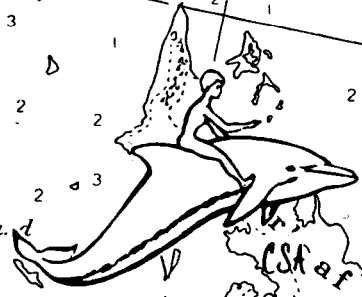
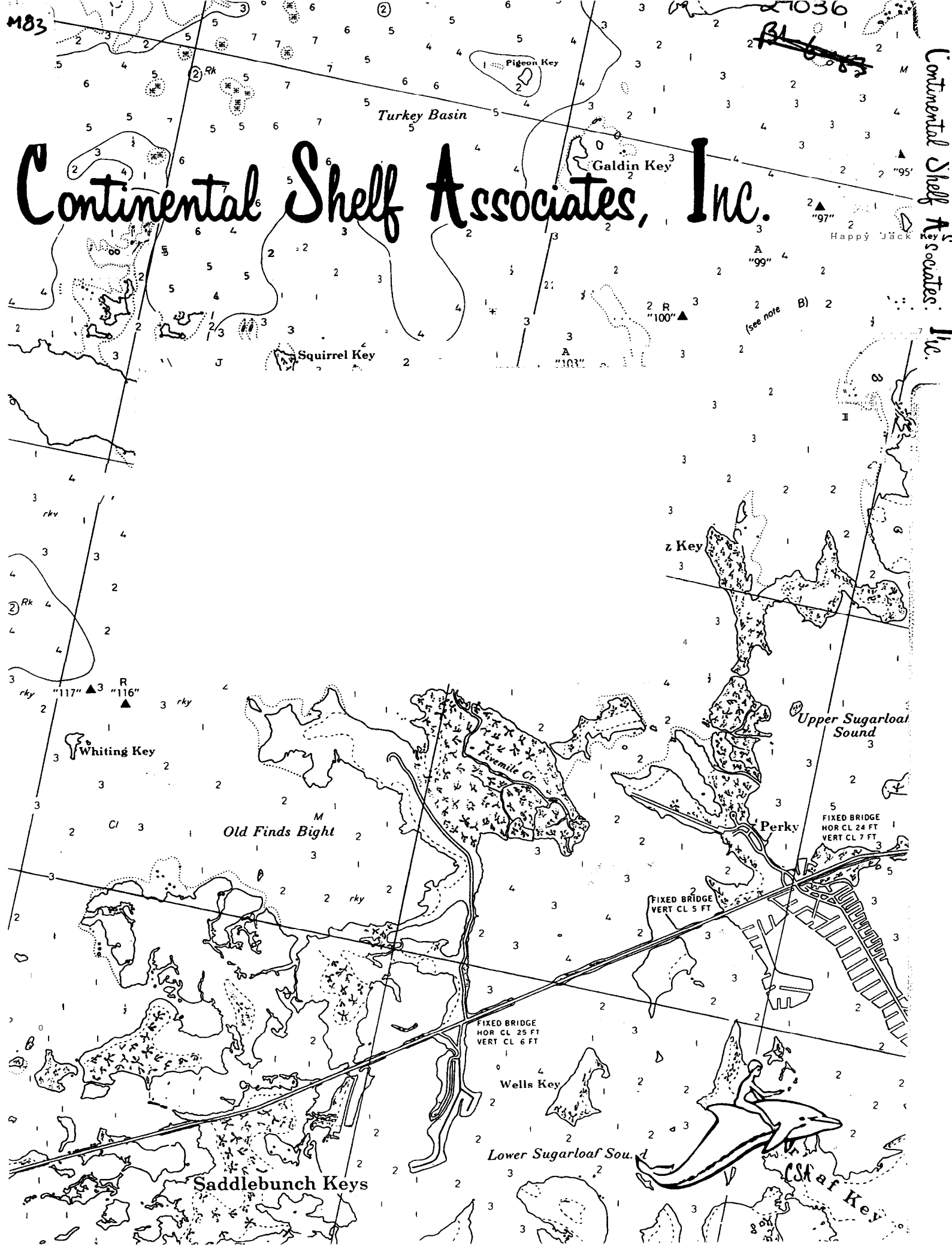


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SUMMARY CRUISE REPORT

SOUTHWEST FLORIDA SHELF REGIONAL  
BIOLOGICAL COMMUNITIES SURVEY  
CRUISE II  
BIOLOGICAL AND HYDROGRAPHIC SAMPLING

CONTRACT NO. AA851-CT2-48

25 February 1983

For  
Minerals Management Service  
P.O. Box 7944  
Metairie, Louisiana 70010

By  
Continental Shelf Associates, Inc.  
P.O. Box 3609  
Tequesta, Florida 33458  
(305) 746-7946



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## 1.0 INTRODUCTION

The Minerals Management Service is planning to lease offshore tracts in the eastern Gulf of Mexico over the next five years. The Marine Ecosystems Studies series was established to assess possible environmental effects resulting from future oil and gas exploration, development and production.

Information obtained from the first two years of the Southwest Florida Shelf Ecosystems Study was used to map various biological assemblages and habitats found on the shelf, to describe the various hard and **soft-bottom** communities, and to characterize the basic **hydrographic** conditions of this area. The results indicated that various diverse and distinct biological assemblages are present in that area with distribution patterns dependent upon depth and latitude. The Southwest Florida Shelf Regional Biological Communities Survey was designed to answer questions arising from the first two years of study and to expand the study area into nearshore regions.

The objectives of this cruise were:

1. To gather biological and supportive hydrographic information describing shallow water (≤20 m depth) study sites during December 1982,
2. To collect **benthic** photographs and samples from selected hard bottom (live bottom) and soft bottom

sites within the designated study area by both divers and remote techniques,

3. To deploy long-term sampling equipment for collection of temperature and sediment deposition data during the period between Cruises II and III, and
4. To make visual observations of fish populations by both remote and in situ methods.

## 2.0 CHIEF SCIENTIST'S REPORT

### 2.1 Cruise II Plan

Cruise II entailed the collection of data and samples from 5 hard bottom and 10 soft bottom stations selected at the conclusion of Cruise I (Figure 2-1). Water column profiles of temperature, transmissivity, salinity, and dissolved oxygen were to be made at the five hard bottom stations.

At each hard bottom station, television videotape data and still photographs were to be collected following techniques used during the first two years of the Southwest Florida Shelf Ecosystems Study. Three dredge samples and one trawl sample were also to be collected at each of these stations. All remote data collection would be conducted at night at each hard bottom station and repeated during daylight hours at a single intensive sampling station to evaluate day-night differences.

A sediment trap rack, supporting three replicate traps at two different heights above the seafloor and an acoustic pinger, was to be deployed at each of the hard bottom stations with in situ recording thermographs attached at the northern and southernmost stations. The traps and thermographs would be recovered during Cruise III.

At each hard bottom site, divers using scuba would randomly deploy 35 0.5 m<sup>2</sup> quadrates on the live bottom,



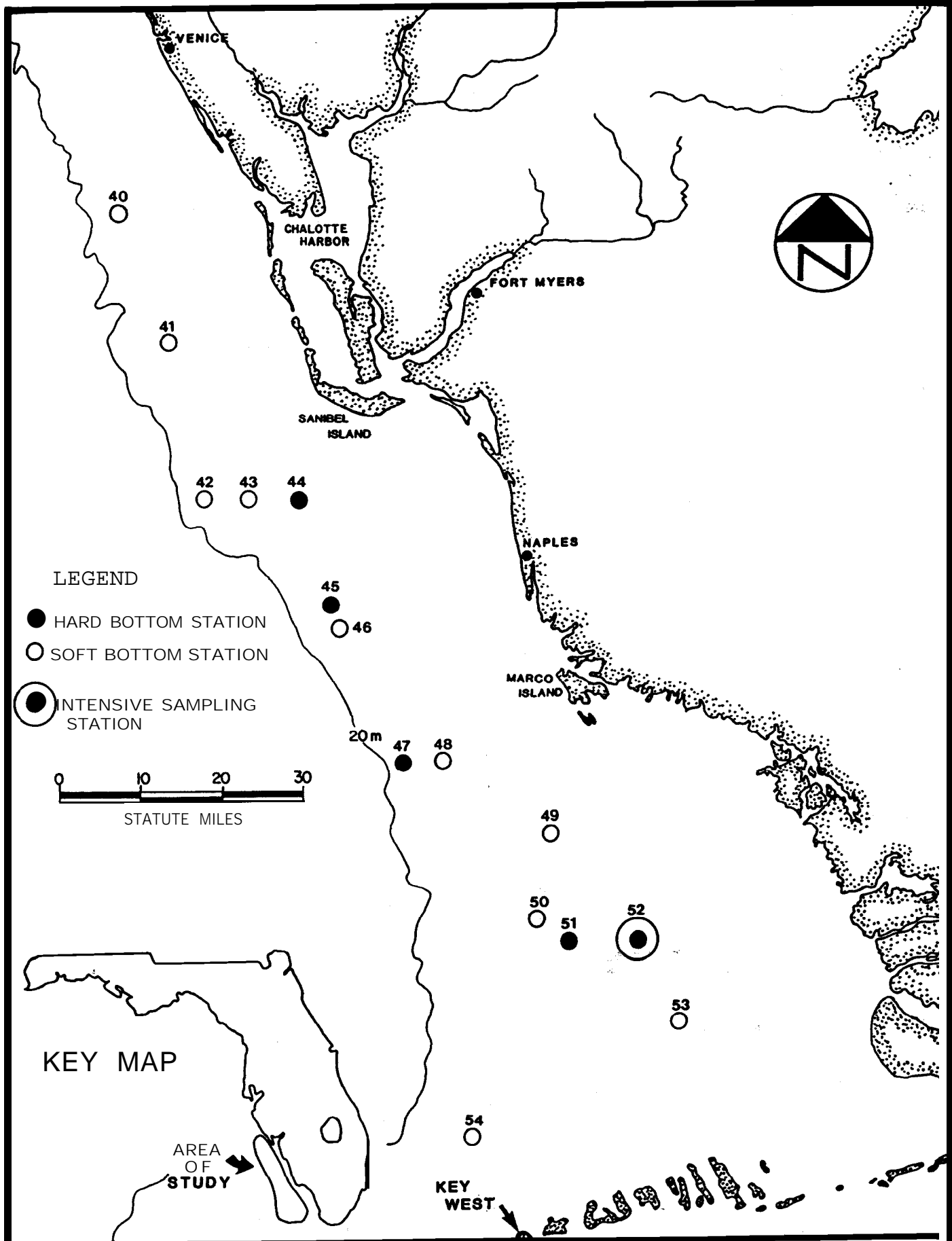


FIGURE 2-1. GEOGRAPHIC LOCATIONS OF HARD BOTTOM AND SOFT BOTTOM BIOLOGICAL SAMPLING STATIONS.



photograph each, and collect all included **epibiota**. Divers would also record **all** fish species observed for comparison to remote visual observations.

Divers were to collect 10 infaunal cores, 3 cores for sediment grain size, and 3 cores for hydrocarbon analysis at each of the 10 soft bottom stations. An additional 50 **infaunal** cores, and 15 sediment grain size cores were to be collected at the intensive sampling station to evaluate variations in soft bottom infauna with distance from hard bottoms.

Navigation fixes were to be recorded **for** all data and sample collections with latitude and longitude recorded for each station. Weather entries were to be made in the Marine Coastal Weather Log to document sea conditions.

## 2.2 Schedule and Participants

The survey vessel, R/V SUNCOASTER, was mobilized on 3 December 1982 in St. Petersburg, Florida. The vessel departed St. Petersburg on 4 December and completed the survey on 15 December 1982. Figure 2-2 shows the cruise track followed during Cruise II. Table 2-1 lists the cruise participants, their positions, and affiliations. The Chief Scientist's Log (Appendix A) details the events of the cruise.

## 2.3 Data Collected

A summary of the data and samples collected is given in Table 2-2. The data, type, and number of samples collected at each station are listed in Appendix B. Water column data were collected at the five hard bottom stations. These

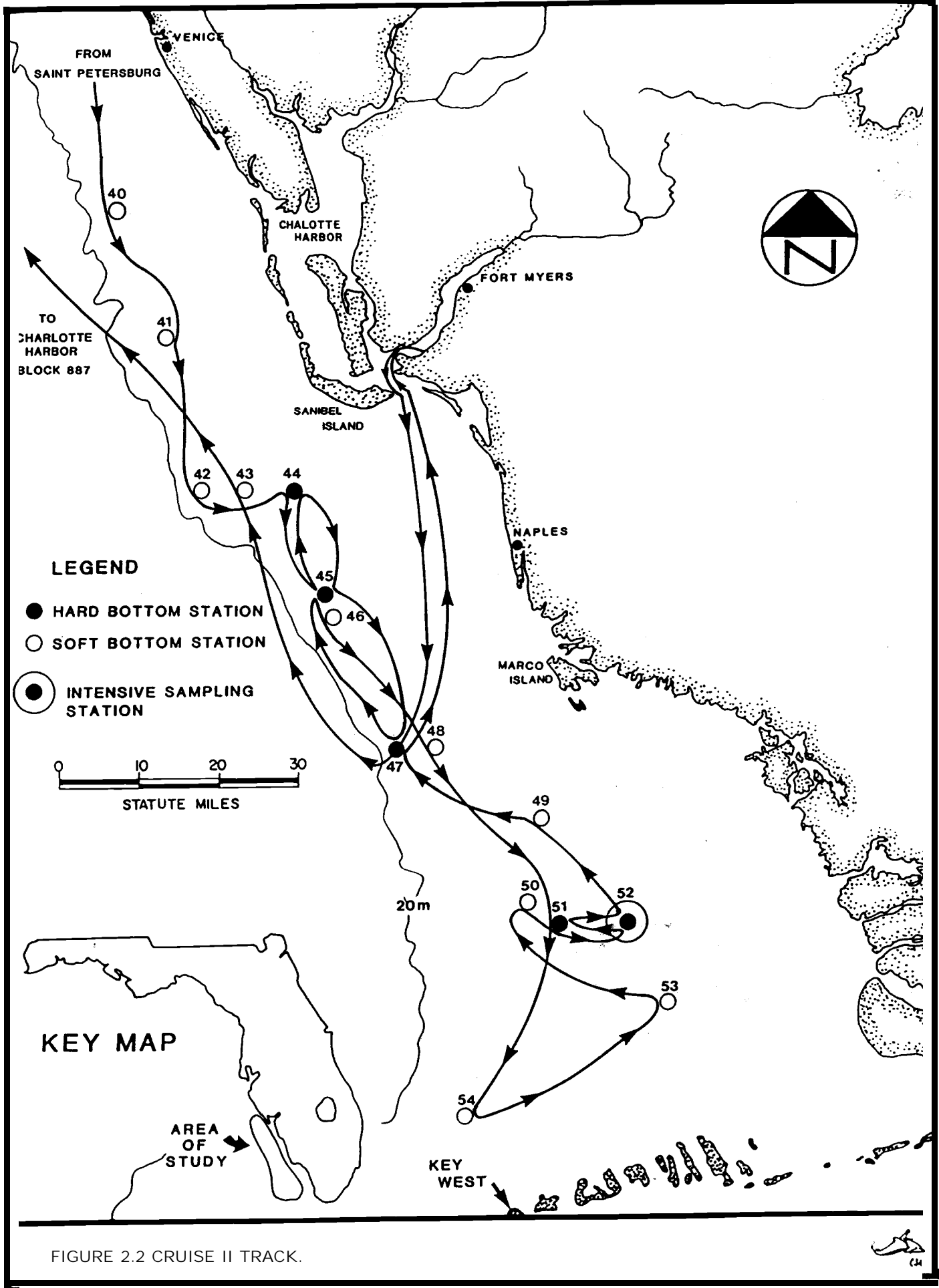


FIGURE 2.2 CRUISE II TRACK.



TABLE 2-1. CRUISE PARTICIPANTS.

<u>Personnel</u>	<u>Position</u>	<u>Affiliation</u>
David <b>Gettleson</b>	Chief Scientist/Diver	CSA
Keith Spring	Chief Scientist/Diver	CSA
Russell Putt	Scientific Diver	CSA
<b>Susan Hoffman</b>	Soft Bottom <b>Investigator/Diver</b>	<b>MML</b>
James Rosenbauer	Operations Manager/Diver	CSA
Perry Lamar	Dive Master	CSA
Robert Berry	Navigator/Electronics Technician	<b>CSA</b>
Douglas <b>Colton</b>	Scientific Diver	CSA
Katharine End	Technician	CSA
Maryjon Large	Technician	CSA
Raymond <b>Brockway</b>	Technician/Diver	CSA

Ship's Crew

Robert <b>Millender</b>	Captain
Chuck Horan	Engineer
Roman <b>Jarmula</b>	Deck Hand
Frank Ruiz	Deck Hand
Bill <b>Ryan</b>	Ccak

TABLE 2-2. DATA AND SAMPLES COLLECTED.

<u>Sample/Data Types</u>	<u>Number of Stations</u>	<u>Number of Replicates</u>	<u>Number of Samples</u>
Salinity	5	2-3	12
Dissolved Oxygen	5	2-3	12
Temperature	5	2	10
Transmissivity	5	1	5 profiles
Diver Hard <b>Bottom Biota</b> Quadrat Samples	5	35/station	185
Quadrat Sediment Thickness Measurements	5 (185 quadrates)	3/quadrat	555
Diver Fish Population Assessments	5	<b>1</b>	5
Trawl	6	1-2	9
Dredge	6	3-6	21
Infauna	11	10 (60 at intensive station)	<b>160</b>
Sediment Grain Size	11	3 (18 at intensive station)	48
Hydrocarbons	10	3	29
Videotapes	6	1	8 tapes
Still Photographs	5		4,800
Thermograph Deployment	2	1	
<b>Sediment</b> Trap Deployment	5*	3	

\*Replicate traps at two depths (6 traps per station)

included near-surface and near-bottom temperature, salinity, and dissolved oxygen **measurements**, and transmissivity profiles at each station. Temperatures were recorded with reversing thermometers, dissolved oxygen levels were determined by Winkler titration, and salinity samples were collected for subsequent lab analysis.

At each of the 10 soft bottom stations divers collected 10 **infaunal** cores, 3 sediment grain size cores, and 3 cores for hydrocarbon analysis.

At each hard bottom station, underwater television and still camera data were collected following procedures used during the first two years of the Southwest Florida Shelf Ecosystems Study. One trawl and three dredge samples were also collected at each hard bottom station. All of the above hard bottom station remote data, including water column **data**, were obtained during night operations, with daylight hours reserved for diving activities.

A sediment trap rack, supporting three replicate traps at two different heights above the seafloor and an acoustic **pinger**, was deployed at each of the hard bottom stations. In situ recording thermographs were attached to these racks at the northern and southernmost stations.

At each hard bottom station divers using scuba randomly deployed at least 35 0.5 m<sup>2</sup> quadrates within live bottom areas. These quadrates were numbered and photographed, and then all the epibiota within each quadrate was collected for

subsequent identification and biomass measurements. Divers also recorded all observed fish species for comparison to remote visual observations.

Station 52 was designated as an intensive sampling station (Figure 2-1). At this location remote television/still camera observations and dredge and trawl samples were also collected during daylight hours to evaluate day-night variations. An additional 60 **infaunal** cores and 18 sediment grain size cores were collected within and at various distances from the edge of the live bottom area at this station to evaluate variations in soft bottom infauna with distance from live bottom areas.

Navigation fixes were recorded for all data and sample collections with latitude and longitude determined for each station. Weather entries were made in the Marine Coastal Weather Log (Appendix C) at four-hour intervals to document sea conditions.

#### 2.4 Problems Encountered

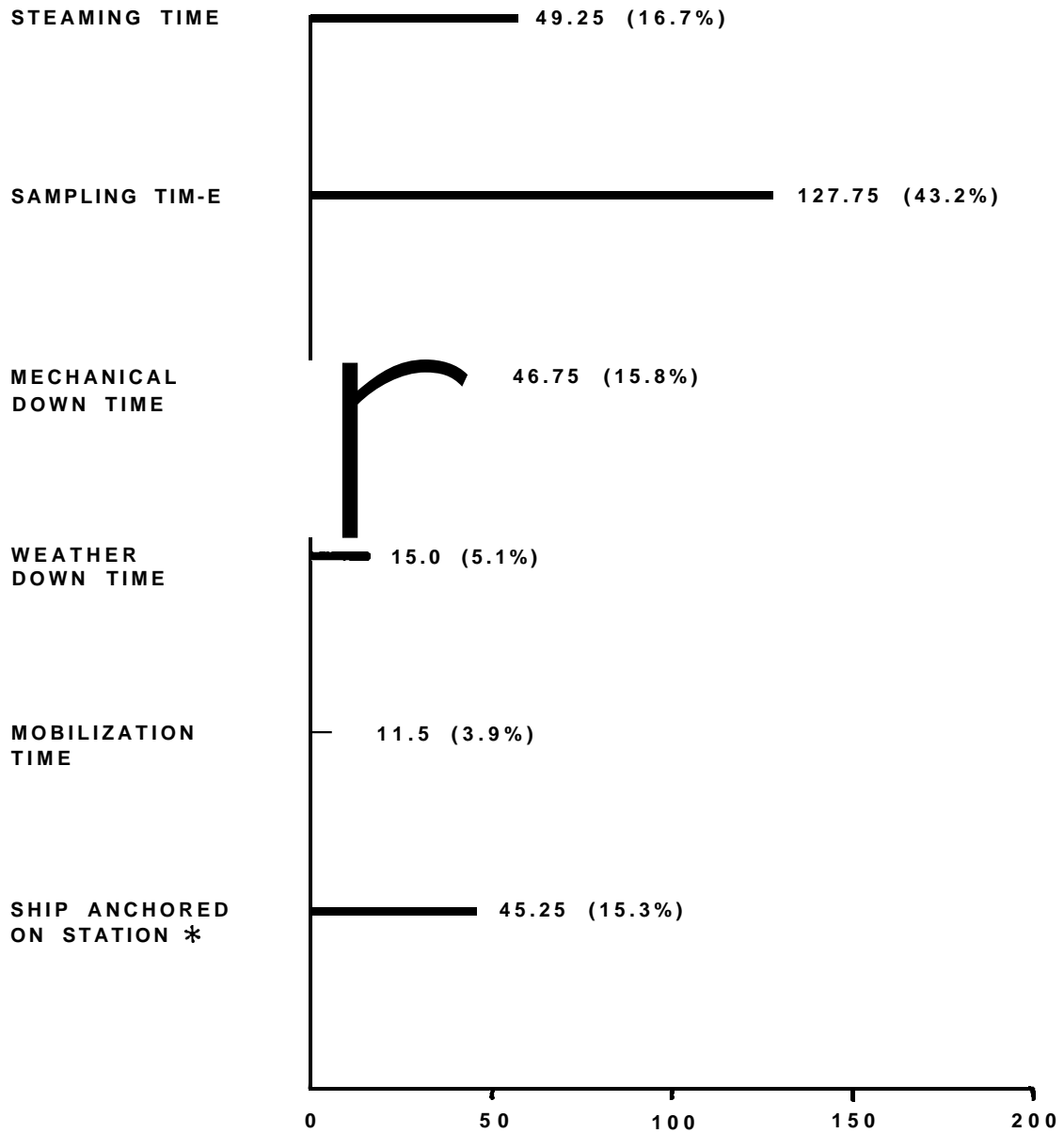
There were two major causes of lost time during this sampling cruise. The first was the failure of a diode plate in the ship's main generator which necessitated returning to port for repairs. The second **delay** occurred when a weather front entered the study area, building seas up to 10 feet in the sampling area and making diving unsafe.

Other factors adding to the time overrun of Cruise II were an underestimation of the time needed by divers to

collect the 35 quadrat samples at each hard bottom station and the addition of 5 soft bottom stations to the sampling program. Figure 2-3 shows the time utilization during this cruise and Appendix D shows a daily breakdown of time utilization, including time lost due to minor problems.



TOTAL CRUISE HOURS: 295.5



CRUISE TIME UTILIZATION IN HOURS

\* WAITING FOR DAYLIGHT ONCE ALL NIGHT SAMPLING ACTIVITIES WERE COMPLETED

FIGURE 2-3. SUMMARY OF CRUISE TIME UTILIZATION.



APPENDIX A

CHIEF SCIENTISTS'S LOG

## Chief Scientist's Log

December 3, 1982

0830 Truck and van departed Jupiter, Florida.

1330 Arrived in St. Petersburg at FIO dock.  
Commenced loading of R\V SUNCOASTER.

2000 Mobilization completed. Underway to take  
on water.

2010 Water line broken. Attempted to locate  
water source. Available at public dock,  
but connector not available.

2030 Returned to original dock. Took on water  
through 1-1/2" line.

2100 Moved to commercial dock. Took on water  
through a fire hydrant.

2230 Left dock at Bayboro Harbor.

December 4, 1982

0700 Arrived in the vicinity of St. 40.  
Deployed DE-719 Transducer. Not working.

0730 Deployed DE-731 Transducer. Meanwhile,  
readied dive gear, temporary buoy, Avon,  
etc.

0740 DE-731 working. Moved onto station to  
deploy temporary buoy.

0745 Deployed temporary buoy at St. 40. Depth  
60'. Continued rigging and diver briefing.  
Prepared camera.

0915 Launched Avon. Dive team in water. soft  
bottom cores.

0945 Dive team out of water.

1030 Avon on board.

1045 Pulled temporary buoy. Underway for  
St. 41.

1235 Arrived St. 41.

1245 Deployed temporary buoy.

1320 Divers in water. Soft bottom cores.  
1350 Divers out of water.  
1400 Avon on board.  
1405 Temporary buoy recovered. Underway for St. 42.  
1450 Deployed temporary buoy at St. 42.  
1620 Dive team in water. Soft bottom cores.  
1642 Dive team out of water.  
1700 Pulled temporary buoy.  
1705 Underway for St. 44.  
1830 Arrived in vicinity of St. 44. Worked on TV system.  
1945 Problems with videocassette recorder; decided to use 1/2" reel-to-reel player.  
2030 Problems with SC-303 TV control unit - no picture.  
2130 Problem corrected.  
2145 Attached pole and weight to TV sled.  
2230 Came into position to launch TV system. Began tow approx. 0.5 NM north of station center.  
2315 TV sled launched.  
2330 Fix #1 - began TV tow.

December 5, 1982

0109 Lost Loran-C signal on plotter.  
0115 Re-initialized plotter.  
0135 Fix #119 - ended TV tow.  
0155 TV sled on deck and secured.  
0230 Completed hydrocast.  
0300 Completed transmissometer profile.

0323 Dredge A on bottom.

0328 Dredge A off bottom.

0404 Dredge B on bottom.

0406 Dredge B off bottom.

0429 Dredge C on bottom.

0432 Dredge C off bottom.

0500 Rigging trawl. Replaced large thimble in end of tugger cable with a smaller one which will fit through **hydroblock**.

0643 Began trawl.

0649 Ended trawl. Net was ripped out - no sample.

0720 Repaired net and headed into position to deploy trawl.

0738 Trawl on bottom.

0745 End of trawl.

0755 Trawl on deck. Net was completely shredded. Will have to rig rollers to new net. Trawl being postponed until this evening. Prepared to deploy station marker at St. 44.

0830 Deployed pinger, sediment traps, and thermograph. PVC pipe holding traps broke at base after deployment.

0900 Deployed Avon.

0910 Dive team in water.

0948 Dive team out of water.

0955 Avon on board.

1015 Problem with the **15-hp** motor starting. While attempting to repair motor the camera jig hit the deck during a boat roll breaking off a strobe.

1115 Repairs made. Divers getting into Avon.

1128 Divers in water.

1210 Divers out of water. Collected 9 **quadrate** samples in sets of 3 using random walk.

1220 Filled tanks and ate lunch.

1345 Tanks filled.

1400 Divers in water. Collected 9 quadrate samples. Turbidity continued to be a problem.

1440 Divers out of water.

1500 Divers back on deck. Waited until 1600 for sufficient bottom time.

1605 Divers in water. Attached sediment trap, **pinger**, and thermograph.

1640 Divers up. Deployed buoy for visual mark of array.

1700 Avons on deck. Sorted and weighed specimens. Rigged rollers on second trawl.

1800-2000 Processed samples and rigged otter trawl.

2010 Moved into position to deploy otter trawl.

2045 Trawl on bottom.

2100 Trawl off bottom. Net was torn but most of sample was still in cod end of net.

2115 Underway to St. 45.

2330 Arrived at St. 45.

December 6, 1982

0000 Launched TV sled.

0020 Sled just above bottom - picture on monitor breaking up.

0028 Began TV tow at St. 45.

0138 End of TV tow at St. 45.

0237 Completed hydrocast at St. 45.

0245 Completed **transmissometer** profile.

0320 Dredge A on bottom.  
0323 Dredge A off bottom.  
0352 Dredge B on bottom.  
0355 Dredge B off bottom.  
0412 Dredge C on bottom.  
0415 Dredge C off bottom.  
0453 Trawl A on bottom.  
0502 Trawl A off bottom - ripped net; will re-do trawl.  
0540 Trawl B on bottom.  
0542 Trawl B off bottom.  
0600 Underway for St. 44 to complete taking quadrates samples.  
0745 Arrived at St. 44. Deployed Avons.  
0805 Divers in water.  
0828 Divers out of water. Collected 5 quadrates and photographed 15-m transect.  
0845 Avons on deck and underway for St. 45. Rigged station marker for deployment.  
1030 Arrived at St. 45.  
1045 Deployed station marker.  
1055 Deployed Avons.  
1100 Dive team in water. Fish census taken and attached sediment traps and pinger to station marker.  
1128 Dive team out of water.  
1202 Dive team in water. Photographed, measured sediment depth, and collected 8 quadrates.  
1242 Dive team out of water.  
1245 Must wait until 1350 for first team to go back in water giving them a bottom time of 30 min.

1358 Dive team in water.

1434 Dive team out of water. Measured sediment depth, photographed, and collected biota in 8 quadrates.

1440 Next dive team took a longer surface interval so that there would be more bottom time available.

1528 Dive team in water.

1604 Dive team out of water. Photographed, measured sediment depth, and collected biota in 8 quadrates.

1630 Underway for St. 47. Collected 24 quadrates. No dive team has any bottom time remaining until dark.

1800 Arrived at St. 47. Continued to sort St. 45 samples.

2000 Finished processing St. 45 samples.

2030 Deployed TV sled.

2049 Fix #1 on TV tow.

2318 Fix #150 on TV tow. Last Fix.

2340 TV sled on deck.

2345 Prepared for hydrocast.

December 7, 1982

0020 Hydrocast completed.

0040 Transmissometer profile completed.

0055 Dredge A on bottom.

0100 Dredge A off bottom.

0117 Dredge B on bottom.

0119 Dredge B off bottom.

0140 Dredge C on bottom.

0143 Dredge C off bottom.

0150 Made repairs to trawl net.



0240 Trawl A on bottom.

0243 Trawl A off bottom - cod end torn; retained a partial sample.

0311 Trawl B on bottom.

0315 Trawl B off bottom.

0325 Underway to Fix #108-B to take a dredge sample (Algal bottom area) .

0500 Arrived at Algal Coverage Live Bottom Area.

0509 Dredge A on bottom.

0512 Dredge A off bottom.

0524 Dredge B on bottom.

0528 Dredge B off bottom.

0530 Underway to St. 45 to finish diving activities.

0845 Arrived at St. 45.

0900 Dive team in water. Photographed 8 quadrates, measured sediment depth, and collected biota in 6 quadrates.

0940 Dive team out of water.

1005 Dive team in water. Photographed 3 quadrates, measured sediment depth, collected biota in 5 quadrates. Photographed 12-m transect.

1037 Dive team out of water.

1100 Underway for St. 46.

1115 Deployed temporary buoy. Waited to build up sufficient surface interval to have adequate bottom time.

1155 Dive team in water. Soft bottom cores.

1225 Dive team out of water.

1245 Underway for St. 48.

1425 Deployed temporary buoy at St. 48.

1447 Dive team in water. Soft bottom cores.  
1507 Dive team out of water.  
1525 Underway for St. 51.  
1845 Arrived at St. 51.  
1915 TV sled ready for deployment; moved ship into position.  
1930 Launched TV sled.  
1949 Began TV tow - Fix #1.  
2134 Ended TV tow - Fix #95.  
2205 TV sled on deck.  
2252 Completed hydrocast.  
2301 Completed transmissometer profile.  
2335 Positioning ship for first dredge sample at St. 51.  
2342 Dredge A on bottom.  
2349 Dredge A off bottom.

December 8, 1982

0022 Dredge D on bottom.  
0027 Dredge D off bottom.  
0040 Dredge E on bottom.  
0045 Dredge E off bottom.  
0125 Dredge C on bottom.  
0129 Dredge C off bottom.  
0227 Dredge B on bottom.  
0231 Dredge B off bottom.  
0307 Dredge F on bottom.  
0311 Dredge F off bottom.  
0345 Trawl A on bottom.

0353 Trawl A off **bottom**.

0409 Trawl B on bottom.

0412 Trawl B off bottom.

0415 Underway for St. 54.

0700 Arrived and deployed temporary buoy at St. 54.

0755 Dive team in water. Soft bottom cores.

0820 Dive team out of water.

0840 Pulled temporary buoy and underway for St. 53.

1115 Arrived at St. 53 and deployed temporary buoy.

1130 Dive team in water. Soft bottom cores.

1205 Dive team out of water.

1220 Underway for St. 50.

1445 Arrived at St. 50 and deployed temporary buoy .

1505 Dive team in water. Soft bottom cores.

1525 Dive team out of water.

1540 Underway for St. 51.

1615 Dive team in water. Soft bottom cores.

1645 Dive team out of water.

1700 Recovered temporary buoy.

1830 Checked videocassette recorder on ship's power. Not a steady enough power source - interference on recorded tapes.

1925 Launched TV sled at St. 51 for re-tow.

194(I Fix #1 on TV tow.

2027 Fix #48 on TV tow - end of run.

2040 TV sled on deck. Underway for St. 52.

2130 Arrived at St. 52.

2135 Launched TV sled.

2145 Sled tangled in stone crab trap buoy line.  
Had to raise sled and **re-deploy** it.

2205 TV sled deployed.

2216 Began TV tow.

2218 Sash weight pole snagged on bottom and bent  
to the left and down. Had to pull sled to  
straighten pole since it was digging into  
bottom.

2230 **Re-deployed** sled. Trailing buoy line  
snagged on crab trap and then became  
tangled in rudder. Had to be cut loose.

2245 Re-deployed sled again.

2300 Began TV tow. Sled and cable snagged on  
crab trap. Pole bent down toward bottom  
again. Pulled sled.

2325 Repaired sash weight pole. Tied support  
line from end of pole to top of sled.  
Launched sled.

2343 Began TV tow.

December 9, 1982

0020 Snagged crab trap with sled.

0030 Sled untangled. Resumed tow.

0144 Fix #115. Ended TV tow.

0155 TV sled on deck.

0215 **Hydrocast** tripped.

0240 Transmissometer profile.

0309 Dredge A on bottom.

0311 Dredge A off bottom.

0320 Dredge B on bottom.

0322 Dredge B off bottom (empty).

0331 Dredge B (2nd attempt) on bottom.  
0334 Dredge B off bottom.  
0345 Dredge C on bottom.  
0349 Dredge C off bottom (empty).  
0358 Dredge C (2nd attempt) on bottom.  
0406 Dredge C off bottom.  
0450 Trawl on bottom.  
0455 Trawl off bottom.  
0515 Anchored ship while we processed samples  
and developed film.  
0715 Pulled anchor, which had been dragging, and  
steamed to the site chosen for diving.  
Anchor fouled crab traps.  
0745 Deployed temporary buoy.  
0755 Dive team in water. Fish census and  
general station observations.  
0825 Dive team out of water.  
0840 Deployed station marker.  
0915 Dive team in water. Photographed, measured  
sediment thickness, and collected biota  
from 8 quadrates.  
1000 Dive team out of water.  
1027 Dive Team in water. Photographed, measured  
sediment thickness, and collected biota at  
10 quadrates (1 sample lost on bottom).  
1110 Dive team out of water.  
1145 Dive team in water. Photographed, measured  
sediment thickness, and collected biota at  
10 quadrates.  
1215 Dive team out of water.  
1230 Avons on deck.  
1300 Completed the clearing of the deck of dive  
gear and prepared for TV tow.

1340 Launched TV sled for daylight tow at St. 52.

1402 Fix #1 - TV tow.

1431 Fix #30 - snagged crab trap.

1445 TV sled on deck - strobe malfunctioning.

1455 Replaced strobe battery.

1510 TV sled in water.

1539 Fix #55 - end of TV tow.

1545 TV sled on deck.

1610 Dredge D on bottom.

1612 Dredge D off bottom.

1623 Dredge E on bottom.

1625 Dredge E off bottom.

1646 Dredge F on bottom.

1649 Dredge F off bottom.

1708 Trawl B on bottom.

1713 Trawl B off bottom.

1830 Finished processing biological samples.

December 10, 1982

0745 Deployed Avons.

0800 Dive team in water. Photographed, measured sediment thickness, and collected biota at 9 quadrates.

0835 Dive team out of water.

0900 Dive team in water. Photographed 12-m transect and installed thermograph, pinger, and sediment traps.

0925 Dive team out of water.

0940 Dive team in water. Installation of instruments.

1000 Dive team out of water.

1010 Recovered temporary buoy.

1015 Deployed temporary buoy at soft bottom - live bottom demarcation.

1030 Dive team in water. Surveyed area for soft bottom next to and within live bottom area.

1050 Dive team out of water. Marked live bottom site for cores.

1115 1st Dive team in water. Collected cores at 5-m soft bottom site.

1125 2nd Dive team in water.

1145 1st Dive team out of water. 2nd Dive team out of water. Determined location of soft bottom site within live bottom area.

1310 Dive team in water. Sediment cores within live bottom area.

1335 Dive team out water.

1350 Dive team in water. Placed buoys on 25-m and 75-m sites using a tape measure.

1415 Dive team out of water.

1425 Dive team in water. Collected cores at 25-m.

1445 Dive team out of water.

1510 1st Dive team in water. Collected cores at 75-m sites.

1520 2nd Dive team in water. Deployed buoy for site 125 m from live bottom area.

1540 1st Dive team out of water. 2nd Dive team out of water.

1610 Dive team in water. Collected cores at 125-m site.

1640 Dive team out of water.

1700 Recovered temporary buoy.

1710 Underway for St. 51. Continued to process soft bottom cores.

1800 Arrived at St. 51.

1830 Set anchor.

December 11, 1982

0630 Raised anchor.

0730 Deployed station marker.

0750 **Dive** team in water. Fish census and attachment of sediment traps and pinger.

0825 Dive team out of water. Seas (3-5') slowing operations.

0855 Dive team in water. Photographed, measured sediment thickness, and collected biota in 10 quadrates.

0935 Dive team out of water.

1000 **Dive** team in water. Photographed, measured sediment thickness, and collection biota in 10 quadrates.

1030 Dive team out of water.

1100 **Dive** team in water. Photographed, measured sediment depth, and collected biota in 10 quadrates.

1140 Dive team out of water.

1240 Dive team in water. Photographed, measured sediment depth, and collected **biota** in 5 quadrates.

1320 Dive team out of water.

1330 Recovered temporary buoy.



1335 Underway for St. 52. Due to distance to St. 49 (18 NM) and sea conditions it became doubtful that we would reach St. 49 by 1600. This arrival time necessary to get divers in water. This coupled with the problem at St. 52 with the live bottom being too close to the sites suggested that we should return to St. 52 and collect one more set of samples.

1440 Arrived at St. 52 and set temporary buoy.

1500 Dive team in water.

1520 Dive team out of water. Set buoy 75 m from live bottom area.

1550 Dive team in water. Collected cores at a second 75-m site.

1620 Dive team out of water.

1635 Recovered temporary buoy. Processed samples.

1830 Set anchor at St. 52.

2100 Underway for St. 49.

2345 Arrived at St. 49 and anchored.

December 12, 1982

0700 Boat anchored directly on St. 49. No need for temporary buoy. Diving will be done from the Avon only a few meters from the ship.

0800 Dive team in water. Collected sediment, hydrocarbon, and infaunal cores. Ship dragged anchor. Pulled anchor and stood by in Avon.

0830 Dive team out of water.

0840 Avons on board and underway for St. 47.

1105 Arrived at St. 47.

1110 Ship's generator, one engine, and steering down. Port engine out of fuel. Transferring fuel to port tank while running with the seas.

1245 Main generator down. Diode plate burned out. Captain does not want to remain at sea with only the secondary generator. Unable to run galley or air conditioning. In addition, the wind has increased to 30 kn and the seas to 6 to 8'. Diving is not possible in these conditions. A cold front is moving through with numerous squalls. Decision made to steam to Fort Meyers Beach.

1730 Arrived at Fort Meyers Beach dock.

December 13, 1982

0800 Generator diode plate supposed to arrive at 1000. We will also take on fuel and water. NOAA weather predicts north winds at 20 to 25 kn with 6 to 10' seas tonight, and northeast to east winds at 20 to 25 kn tomorrow.

1800 Generator diode plate arrived.

2100 Diode plate installed. NOAA weather has continued with the same prediction. We will depart 0700 tomorrow.

December 14, 1982

0715 Departed Fort Meyers Beach.

1000 NOAA weather reports northeast winds at 20 to 25 kn today, east winds at 20 kn tonight, and south to east winds at 15 to 20 kn tomorrow. Seas are predicted to be 4 to 6' nearshore and up to 10' offshore.

1200 Arrived at St. 47. Previously placed temporary buoy still present.

1215 Dive team in water. TV survey indicated a patchy live bottom at this station. The purpose of this dive was to determine if suitable live bottom was present and to conduct fish census.

1240 Dive team out of water. Live bottom was not present. Dive team moved buoy about 150' and encountered a thin coverage of live bottom in an area 20' wide by at least 75' long.

1330 Dive team in water. Search for suitable live bottom.

1345 Dive team out of water.

1415 Deployed station marker at second dive site.

1430 Dive team in water. Photographed, measured sediment thickness, and collected biota in 8 quadrates.

1500 Dive team out of water.

1525 Dive team in water. Photographed, measured sediment thickness, and collected biota in 12 quadrates.

1600 Dive team out of water.

1615 Suspended diving operations. due to approaching darkness. Squalls with 30-kn winds moving across the study area.

1645 Recovered first buoy. Rigged for repeat of TV tow.

1715 Loran-C unit down. Investigated problem and checked TV system.

1830 Loran-C unit functioning. Moved into position to deploy TV sled.

1850 TV sled deployed.

1902 Began TV tow - Fix #1.

2017 Ended TV tow - Fix #76.

2030 TV sled on deck.

December 15, 1982

0745 Dive team in water. Fish census and installation of sediment trap.

0818 Dive team out of water.

0845 Dive team in water. Photographed, measured sediment thickness, and collected biota in 12 quadrates.

0915 Dive team out of water.

0940 Dive team in water. Photographed, measured sediment thickness, and collected biota in 8 quadrates.

1010 Dive team out of water.

1035 Dive team in water. Photographed, measured sediment thickness, and collected biota in 4 quadrates. Photo transect of 15 m and removed sediment trap caps. Avon crew recovered temporary buoy.

1100 Dive team out of water.

1115 Underway for St. 43.

1445 Arrived at St. 43 and deployed temporary buoy .

1500 Dive team in water. Soft bottom cores.

1545 Dive team out of water.

1600 Underway for Charlotte Harbor Area Block 887.

APPENDIX B  
ITEMIZED SUMMARY OF COLLECTED  
DATA AND SAMPLES

APPENDIX B. ITEMIZED SUMMARY OF COLLECTED MTA AND SAMPLES

Sample/Data Types	Station Number														Total		
	40	41	42	43	44	45	46	47	48	49	50	51	52	53		54	
Salinity					2	3	-	3				2	2			12	
Dissolved Oxygen					2	3	-	3				2	2			12	
Temperature					2	2	-	2				2	2			10	
Transmissivity*					1-3*	1-4*	-	1-5*				1-3*	1-3*			5-18'	
Diver Hard Bottom Biota Quadrat Samples					35	35	-	44				35	36			185	
Quadrat Sediment Thickness Measurements					105	105	-	132				105	108			555	
Diver Fish population Assessments					1	1	-	1				1	1			5	
Trawls					1	2	-	2				2	2			9	
Dredges					3	3	-	3				6	6			21	
Infaunal Cores	10	10	10	10				10	-	10	10	10		60	10	10	160
Sediment Grain Size Cores	3	3	3	3				3	-	3	3	3		18	3	3	48
Hydrocarbon Cores	3	3	3	3				3	-	2	3	3			3	3	29
Videotapes					2			2				1	3				8
Still Photographs					780	580	-	1,320				910	1,210				4,800
Thermograph Deployment					1								1				2
Sediment Trap Rack Deployment					1	1	-	1				1	1				5

● (Ntmbx of profiles - number of readings)

APPENDIX C

MARINE COASTAL WEATHER LOG

MARINE COASTAL WEATHER LOG — SHIP STATION

SHIP NAME  
R/V SUMMASTER

NAVY USE ONLY  
WT-1132

DATE  
DECEMBER 1982

(1) DATE (GMT)	(2) TIME	(3) POSITION Latitude Longitude	(4) PRESENT WEATHER (Cloud Cover/ Precip.)	(5) VISI- BILITY (MI)	(6) WIND		(7) STATE OF SEA		(8) SEA WATER TEMP. DC FC	(9) AIR TEMP. DC FC	(10) PRES- SURE	(11) REMARKS (Sigs. etc.)
					DIR. (16 pts)	SPEED (Kts)	WAVE HEIGHT (ft)	DIRECTION (8 pts)				
12/4	0000	TAMPA BAY	CLOUDY	3	E-SE	5	41'	E-SE	2'	66	30.48	
12/4	0752	STATION 40	CLEAR	14	E	18	1.5'	E	2-4'	78	30.40	
12/4	1155	26° 27.04' N LAT. 82° 07.89' W LONG.	CLEAR	4	E	9	1'	E	2-4'	74	30.44	
12/4	1735	26° 04.7' N LAT. 82° 04.2' W LONG.	CLEAR	12	E-SE	24	1.5'	E	1.5-6'	75	30.38	
12/4	2000	26° 10.71' N LAT. 82° 13.28' W LONG.	P. CLOUDY	13	SSE	15	21'	E	2-3'	70	30.35	
12/5	0136	14° 07.8' N LAT. 82° 59.4' W LONG.	HAZY	13	S-E	8	3'	E	3'	68	30.32	
12/5	0615	26° 17.27' N LAT. 82° 13.88' W LONG.	CLEAR	13	ESE	20	21'	E	3'	68	30.34	
12/5	0800	14° 07.8' N LAT. 82° 59.4' W LONG.	CLEAR	13	E-SE	20	3'	E	3'	78	30.35	
12/5	1226	14° 07.8' N LAT. 82° 59.4' W LONG.	CLEAR	13	E-SE	20	4'	E	4'	76	30.35	
12/5	1524	17° 17.8' N LAT. 82° 11.82' W LONG.	CLEAR	13	E-SE	18-20	1'	E	4-5'	81	30.32	
12/5	2225	26° 10.71' N LAT. 82° 11.82' W LONG.	CLEAR	13	SE	5	1'	E	3-4'	68	30.42	
12/6	0036	14° 07.8' N LAT. 82° 59.4' W LONG.	CLEAR	13	SE	15	2-3'	E	2-3'	68	30.42	
12/6	0600	14° 07.8' N LAT. 82° 59.4' W LONG.	HAZY	3	ESE	10	21'	E	2'	69	30.48	
12/6	0948	17° 05.0' N LAT. 82° 25.1' W LONG.	CLEAR	3	E-SE	10-12	21'	E	2'	78	30.40	
12/6	11505	14° 07.8' N LAT. 82° 59.4' W LONG.	CLEAR	13	E-SE	10-11	2'	E	12'	79	30.41	
12/6	20	26° 06.77' N LAT. 82° 06.77' W LONG.	CLEAR	2	—	—	2'	E	1	71	30.45	
12/6	2340	26° 05.79' N LAT. 82° 05.79' W LONG.	HAZY	13	E-SE	10	2'	E	2'	68	30.42	



MARINE COASTAL WEATHER LOG—SHIP STATION

SHIP NAME **R/V SUNCOASTER** RADIO CALL SIGN **WI-4132** DATE (month • nd year) **DECEMBER 1982**

(1) DATE	(2) TIME (GMT)	(3) POSITION Latitude Longitude	(4) PRESENT WEATHER (Cloud Cover/ Precip.)	(5) VISI- BILITY (MI)	(6) WIND		(7) STATE OF SEA			(1) SEA WATER TEMP. OC OF	(9) AIR TEMP. OC OF	(10) PRES- SURE	(11) REMARKS (Icing, etc.)
					" R" 16 pts)	SPEED (Kts)	WAVE HEIGHT (Ft)	SWELL DIRECTION (8 Pts) HEIGHT (Ft)					
12/7	0359	25° 41.07' N LAT. 82° 01.64' W LONG	CLOUDY	13	SE	15	1'	E	3'	-	68°	30.42	
12/7	0736	25° 51.40' N LAT 82° 09.63' W LONG	P. CLOUDY	12	NE	12	1'	E	2-3'	-	-	30.45	
12/7	1140	26° 00.81' N LAT 82° 07.96' W LONG	CLEAR	13	NE	10-12	1-2'	E	2-3'	-	76°	30.55	
12/7	1619	25° 39.79' N LAT. 81° 55.29' W LONG	CLEAR	13	SE	5	1'	E	1'	-	77°	30.50	
12/7	2024	25° 17.10' N LAT 81° 48.28' W LONG	CLEAR	13	E-NE	15-18	2-3'	E	2'	-	68°	30.42	
12/8	0335	25° 17.31' N LAT 81° 48.26' W LONG	CLEAR	13	E	20	1'	E	3'	-	72°	30.52	
12/8	0800	24° 49.58' N LAT 81° 50.61' W LONG	CLEAR	13	E-NE	20	1'	E-NE	2-3'	-	74°	30.58	
12/8	1400	25° 12.21' N LAT 81° 46.25' W LONG	CLEAR	13	E-NE	12	1-2'	E-NE	3'	-	74°	30.45	
12/8	1709	25° 17.38' N LAT 81° 48.17' W LONG	CLEAR	13	E	14	1'	E-NE	2-3'	-	74°	30.42	
12/8	2000	25° 17.57' N LAT 81° 48.20' W LONG	CLOUDY/SHOWERS	10	E	20	2'	NE	3-4'	-	72°	30.42	
12/9	0000	25° 17.65' N LAT 81° 40.16' W LONG	CLEAR	13	E	20	2'	NE	3-4'	-	72°	30.43	
12/9	0700	25° 16.67' N LAT 81° 40.25' W LONG	CLEAR	13	NE	18	2'	NE	3-4'	-	72°	30.51	
12/9	1322	25° 17.43' N LAT 81° 39.93' W LONG	CLEAR	13	NE	12	1'	NE	3'	-	77°	30.50	
12/9	1624	25° 17.32' N LAT 81° 39.55' W LONG	P. CLOUDY	13	E	12	1'	NE	2-3'	-	74°	30.52	
12/10	0900	25° 17.48' N LAT 81° 39.76' W LONG	CLEAR	13	E-NE	12	1'	NE	2-3'	-	76°	30.49	
12/10	1200	25° 17.50' N LAT 82° 40.09' W LONG	CLEAR	13	E-NE	10	1'	NE	2'	-	78°	30.46	
12/12	1600	25° 17.42' N LAT 81° 40.01' W LONG	P. CLOUDY	13	E	2	1'	SE	2-3'	-	79°	30.48	

## MARINE COASTAL WEATHER LOG—SHIP STATION

O.M.B. No. 41-R2734

SHIP NAME R/V SUNCOASTER							RADIO CALL SIGN WI - 4132			DATE (month and year) DECEMBER 1982				
(1) DATE	(2) TIME (GMT)	(3) POSITION Latitude Station Longitude		(4) PRESENT WEATHER (Cloud Cover/ Precip.)	(5) VISI- BILITY (MI)	(6) WIND		(7) STATE OF SEA			(8) SEA WATER TEMP. °C °F	(9) AIR TEMP. °C °F	(10) PRES- SURE	(11) REMARKS (icing, etc.)
						DIR. (16 pts)	SPEED (Kts)	WAVE HEIGHT (Ft)	SWELL DIRECTION (8 Pts)      HEIGHT (Ft)					
12/11	0845	25° 17.24' N LAT 81° 47.49' W LONG	CLEAR	13	SE	20	2'	SE	3-4'		—	74°	30.26	
12/11	1225	25° 17.26' N LAT 81° 47.65' W LONG	CLEAR	13	S-SE	20	2'	SE	3-4'		—	76°	30.28	
12/11	0400	25° 17.60' N LAT 81° 40.02' W LONG	CLEAR	13	S-SE	17	2'	SE	3-4'		—	73°	30.34	STORM FRONT MOVING IN FROM THE NE.
12/12	0850	25° 35.29' N LAT 81° 46.10' W LONG	CLEAR	13	W	18	2'	S-SW	3'		—	76°	30.21	
12/12	1245	25° 47.22' N LAT 82° 04.91' W LONG	CLOUDY	5	W	30	2'	SW	6-8'		—	73°	30.19	HEADING TOWARD SHORE.
12/12	1515	26° 11.53' N LAT 82° 02.48' W LONG	CLOUDY	2	W	35	3'	W	8-10'		—	72°	30.21	HEADING TOWARD SHORE
12/14	1010	26° 03.42' N LAT 82° 02.77' W LONG	CLOUDY	10	W	17	2'	W	3-4'		—	70°	30.79	UNDERWAY FOR STATION 47
12/14	1144	25° 48.63' N LAT 82° 05.66' W LONG	CLOUDY	10	ESE	20	2'	E	3-4'		—	73°	30.56	AT STATION 47
12/14	1600	14025.5 43834.4 LORAN C	CLOUDY	6	SE	16	2'	E	2-3'		—	73°	30.79	
12/14	2000	25° 45.86' N LAT 82° 05.74' W LONG	CLOUDY	6	E-NE	25-30	1'	NE	3-4'		—	68°	30.51	
12/15	0813	25° 45.83' N LAT 82° 06.18' W LONG	P. CLOUDY	9	E	25	3'	E	5-7'		—	72°	30.50	
12/15	1201	25° 52.80' N LAT 82° 09.14' W LONG	CLEAR	10	SE	18-20	3'	SE	5-7'		—	74°	30.50	
12/15	1630	26° 16.96' N LAT 82° 22.65' W LONG	P. CLOUDY	10	S	20	1-2'	SE	5-7'		—	70°	30.48	

APPENDIX D

ITEMIZED BREAKDOWN OF CRUISE  
TIME UTILIZATION (HOURS/DAY)

APPENDIX D. ITEMIZED BREAKDOWN OF CRUISE TIME UTILIZATION (HOURS/DAY).

<u>Date</u>	<u>Steaming</u>	<u>Sampling</u>	<u>Mobilization</u>	<u>Mechanical Downtime</u>	<u>Weather Downtime</u>	<u>Ship Anchored on station</u>
December 3	1.5		11.5	2.5 a		
4	11.25	10.25		2.5 b,c		
5	2.25	19.5		2.25 d,e		
6	5.0	18.0		1.0 f		
7	10.0	13.5		0.5 g		
8	8.25	14.0		1.75 h		
9*	0.5	17.0		1.0 i,j		5.5
10*	0.75	10.25				13.0
11*	4.0	10.75				9.25
12*	2.25	1.75		13.0 k		7.0
13*				21.0 k	3.0 l	
14*		7.25		1.25 m	12.0 l	3.5
15*	3.5	5.5				7.0

\*Working daylight hours only

- a. Water line broken on dock. Delay in taking on water (2.5 hr).
- b. **Fathometer** not working (0.75 hr).
- c. Television monitor and videocassette recorder problems (1.75 hr).
- d. **Trawl** net torn on hard corals and **rock** bottom (1.25 hr).
- e. outboard motor and camera jig repair (1.0 hr).
- f. **Trawl** net torn on **hard** corals and rock bottom (1.0 hr).
- g. **Trawl** net torn on hard corals and rock bottom (0.5 hr).
- h. Television/still camera sled fouled on stone crab traps (1.75 hr).
- i. Television/still camera sled fouled on stone crab traps (0.25 hr).
- j. Television/still camera sled strobe malfunctioned (0.75 hr).
- k. Ship's main generator out of order. Returned to port for repair (34.0 hr).
- l. Sea conditions too rough for **diving**. 6 to 10-foot seas in **sampling** area (15.0 hr).
- m. Loran-C unit out of order (1.25 hr).