	Algae.
200	West Flower Garden	52m	Algae & Rhodoliths.
210	East Flower Garden	111m	Algae & Coral.
220	Claypile Bank	37m	Mollusc, Gastropod & unknown epifauna.
225	29 fathom Bank	58m	Coral on a shell & other Coral.
230	29 fathom Bank	55m	Algae & Sponge/Tunicate.
232	28 fathom Bank	62m	Rhodolith.
239	Bright Bank	49m	Algae, Rhodoliths & unknown epifauna.
247	Geyer Bank	75m	Rhodoliths & Octocoral/Antipatharian.
252	Geyer Bank	70m	Brittle star.
254	Geyer Bank	60m	Coral & unknown epifauna.
255	Geyer Bank	70m	Rhodoliths, Coral & Octocoral/Antipatharian.
267	Elvers Bank	105m	Antipatharian.
270	Bouma Bank	86m	Algae, Coral & unknown epifauna.
275	Alderdice Bank	80m	Sponge.
276	Alderdice Bank	80m	Crinoid, Octocoral & Antipatharian.
282	Alderdice Bank	77m	Coral & encrusted shells.
283	Parker Bank	66m	Rhodoliths & Algae.
289	Parker Bank	83m	Rhodoliths, Coral, Crinoid & Brittle star.