PO-GM84

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30071

YEAR 4, CRUISE III
CRUISE REPORT

Prepared for:

MINERALS MANAGEMENT SERVICE
Washington, D.C.

Prepared by:

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
Gainesville, Florida

ESE No. 83-513-0561

June 1984

REGISTERED
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1.0 CRUISE PLAN

During Cruise III of Year 4 of the Southwest Florida Outer Continental Shelf Benthic Community Study, all 15 stations chosen by ESE/LGL and MMS were to be sampled.

The sample types included epifauna, infauna, hydrography (with associated calibration casts), and meteorological and ancillary marine observations. In addition, the servicing of five in situ arrays was planned for Cruise III. A brief description of the cruise plan follows.

Epifauna sampling was to be conducted at the five Group I hard-bottom stations (I-H) and all five Group 11 stations. The sampling was to include underwater television/benthic still photography (UTV/BSP) surveys, dredging, and trawling. At each station, for a minimum of 3 to 4 hours, at least 3 to 4 kilometers (km) of UTV/BSP transects were to be surveyed. The benthic still camera (BSC) was to be used to photograph either representative or unusual specimens. In addition to the UTV/BSP surveys, three dredge tows and one otter trawl were to be performed at each epifauna station.

Infauna sampling using diver corers was to be conducted at all five Group I soft-bottom (I-S) stations. Ten replicates were to be obtained from each station.

A hydrographic profile, measurement of sea surface temperature, and meteorological and ancillary marine observations were to be made at all 15 stations. The hydrographic profile, which included conductivity, salinity, temperature, dissolved oxygen (DO), pH, and transmissivity, were to be measured with a CSTD. Sea surface temperature was to be measured with a deep sea reversing thermometer (DSRT) mounted on a Niskin bottle (this would serve as verification of the CSTD temperature probe). The meteorological and ancillary marine data were to be collected by assorted instruments and observation.

At three stations, preferably near the beginning, midpoint , and end of the cruise, a Niskin/DSRT cast to obtain temperature, salinity, and DO data was to be conducted for verification and calibration of the CSTD.

In addition, at all five Group II stations, an in situ array was to be serviced. Each array is equipped with 2 year's worth of fouling plates, three sets of sediment traps, and a current meter (capable of measuring current speed and direction, temperature, and conductivity continuously) . In addition, the two shallowest stations have arrays equipped with wave gages and time-lapse cameras or TLC (for monitoring epifaunal recruitment and sediment movement).

Finally, ESE had proposed to make up some UTV/BSP, dredging, and trawling work not performed during Cruises I and II due to weather problems. Rather than perform this makeup at the deficient stations, the MMS COTR requested that 1 extra km of UTV track be covered at each Group I-H and Group II station and that makeup trawls and dredges be done at Lease Blocks 671-675 and 686-687. These blocks have already been leased and are of particular interest to the State of Florida.

The events of this cruise are discussed in the following sections.

2.0 CRUISE DESCRIPTION

2.1 SCHEDULE AND PARTICIPANTS

Unlike the previous cruises, Cruise III consisted of two legs because of weather delays. Leg 1 began the morning of May 8, 1984, with the loading of the R/V SUNCOASTER by ESE, LGL, and FIO personnel. The vessel was underway at 1915 hours of that same day and returned to FIO at 1121 hours on May 18, 1984. Leg 2, with a smaller scientific crew, began with the vessel getting underway at 1639 hours on May 25 and ended at 0810 hours, May 29, 1984, with the vessel unloaded at FIO.

The proposed cruise tracks for Legs 1 and 2 and the actual cruise tracks for Legs 1 and 2 are presented in Figures 1 through 4, respectively. Table 1 presents the cruise participants, titles, and affiliations for both legs.

A detailed account of cruise events is presented in the Cruise Log (a portion of which is included in the appendix). This log also contains station information and sampling times and positions; hydrographic, meteorological, and ancillary marine data; UTV/BSP data sheets; biological sampling sheets; assorted quality control (QC) sheets (equipment lists, sample control sheets, etc.); and the ROSCOP Form.

A brief description of data collected, by task, is presented in the following section.

2.2 DATA COLLECTED

Table 2 presents the data collected as proposed and actual as well as percent complete figures. All missing epifaunal data from Cruises I and II have been made up with a scheme described in the following paragraphs.

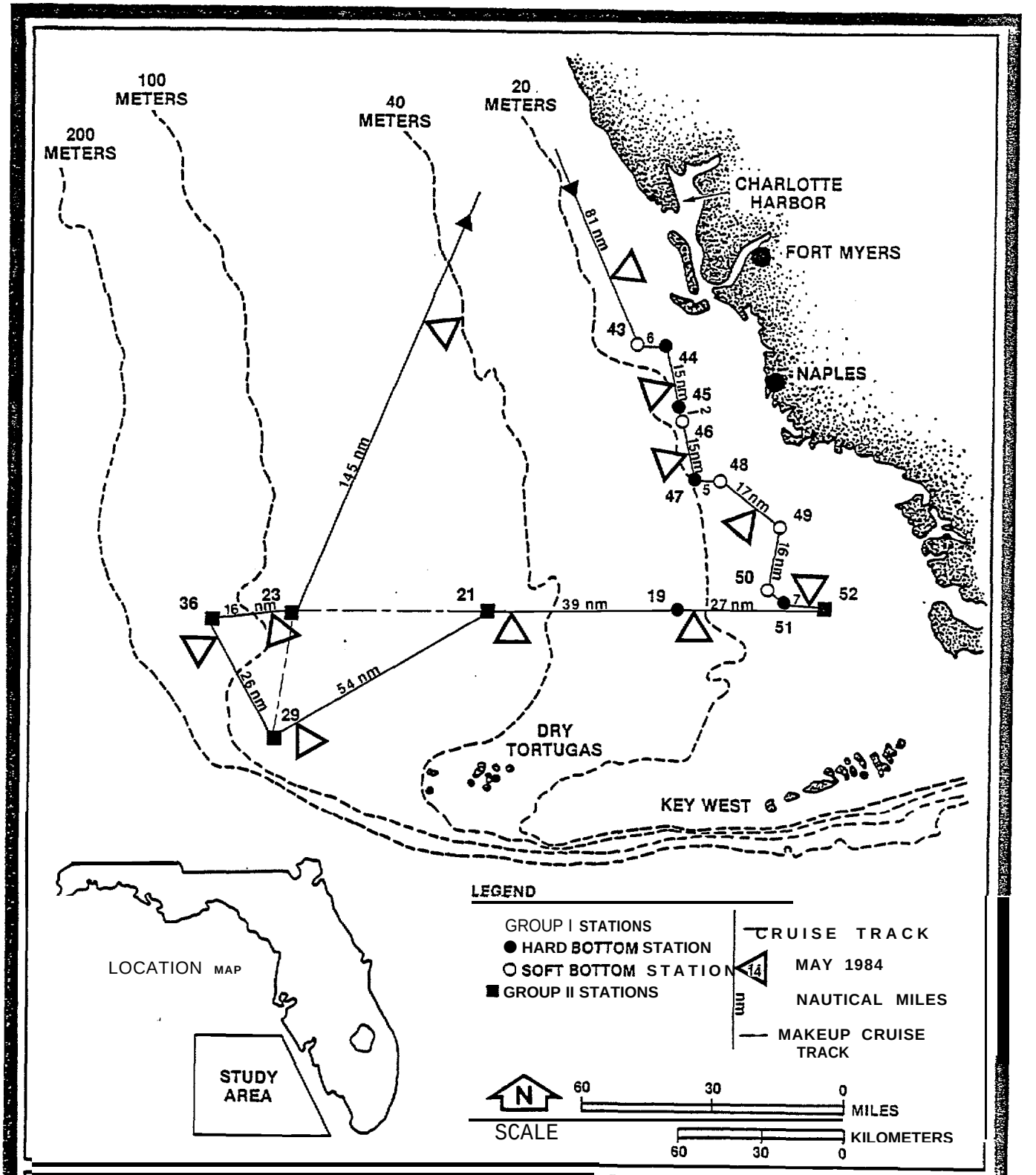


Figure 1
PROPOSED CRUISE TRACK FOR YEAR 4 – CRUISE III (LEG 1)

SERVICE

MINERALS MANAGEMENT

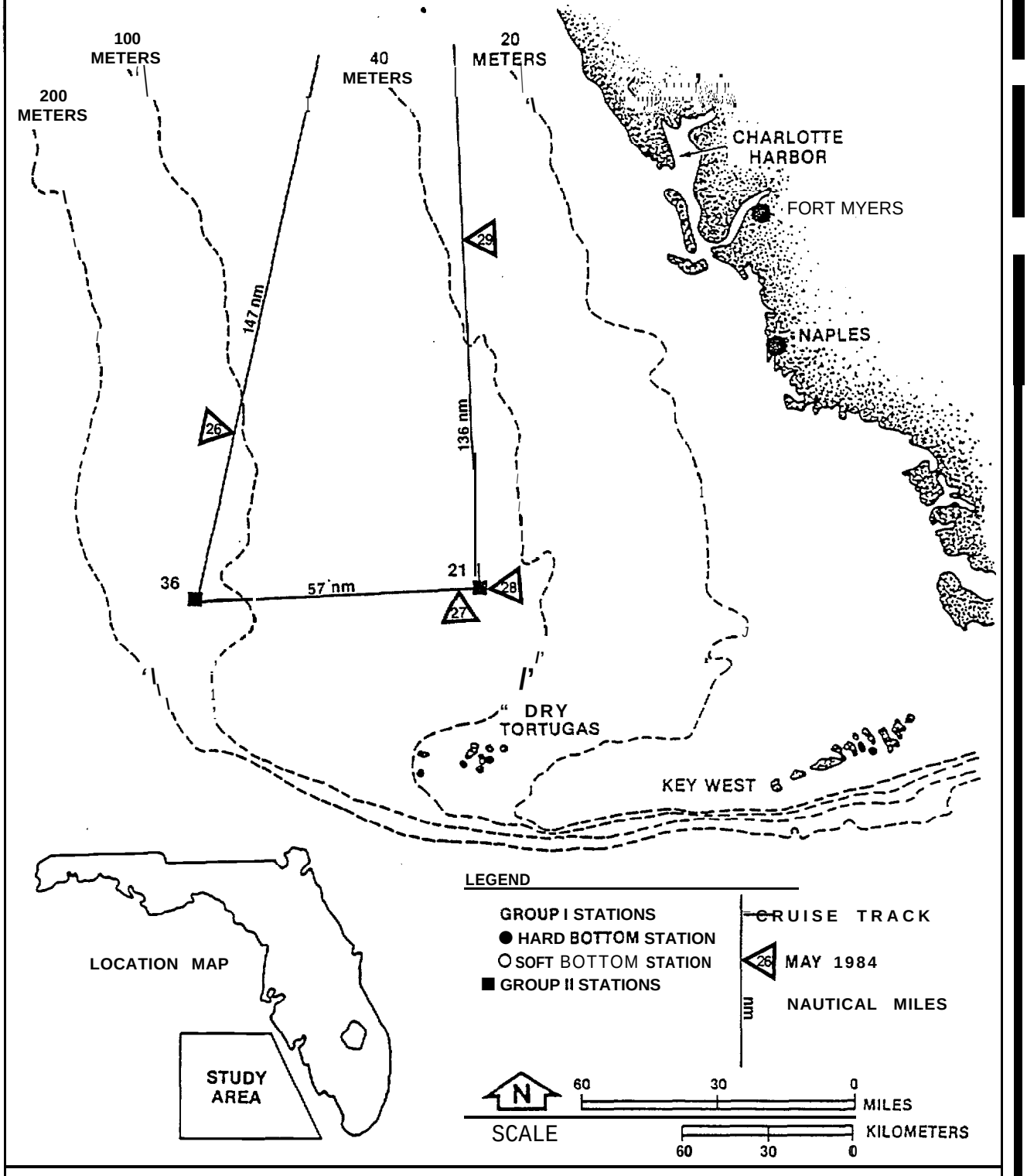


Figure 2
PROPOSED CRUISE TRACK FOR
YEAR 4 - CRUISE Ill (LEG 2)

SOURCE: ESE, 1984.

MINERALS MANAGEMENT SERVICE

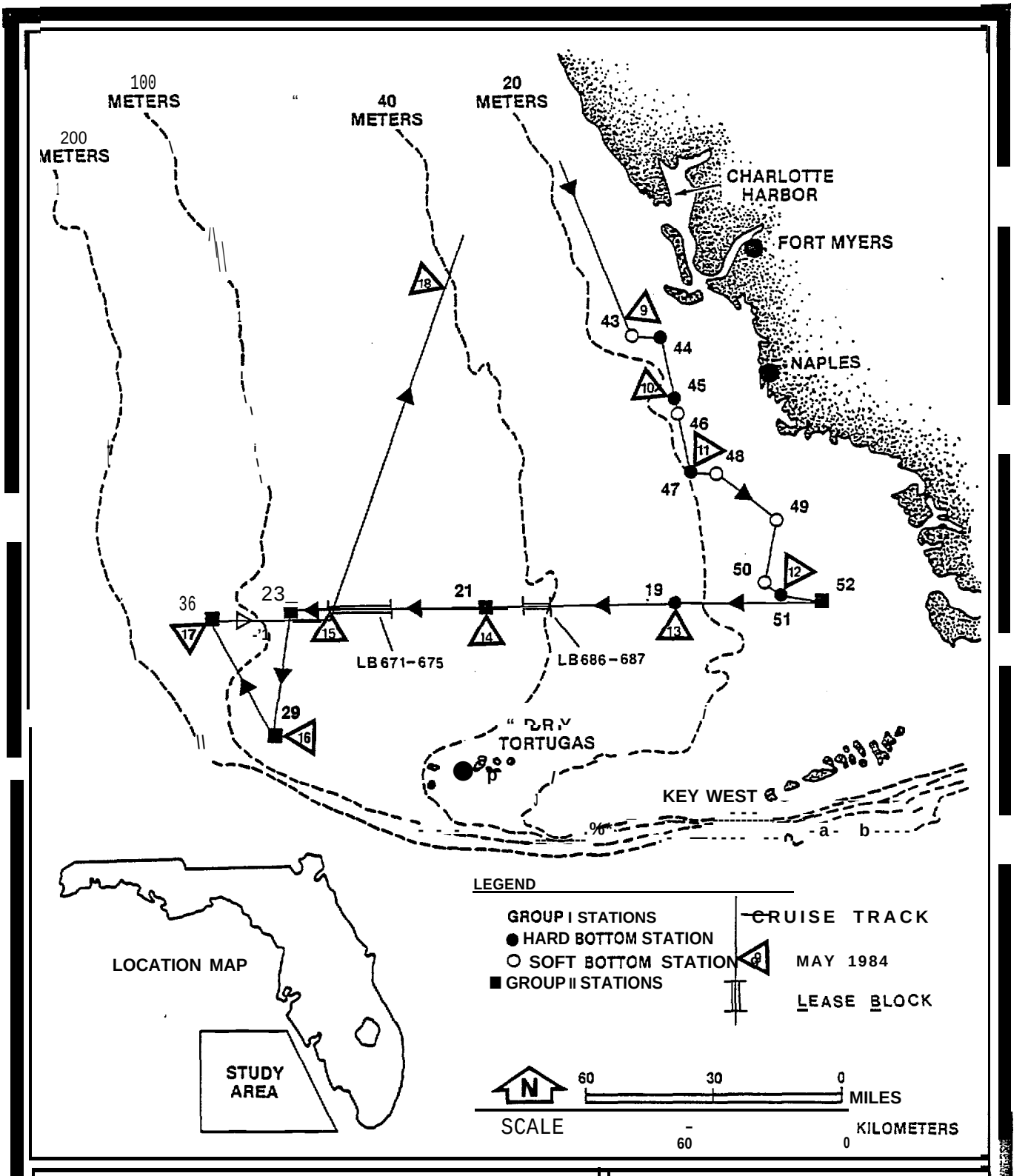


Figure 3
CRUISE TRACK
YEAR 4 – CRUISE III (LEG 1)

SOURCE ESE, 1984.

MINERALS MANAGEMENT SERVICE

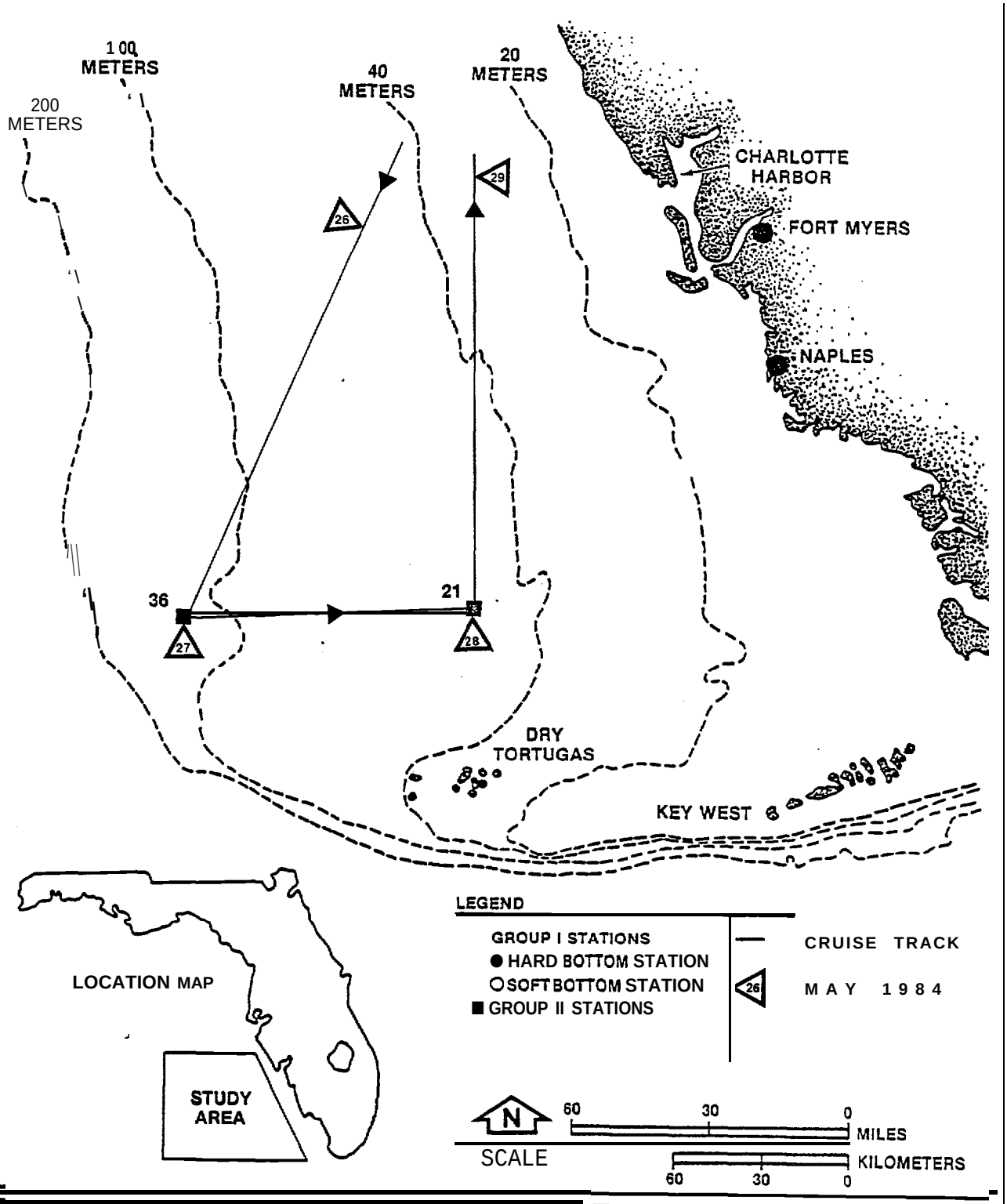


Figure 4
CRUISE TRACK YEAR 4 - CRUISE III (LEG 2)

SOURCE: ESE, 1984.

MINERALS MANAGEMENT SERVICE

Table 1. Year 4, Cruise 111 (Legs 1 and 2) Participants, Titles, and Affiliations

Name	Title	Affiliation
Larry J. Danek	Project Manager, Chief Scientist	ESE
Michael S. Tomlinson*	Logistics Coordinator	ESE
Gary H. Tourtellotte*	Chief Technician	ESE
George S. Lewbel	Biological Advisor	LGL
Gregory S. Boland*	Principal Investigator	LGL
Larry R. Martin	Principal Investigator	LGL

* Leg 2 participants. '

Source: ESE, 1984.

Table 2. Summary of Data Collected (Proposed and Actual) for Year 4, Cruise III

Data Types	Method	Number of Stations		Number of Samples		Percent Complete (%)
		Proposed	Actual	Proposed	Actual	
Epifauna	UTV/BSP	10	10	(4 km of transects)*		100
	Triangular Dredge	10	10	30	30	100
	Otter Trawl	10	10	10	10	100
	Makeup, Dredge	2	2	5	5	100
	Makeup, Trawl	2	2	3	3	100
In fauna	Diver Corers	5	5	50	50	100
Hydrography						
Conductivity	CSTD	15	15	Profiles		100
Salinity	CSTD	15	15	Profiles		100
Temperature	CSTD	15	15	Profiles		100
DO	Hydrolab or Niskin	15	15	Profiles		100
pH	CSTD	15	15	Profiles		100
Transmissivity	CSTD	15	15	Profiles		100
Calibration						
Surface Temperature	Niskin/DSRT	15	15	15	15	100
Salinity	Niskin	3	3	6	6	100
Temperature	Niskin/DSRT	3	3	6	6	100
DO	Niskin	3	3	6	6	100
Meteorological and Ancillary Marine	Observation	15	15	--	--	100
	In Situ Array	5	5†	--	--	80 t

* Includes makeup UTV/BSP work as directed by COTR.
† Four arrays serviced and the backup array deployed at Station 21.

Source: ESE, 1984.

The UTV/BSP surveys were conducted at all five I-H stations and at all five of the Group II stations. The UTV/BSP surveys were conducted either with the vessel drifting or slowly motoring (to maintain headway), depending on wind and current conditions. Using a scheme suggested by the COTR and agreed upon by ESE, the makeup of all missing UTV/BSP data was accomplished by adding 1 extra km to the required 3 km of transects at each UTV station.

These tracks were recorded on FIO's LORAN C plotter and are presented in the Cruise Log (appendix). During the UTV/BSP surveys, a voice and paper record of observations and position fixes were made, as well as still photographs of either representative or unusual specimens viewed with the UTV.

Actual samples of the epifauna were obtained with a triangular dredge. Three replicates were obtained from all five of the I-H stations and all five of the Group II stations. All dredge tows were 2 minutes in length. The samples obtained were then sorted for all motile epifauna, algae, and representative and unusual sessile epifauna and preserved in 10-percent buffered formalin. The remainder was sorted, photographed, and discarded. The total and sub-sample volumes were also recorded.

Trawling with a 25-foot roller-type otter trawl was conducted at all five Group I-H and Group 11 stations. Eight of the 10 trawls were 10 minutes long; however, at Stations 23 and 29, tow lengths were reduced to 5 minutes to reduce damage to the trawl due to the sharp algal pavement. The nets were also equipped with chafing gear for added protection. All fish and selected invertebrates were preserved from the trawls in 10-percent buffered formal in.

Ten diver-collected infauna cores were taken from each of the five I-S stations. These samples were sieved and placed in sample bottles where they were labeled and relaxed with propylene phenoxetol prior to preservation with 10-percent buffered formalin (with Rrse Bengal).

Continuous hydrographic profiles using ESE'S CSTD were obtained at all 15 stations. The data collected during these profiles included conductivity, salinity, temperature, pH, and transmissivity versus depth. With the exception of Station 36, where water depth was 127 meters (m), the CSTD was lowered in the record mode to within 1 to 2 m of the bottom. At Station 36, the CSTD was lowered to 90 m (end of cable), and the bottom salinity, temperature, and DO were sampled with a Niskin bottle equipped with a DSRT. As a backup, the above parameters were manually recorded on hydrographic field logs at selected depths.

Because of a DO probe failure on the CSTD, ESE's Hydrolab 4041 was used to obtain all DO values at depths less than 17 m (the length of the cable). A Niskin bottle was used at greater depths to obtain DO samples, which were then preserved and analyzed using the Winkler method.

The Niskin/DSRT, described previously, was also used to verify and, if necessary, calibrate the CSTD. At all 15 stations, sea surface temperatures were measured and compared with the CSTD temperature results. At Stations 44, 19, and 36, the Niskin/DSRT was used to obtain salinity, temperature, and DO data at the surface and bottom to verify CSTD data.

At all 15 stations, standard meteorological and ancillary marine observations were made and noted on the hydrographic log.

Three of the in situ arrays (Stations 52, 23, and 29) were serviced during Leg 1 of Cruise III. At these three stations, the 0.5-, 1.0-, and 1.5-m sediment traps (five replicates each) were replaced, as were the 3-month ceramic and steel fouling plates and the 6-month ceramic fouling plates. The ENDECO 174 current meters were serviced, and, at Station 52, the wave gage and time-lapse camera were also serviced. The few associated problems are discussed in Section 3.2.

During Leg 1, the array at Station 21 could not be located either visually from the surface or with the UTV, and rough weather precluded both array location and epifaunal UTV/BSP work at Station 36. ESE decided, with the approval of the COTR, to use some of the contingency ship days during Leg 2 to conduct the UTV/BSP survey at Station 36 as well as search for the arrays at Stations 21 and 36.

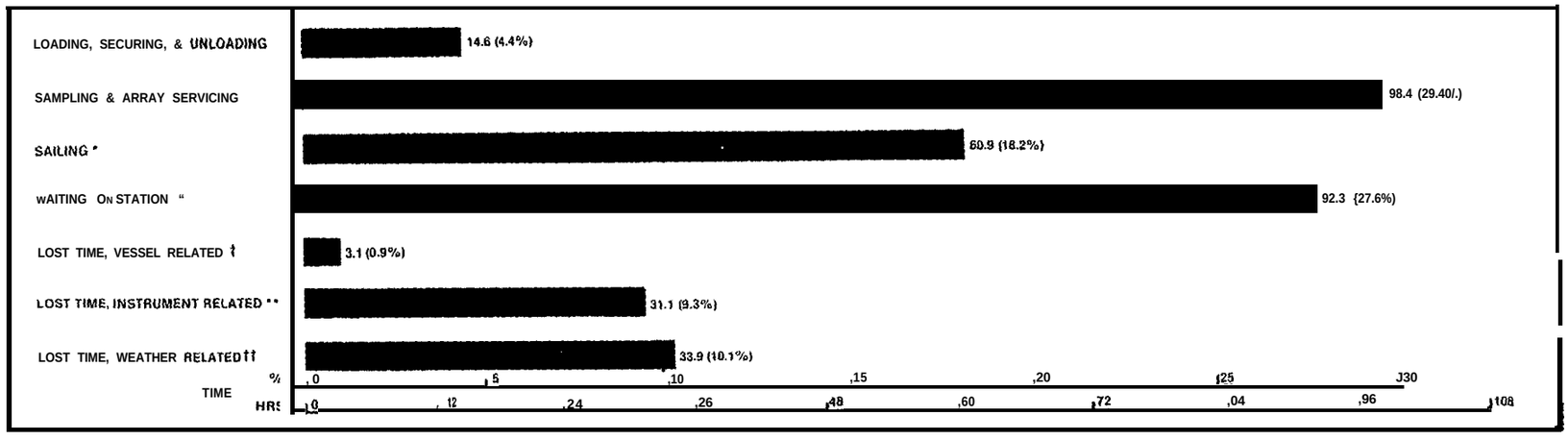
During Leg 2, the UTV/BSP survey at Station 36 was completed in the manner previously described. Following the UTV/BSP survey, a search for the array using skin divers on the surface (looking for the subsurface buoy) and the UTV near the bottom was begun. The UTV located lines and the subsurface buoy lying on the bottom. The rest of May 26 and the early morning hours of May 27 were spent locating and then retrieving the array at Station 36. Because the subsurface buoy was on the bottom, ESE resorted to its grappling system suspended between two otter trawl doors. This was successful; the array was brought on board, repaired, serviced, and redeployed. Some of the problems encountered are discussed in Section 3.2.

A 14-hour UTV search (for a total Cruise III UTV search time of 20 hours) for the array at Station 21 on May 26 and May 27 located only the railroad wheel used for anchoring the marker buoy. It was apparent following the extensive search that the array was no longer in the vicinity of its deployment, and it was declared lost. The backup array equipped with current meter, TLC, fouling plates, and sediment traps (however, without a wave gage) was deployed.

2.3 TIME UTILIZATION

The bar graph shown in Figure 5 indicates time utilization during Legs 1 and 2 of Cruise III. The graph presents time as hours and as a percentage of the total cruise time.

The largest category was sampling at 29.4 percent and includes all regular sampling on station as well as the time spent servicing the



* INCLUDES PREPARATION FOR NEXT STATION, INSTRUMENT CALIBRATION, AND INSTRUMENT SERVICING

† SHIP'S LORAN NOT REPORTING TRUE TO'S, THEREFORE NOT AT PROPER LOCATION

** PRIMARILY ARRAY SEARCH (BY DIVERS ANDUTV) AND ARRAY RECOVERY

†† TRAVEL. TIME BETWEEN STATION 36 AND ST. PETERSBURG AT THE END OF LEG 1 ANO BEGINNING OF LEG 2

Figure 5
YEAR 4, CRUISE Ill
(LEGS 1 AND 2) – TIME UTILIZATION

SOURCE ESE, 1964.

MINERALS MANAGEMENT SERVICE

arrays . Waiting on station, at 27.6 percent, was the second largest category and included preparation for upcoming stations, instrument calibration, and instrument servicing. These same activities are included in the third largest category (18.2 percent), sailing. Weather-related lost time accounted for 10.1 percent of the total cruise time. The weather-related lost time was designated that time spent traveling between Station 36 and St. Petersburg at the end of Leg 1 and the beginning of Leg 2. Instrument-related lost time (9.3 percent) was primarily time spent exclusively searching for the array. Not included in this category was the time spent searching during sampling activities such as the UTV/BSP surveys. The smallest category, vessel-related lost time (0.9 percent), was the result of the ship's LORAN erroneously reporting seemingly proper TD's which then placed the ship approximately 3.5 nautical miles from Station 21. The final category, loading, securing, and unloading, accounted for only 4.4 percent of the time. This was partly due to FIO allowing ESE to keep all of the equipment onboard for Leg 2.

3.0 PROBLEMS ENCOUNTERED AND RECOMMENDATIONS

3.1 WEATHER-RELATED PROBLEMS

Adverse weather resulting in seas in excess of 3 m precluded the UTV/BSP survey and array location at Station 36 on May 17, 1984. With some ship weather days remaining, it was decided that the vessel should return to FIO. This would allow the storm (forecasted to last 3 days) to pass through the study area and allow LGL to procure another TLC cable (as the first cable had been damaged at Station 52 during the second quarter).

3.2 EQUIPMENT-RELATED PROBLEMS

Virtually all equipment-related lost time was the result of searching for the arrays. As stated previously, this lost time was only that time spent exclusively searching for the arrays and not that time during which sampling was also being conducted. There were no serious problems in locating the arrays for Stations 52, 23, and 29. The small surface float attached to the subsurface buoy at Station 52 was still in place, and the subsurface buoys at Stations 23 and 29 were spotted quickly from the surface.

The Station 21 array was not found. During Cruise II, the ENDECO pinger was detected, indicating that the array was at least in the vicinity. By Cruise III, there was no sign of the array other than the railroad wheel anchor for the marker buoy. After 20 hours of UTV searching, it was presumed that the array (and most of the marker buoy mooring) were snagged by a long line fisherman and dragged a considerable distance from the l-km-square station. While the array was considered lost and a backup array deployed, ESE still intends to search for the array using higher speed search equipment such as a side-scan sonar or towed magnetometer during the remaining ship weather days. This will enable ESE to expand its search grid to several square kilometers.

The array at Station 36 was located using the UTV, which had indicated two lines lying on the bottom with the subsurface buoy attached to one.

Continued searching ended up literally placing the LJTV on top of the array. With the precise location known, a system of four grappling hooks attached to a 36-foot chain suspended between otter trawl doors was deployed, and dragging was begun. After 3 hours, the large marker buoy (which was also lying on the bottom, but unseen on the UTV) was recovered. The buoy was cut free rather than try to retrieve the cable and railroad wheel which would have been hazardous to personnel.

Finally, after another 2.5 hours, the array was snagged and on deck 1 hour later. The decision was made to bring the array on deck because of severe tangling and because the extent of damage to the array had to be assessed. The damage, considering that the array had been dragged some distance, was minor: one leg broken, all sediment traps missing, and four sets of ceramic fouling plates missing. The current meter and the rest of the fouling plates (as well as the array frame) were in good condition. Two sets of fouling plates were removed for analysis; the remainder were hosed down frequently with salt water while the array was on deck. New plates were attached as were the 1.0-m and 1.5-m sediment traps, a replacement leg was welded on, and the current meter was serviced. The array was then redeployed.

Other than location problems, the only other problem associated with the arrays was the loss of some fouling plates and the TLC target on the array at Station 52. It is possible that either the large Jewfish or sea turtle that were observed under the array had knocked these off. Their activities, or wave action, may also account for failure of the TLC strobe-to-camera cable and subsequent minor flooding of the camera case.

The CSTD during Cruise III was equipped with a functioning pH probe; however, at the beginning of the cruise, the DO probe failed. ESE used its Hydrolab Model 4041 water quality meter to measure DO to the depth of 17 m (the length of the cable) and occasional samples for Winkler titration at greater depths.

Generally, all other equipment worked well with no serious problems with the UTV/BSP system, dredges, or trawls (now protected by chafing gear).

3.3 VESSEL-RELATED PROBLEMS

Small boats were no longer a problem aboard the R/V SUNCOASTER as it was now equipped with a small Whaler and a reliable outboard.

The only problem that cost the project any time was the previously mentioned LORAN problem at Station 21. The LORAN, located on the bridge, indicated that the vessel was on station; however, the bottom was not typical for Station 21. A cross check of the LORAN located in the laboratory with the bridge LORAN showed that the vessel was actually 3.5 nautical miles from the station. The bridge LORAN was corrected, and the vessel moved to the proper location. Henceforth, periodic checks will be made between these two independent LORANs to ensure against this problem.

The vessel's autopilot malfunctioned, requiring the ship to rendevous with repairmen off of Fort Myers. This did not interfere with sampling because sampling for that day had been completed.

APPENDIX

CRUISE LOG

CRUISE LOG REVIEW SHEET

CRUISE NO.: III DATE ISI: 7-21 May 84 COPY: ESE

ID NO.	NAME	TITLE & AFFILIATION	PRE-CRUISE APP.		POST-CRUISE APP.	
			INIT.	DATE	INIT.	DATE
1	L.J. Danek	Proj. Mgr. (ESE)	LJD	5/1/84	LJD	6/20/84
2	M.S. Tomlinson	Log. Coord. (ESE)	MST	1 May 84	MST	20 Jun 84
3	G.M. Powell	Div. Mgr. (ESE)	GMP	2 MAY 84		
4	W.T. Gillespie	Data Mgr. (ESE)	WTG	1 May 84		
5	M.G. Shultz	QA Officer (ESE)	MGS	5/1/84		
6	J.J. Mousa (opt.)	QA Officer (ESE)				
7						
8						
9						
10						

PRE-CRUISE COMMENTS

POST-CRUISE COMMENTS

* SIG MEAVINGLESS

CRUISE LOG REVIEW SHEET

9 .0

CRUISE NO.: 111 DATE (S): 7-21 May 84 COPY: LGL

ID NO.	NAME	TITLE & AFFILIATION	PRE-CRUISE APP. INIT.	PRE-CRUISE APP. DATE	POST-CRUISE APP. INIT.	POST-CRUISE APP. DATE
1	G. Lewbel	Proj. Mgr. (LGL)	JKM	5/8/84		
2	L.R. Martin	Prin. Invest. (LGL)	LSL*	1/10/84		
3	G. Boland	Prin. Invest. (LGL)	GB	5/4/84		
4						
5						
6						
7						
8						
9						
10						

PRE-CRUISE COMMENTS

POST-CRUISE COMMENTS

CREW LIST

NAME	INIT.	TITLE	AFFILIATION
CAPT. C.W. HORAN	CWH	CAPTAIN	FIO * †
Philip B. Clark	PBC	Asst Engineer	FIO *
ROMAN JARMULA	R.J.	ENGINEER	FIO * †
DAVID THOMAS		MATE	FIO * †
LOUIS FEDOR	LF	COOK	FIO * †
Larry J. Danek	LJD	Scope Goat	ESE *
Michael S. Tomlinson	MST	Mr. Paperwork	ESE * †
Gary H. Tourtellotte	GT	Technician	ESE * †
George Slewbel	GM	GEORGE	LGL *
Gregory S. Boland	GB	Captain Video	LGL * †
Larry Martin	LM	Transmitter	LGL *
Jim Brown		Asst. Engr.	FIO †
* Leg 1 Participants			
† Leg 2 Participants			

CONTACT

Field:

ESE & LGL Crew via FIO radio c/o
William W. Behrens, Jr., Sc.D., P.E.
Director
or Mr. Dean Milliken
or Mr. Mark Wood
Florida Institute of Oceanography
830 1st Street South
St. Petersburg, FL 33701
(813) 893-9100

Dr. A. Riley Macon
University of South Florida
Division of Sponsored Research
FAO 126
Tampa, FL 33620
Street Address:
Fowler Avenue
Faculty Office Bldg.
(813) 974-2897

Client:

Minerals Management Service
Attn: Dr. Robert Avent
Gulf of Mexico OCS Regional Office
Imperial Office Building
3301 N. Causeway Boulevard
Metairie, Louisiana 70003
(504) 838-0899 (office)
(504) 456-2119 (home)

U. S. Department of the Interior
Minerals Management Service
Attn: Mr. Carroll D. Day
Procurement Operations Branch B
Mail Stop 635
12203 Sunrise Valley Drive
Reston, Virginia 22091
(703) 435-6412

James M. Barkuloo
U. S. Fish and Wildlife Service
1612 June Avenue
Panama City, FL 32405
(904) 769-5430

	Minerals Management Service Washington Office, Chief, Offshore Studies Mail Stop 644 12203 Sunrise Valley Drive Reston, Virginia 22091
Subcontractor: (See Field, above)	
	Dr. Benny Gallaway LGL, Inc. 1410 Cavitt Street Bryan, Texas 77801 (713) 693-8320
	Larry Martin LGL, Inc. 3206 75th Street Galveston, Texas 77551 (409) 740-3653
Lab:	ESE Gainesville (904) 332-3318
	ESE, Tampa (813) 886-6672
Vendors:	ENDECO (617) 748-0366
	Inter Oceans (619) 565-8400
	Sea Data (617) 244-3203
	General Oceanics (305) 621-2882
Instrument Leasing Co.	Ocean Surveys, Inc. (203) 388-4631
	Intersea Research Corp. (619) 453-5200
	Tetra Tech, Inc. (213) 449-6400

FORM APPROVED: OMB NO. 41-R2765 - EXPIRES: 12-31-79

NOAA FORM 24-23 (1-76)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
ENVIRONMENTAL DATA SERVICE
NATIONAL OCEANOGRAPHIC DATA CENTER

A00 DATA CENTER

OCEANOGRAPH% - GENERAL CRUISE INVENTORY
(ROSCOP -'11)

A40 REFERENCE NUMBER

		YES	NO	PART
A01 EXPEDITION/PROJECT: SW FLORIDA OCS BENTHIC STUDY	A91 Declared national program?			
A11 CRUISE NUMBER OR NAME: YEAR 4, CRUISE III	A81 Exchange restricted?			
A02 SHIP OR PLATFORM: R/V SUNCOAST-ER & ARRAY	A92 Co-operative program?			A72 NAME
A12 PLATFORM TYPE: RESEARCH SHIP & FIXED PLATFORM	A82 Co-ordinated internationally?			A62 BY WHOM?

A02 COUNTRY: USA

A04 ORGANIZATION: ENVIRONMENTAL SCIENCE & ENGINEERING, INC

A05 CHIEF SCIENTIST(S): DR. L.J. DANEK

A06 NAME AND ADDRESSES OF ORGANIZATIONS AND PERSONS WHOM TO QUERY

	FINAL DISPOSITION OF DATA
A1 L.J. DANEK, ESE, P.O. BOX ESE, GAINESVILLE, FL	A2
B1 R. GALLAWAY, LGL, 1410 CAVITT ST, BRYAN, TX	B2
C1	C2
D1	D2
E1	E2

DATE	DAY	MONTH	YEAR
A07 FROM	08	05	84
A17 TO	29	05	84

A06 GENERAL OCEAN AREAS: 26 GULF OF MEXICO

A09 TYPE(S) OF MARINE ZONE(S): 07 CONTINENTAL SHELF

GEOGRAPHIC AREA

If all data were collected at a fixed station, fill in the coordinates

A10 LATITUDE ° ' " N/S

A20 LONGITUDE ° ' " E/W

A15 FEMINERALS RT GEMMATA SERIE USDOI

A25 REMARKS

CRUISE III CONSISTED OF 2 LEGS: LEG 1 - 8-18 MAY 84 & LEG 2 - 23-29 MAY 84

DISCIPLINE AND TYPE OF MEASUREMENTS	Index 10° x 10° Qc	L	G	G	INDEX 1° x 1°	DISCIPLINE AND TYPE OF MEASUREMENTS	Index 10° x 10° Qc	L	G	G	INDEX 1° x 1°
A GL, GU, GS B	7	2	0	8		A B					
A D B	7	2	0	8		A B					
A M B	7	2	0	8		A B					
A H, HC B	7	2	0	8		A B					
A B, BS B	7	2	0	8		A B					
A B						A B					
A B						A B					

G - GEOLOGY GEOPHYSICS

GL MEASUREMENTS MADE AT A SPECIFIC LOCATION	NUMBER	i	I	FORMAT
G01 Dredge	10	B	1	?
G02 Grab				
G03 Core rock (no. of cores)				
G04 Core-soft bottom (no. of cores)				
G05 Sampling by divers	–	A	1	9
G06 Sampling by submersible				
G07 Drilling				
G08 Bottom photography	10	B	1	8
G09 Sea floor temperature (< 1 m from bottom)				
G10 Accoustical properties of the sea floor				
G11 Engineering properties of the sea floor				
G12 Magnetic properties of the sea floor				
G13 Gravimetric properties of the sea floor				
G14 Radioactivity measurements				
G70 Other measurements				
GU MEASUREMENTS UNDERWAY				
G21 Motion picture of sea floor (No. 01 nautical miles)	21.6	B	1	8
G22 Bathymecry-wide beam (no. of nautical miles)				
G23 Bathymetry-narrow beam (no. of nautical miles)				
G24 Side scan sonor (no. of nautical miles)				
G25 Seismic reflection (no. of nautical miles)				
G26 Seismic refraction (no. of nautical miles)				
G27 Gravimetry				
G28 Magnetism				
G29 Other measurements				

G - GEOLOGY GEOPHYSICS (Continued) GS TYPES OF STUDIES	NUMBER	1	I	FORMAT
G31 Physical analysis of sediments	5	A	1	9
G32 Chemical analysis of sediments	5	A	1	9
G33 Paleothermy				
G34 Paleomagnetism and rock magnetism				
G35 Paleontology				
G 3 6 Geothermy				
G37 Geochronology				
G38 Mineral and fossil resources				
G39 Litteral zone studies				
G90 Ocher measurements				
D - DYNAMICS				
D01 Current meters (no. of stat.)	5	A	1	?
D02 Current meters (Average duration of measurement days)				
D03 Currents measured from ship drift				
004 GEK				
005 Drifters (number)				
006 Swallow floats (number)				
D07 Drift cards (no. released)				
D08 Bottom drifters (no. released)				
009 Tidal observation (duration)				
D10 Sea and swell (no. of observations)	15	A	1	1
D90 Other measurements				
M - METEOROLOGY				
M01 Upper air observations				
M02 Incident radiation				
M03 Air-sea interface studies				
M04 Ice observations				
M05 Occasional standard measurements	15	A	1	1
M06 Systematic standard measurements				
M90 Other measurements				

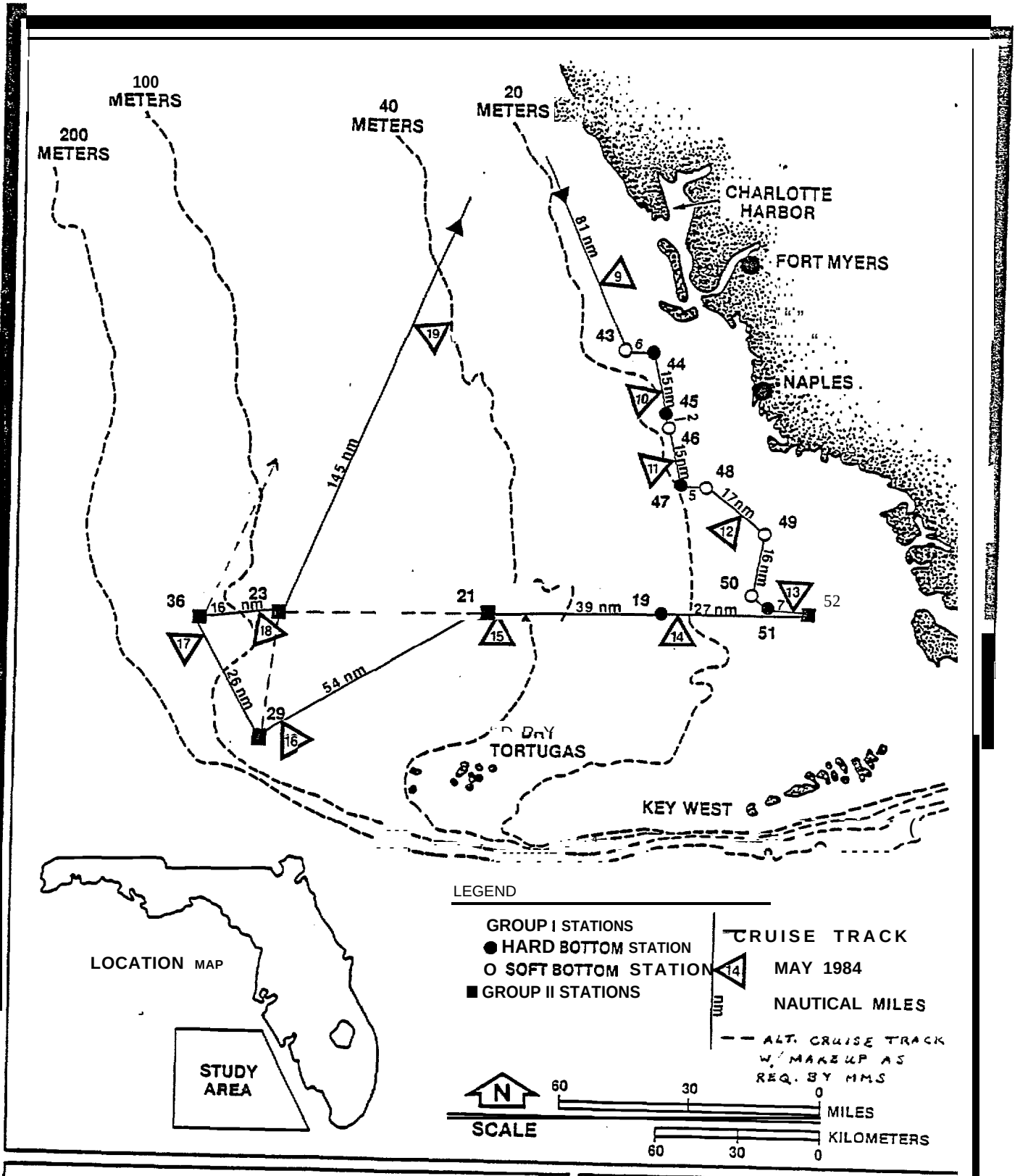
H– HYDROGRAPHY

HS SURFACE	NUMBER	i	l	FORMAT
H01 Continuous temperature recording				
H02 Continuous salinity recording				
H03 Discrete temperature measurements				
H04 Discrete salinity measurements				
NEAR SEA FLOOR (≤ 10 m)				
H05 Continuous temperature recording	5	A	1	7
H06 Continuous salinity recording	5	A	1	7
H07 Discrete temperature measurements				
H08 Discrete salinity measurements				
HP PHYSICAL				
H09 Classical oceanographic stations				
H10 Vertical profiles (STD/CTD)	15	A	1	7
H11 Sub–surface measurements underway				
H12 Mechanical bathythermograph (No. of drops)				
H13 Bathythermograph–expendable (No. of drops)				
H14 Sound velocity stations				
H15 Acoustic stations				
H16 Transparency	15	A	1	7
H17 Optics				
H18 Diffusion (Dynamic)				
H80 Other measurements				
Transmissivity	15	A	1	7
HC CHEMICAL				
H21 Oxygen	15	A	1	7
H22 Phosphates				
H23 Total–P				
H24 Nitrates				
H25 Nitrites				

HC CHEMICAL	NUMBER	i	l	FORMAT
H26 Silicates				
H27 Alkalinity				
H28 pH	15	A	1	7
H29 Chlorinity				
H30 Trace elements				
H31 Radioactivity				
H32 Isotopes				
H33 Dissolved gases				
H90 Other measurements				
P – POLLUTION				
P01 Suspended solids				
P02 Heavy metals				
P03 Petroleum residues				
P04 Chlorinated hydrocarbons				
P05 Other dissolved substances				
P06 Thermal pollution				
P07 Waste water: BOD				
P08 Waste water: Nitrates				
P09 Waste water: Microbiology				
P10 Waste water: Other				
P11 Discolored water				
P12 Bottom deposits				
P13 Contaminated organisms				
P90 Other measurements				

B – BIOLOGY

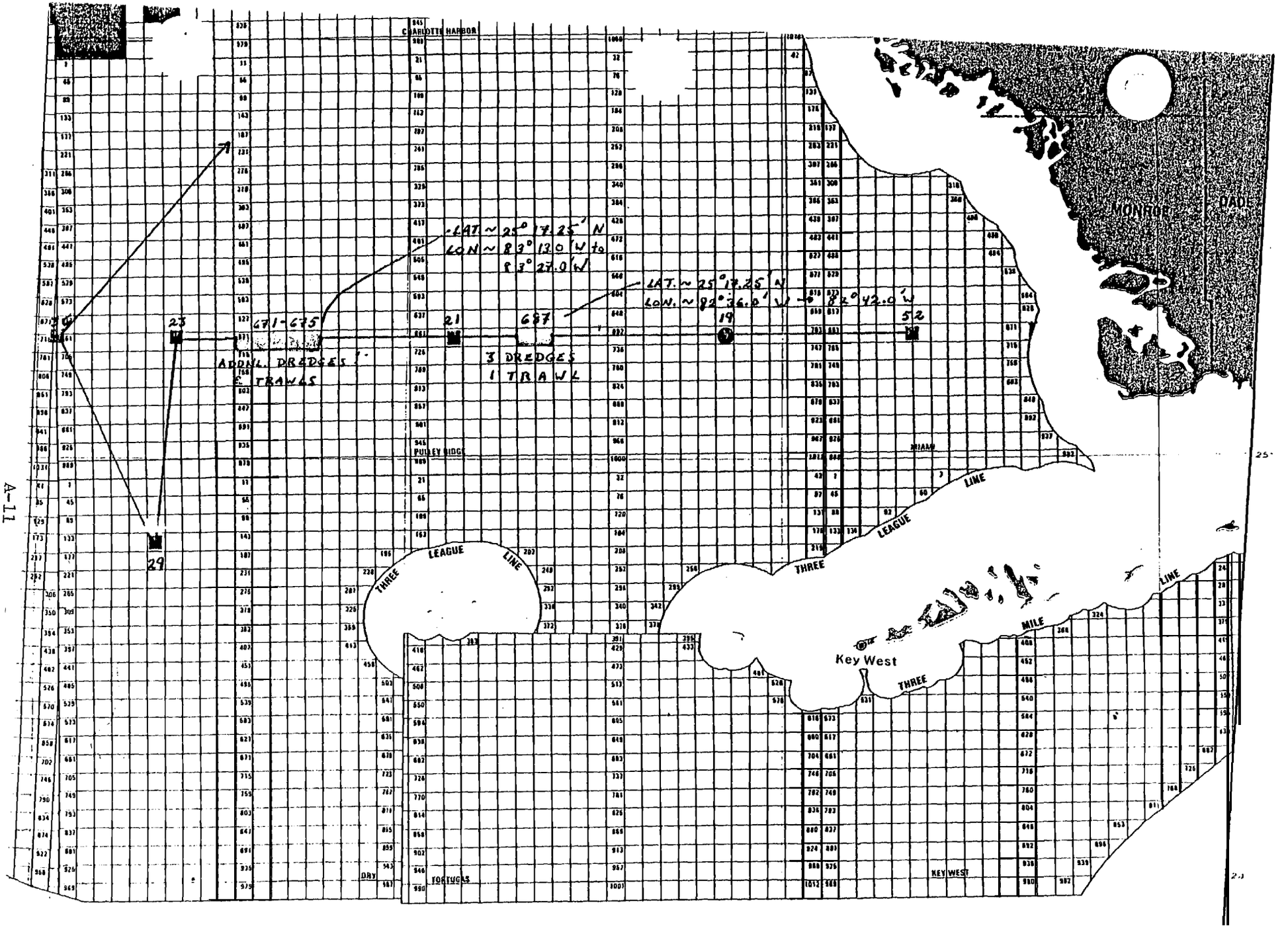
	NUMBER	i	l	FORMAT		NUMBER	i	l	FORMAT
B01 Primary productivity					B31 Vitamin concentrations				
B02 Phytoplankton pigments					B32 Amino acid concentration				
B03 Seston					B33 Hydrocarbon concentrations				
B04 Particulate organic carbon					B34 Lipid concentrations				
B05 Particulate organic nitrogen					B35 ATP–ADP–AMP concentrations				
B06 Dissolved organic matter					B36 DNA–RNA concentrations				
B07 Bacterial and pelagic micro–organisms					B37 Taggings				
B08 Phytoplankton					B80 Other measurements				
B09 Zooplankton									
B10 Neuston					**BS TYPES OF STUDIES**				
B11 Nekton					B51 Identification	15	A B	1	9, 8
B12 Invertebrate nekton					B52 Spatial and temporal distribution	15	A B	1	9, 8
B13 Pelagic eggs and larvae					B53 Monitoring and surveillance	15	A B	1	9, 8
B14 Pelagic fish					B54 Biomass determination	5	B A	1	9, 8
B15 Amphibians					B55 Description of communities	15	A B	1	9, 8
B16 Benthic bacteria and micro–organisms					B56 Food chains energy transfers				
B17 Phytobenthos					B57 Population and environments	15	B	1	9, 8
B18 Zoobenthos	15	B	1	9, 8	B58 Population structures	15	B	1	9, 8
B19 Commercial demersal fish					B59 Taxonomy, systematics, classification	15	B	1	9, 8
B20 Commercial benthic molluscs					B60 Physiology				
B21 Commercial benthic crustacean					B61 Behaviour				
B22 Attached plants and algae	15	B	1	9, 8	B62 Pathology, parasitology				
B23 Intertidal organisms					B63 Toxicology				
B24 Borers and foulers					B64 Gear research				
B25 Birds					B65 Exploratory fishing				
B26 Mammals and reptiles					B66 Commercial fishing				
B27 Deep scattering layers					B67 Aquaculture				
B28 Acoustical reflections on marine organisms					B90 Other measurements				
B29 Biologic sounds									
B30 Bioluminescence									



pROPOSED CRUISE TRACK FOR YEAR 4 - CRUISE III

SOURCE: ESE, I 983.

MINERALS MANAGEMENT SERVICE


CHARLOTTE HARBOR
PULLEY RIDGE
DRY
TORTUGAS
MIAMI
KEY WEST
Key West
MONROE
DADE
THREE LEAGUE LINE
THREE LEAGUE LINE
THREE LINE
MILE
LAT ~ 25° 17.25' N
LON ~ 83° 13.0' W to
83° 27.0' W
LAT. ~ 25° 17.25' N
LON. ~ 82° 36.0' W to 82° 42.0' W
671-675
687
23
21
19
52
29
ADDNL. DREDGES & TRAWLS
3 DREDGES
1 TRAWL

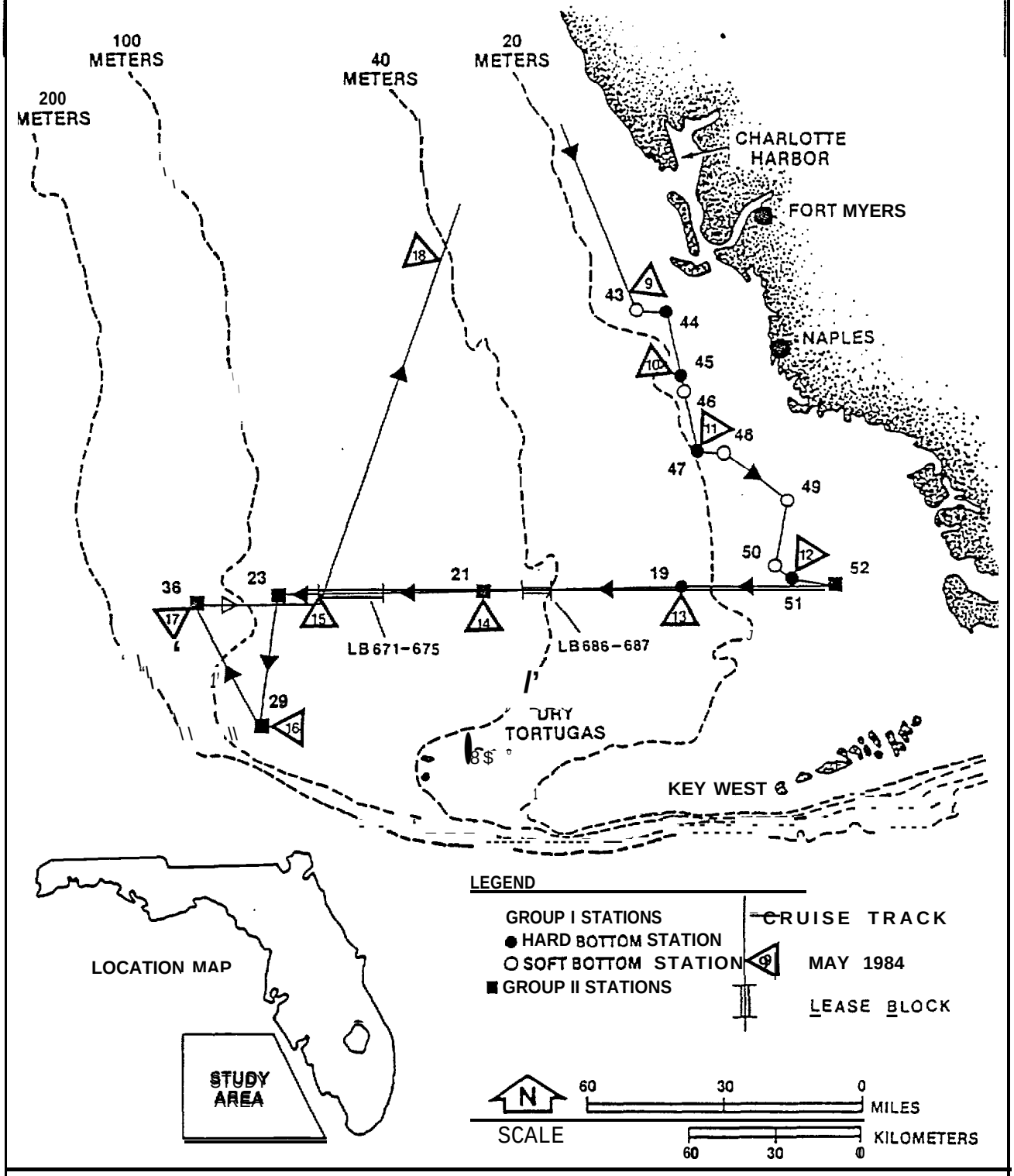
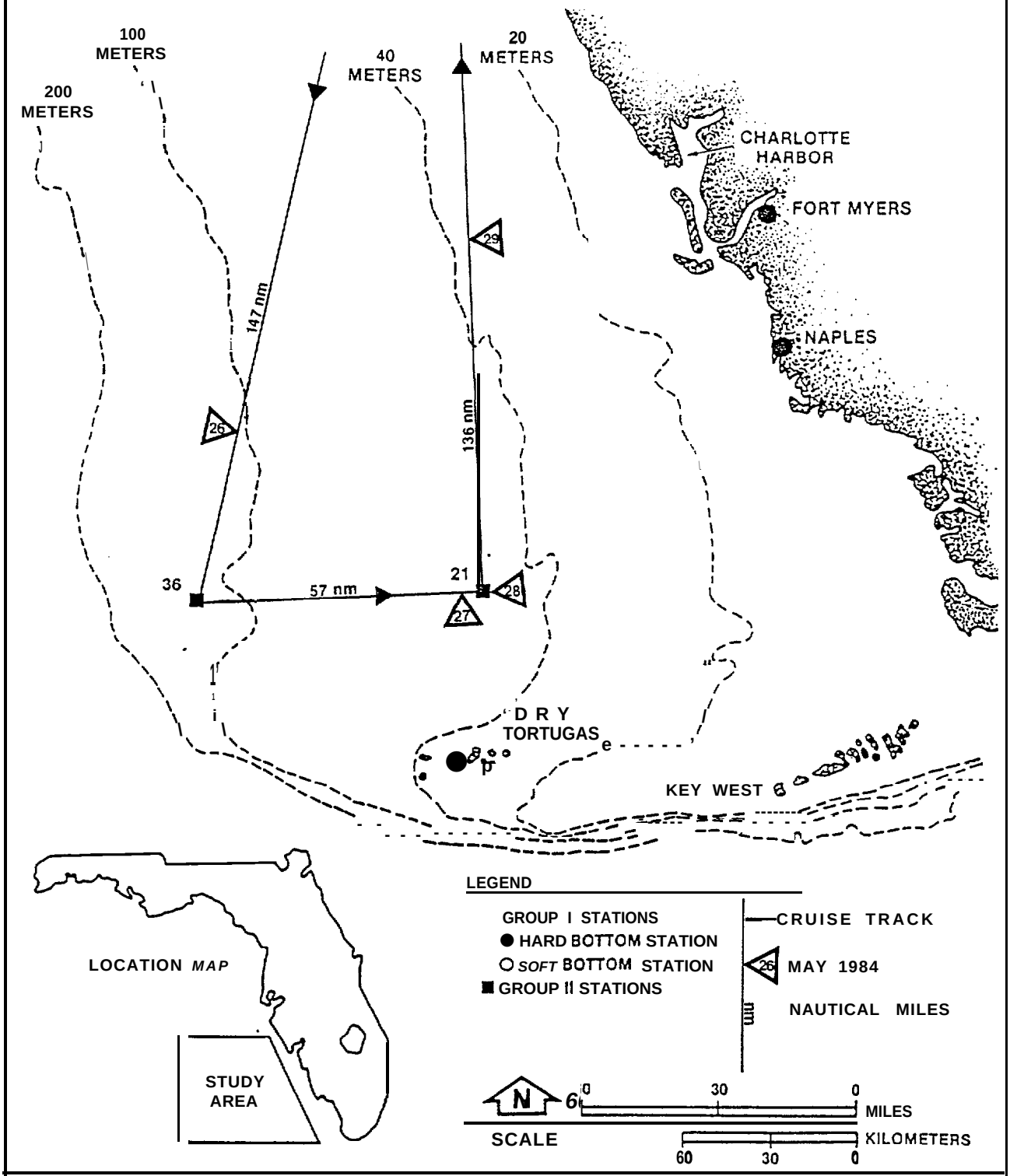


Figure 3
CRUISE TRACK
YEAR 4 — CRUISE III (LEG 1)

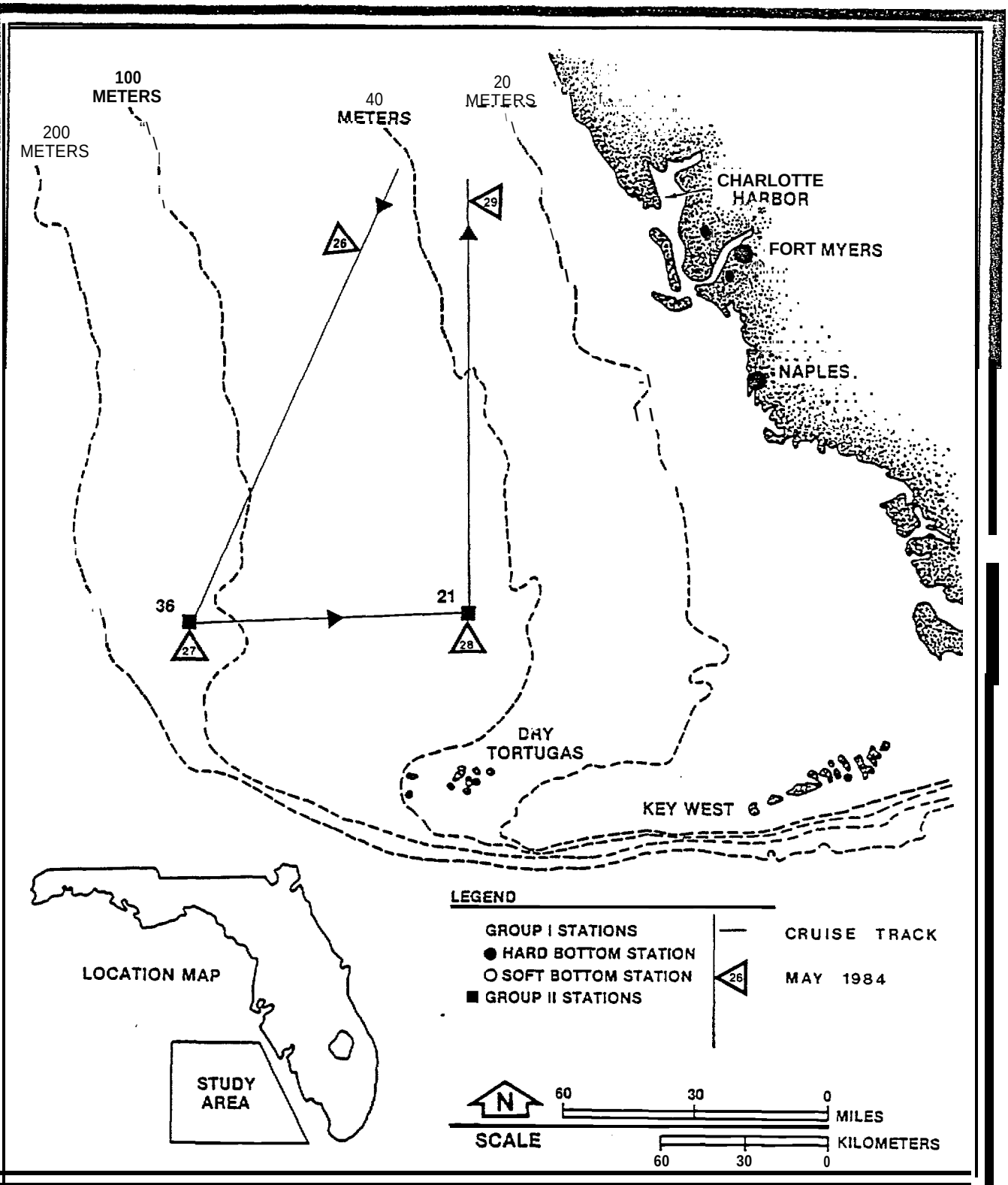
SOURCE: ESE, 1984.

MINERALS MANAGEMENT SERVICE



TENTATIVE CRUISE TRACK FOR CRUISE III (LEG2)

MINERALS MANAGEMENT SERVICE



CRUISE TRACK
YEAR 4 -- CRUISE III (LEG 2)

SOURCE: ESE, 1903.

MINERALS MANAGEMENT SERVICE

Table 1. Southwest Florida Shelf Benthic Communities Study Station Information for Year 4

Station Number	Average Depth (M)	Latitude (N)	Longitude (w)	Loran C A	B	C
43	16	26°17.26″	82°18.94″	14064.1	44008.8	
44	13	26°17.71-	82°12.66′	14078.2	43961.5	
45	16	26°03.03″	82°08.50″	14055.9	43888.5	
46	18	26°00.86″	82°07.92*	14052.6	43878.9	
47	20	25°45.83″	82°06.10′	14025.9	43833.5	
48	18	25°45.96′	82°01.13-	14036.4	43798.8	
49	11	25°35.23′	81°46.24′	14045.1	43681.5	
50	16	25°20.27″	81°51.51′	14006.3	43700.1	
51	15	25°17.42″	81°48.01′	14008.0	43675.7	
52	13	25°17.54″	81°39.81″	14024.3	43625.4	
19	24	25°17.40′	82°08.98′	13964.6	43807.4	
21	47	25°17.30″	82°52.14′	13864.4	44083.4	
23	74	25°16.92″	83°37.78*	13740.9	44369.1	
29	64	24°47.53″	83°41.17-	13678.6	44310.0	
36	125	25°16.86′	83°57.34″	13682.5	44487.4	

Source : ESE, 1984

MONTH : May 1984

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1	2	3	4	5
6	7	8 ESE & LGL mt @ FIO to beg. loading ship. 1800 ship u/w for Sta. 43	9 0400 Arr. Sta. 43. 0630 beg. sampling 0830 comp. & u/w for 44. 0930 beg. sampling. 1730 compl. u/w45. arr 1930	10 0630 beg. sampling 1430 compl, & u/w for 46, 1500 arr 46, 1700 compl. & u/w for Sta. 47. 1900 arr. @ 47	11 0630 beg. sampling @ 47 1430 compl. & u/w for Sta. 48. 1500 arr. 48. 1700 sampling compl. & u/w49. 1900 arr.	12 0630 beg. sampling @ 49, 0830 compl. & u/w for 50. 1030 arr. 50. 1230 compl. u/w for51. 2100 con u/w for 52 arr 2200
13 0630 beg. sampling. 1830 compl. 2130 makeup compl. u/w for Sta. 19	14 0030 arr. 19 0630 Beg. sampling. 1430 compl. u/w for 21 1830 arr. 21 beg. dredge & trawl makeup. 2030 compl.	15 0630 beg. sampling @ 21 1830 sampling compl. 2130 make-up compl. u/w for Sta. 29	16 0300 arr. @ 29. 0630 beg. sampling. 1630 compl. 1930 make-up compl. u/w for 36/ 2230 arr. @ Sta. 36	17 0630 beg. sampling @ 36. 1630 sampling compl. 1930 make-up compl. u/w for Sta. 23. 2100 arr @ 23	18 0630 beg. sampling @ 23. 1630 compl. 1930 makeup compl. u/w for FIO	19 1000 arr. @ FIO. beg. un-loading vessel
20	21	22	23	24	25 1100 Sci. crew mt. @ FIO to load & fill tanks. u/w @ 1600	26 0700 arr. @ Sta. 36. Beg. UTV & arra search. 1900 u/w for Sta. 21
27)100 arr.) Sta. 21)630 Begin ırray search.	28 0630 Continue array search if unsuccessful prev. day. 1900 Deploy back-up array (if nec) 2100 u/w for FIO	29 1000 arr. @ FIO begin un loading.	30	31		

GENERAL NOTES FOR CR III (LEG 2)

1) For Array construction (Sta. 21)

a) Splice 85 ft. length of dbl. brd. nylon (array mooring)

b) splice 20 ft. " of 1/4" SS cable to array

c) Make a 1/4" SS cable lifting ring

d) Splice 30 ft. length of 1/4" SS cable to marker buoy

e) Shackle to the existing 142 ft. length of dbl. brd. nylon.

f) Check tack welds.

g) Attach fouling plates, sed. traps, TLC, and Delrin clamp & CM

2) Tack weld spar buoy

3) Conduct UTV survey @ sta. 3.6 & search for array. (if no array don't deploy backup, this reserved for sta. 21). Spend 1 day

4) Conduct acoustic, UTV, & visual search for array @ 21

a) near locn. of cr. III (Leg 1) acoustic target

b) & as a series of // lines running from old array locn. to "new" marker buoy locn.

5) If array not located, deploy backup., if array located, return to 36 & deploy back up there.

STATION CHECKLIST

PROJECT TITLE: SW FLORIDA OCS BENTHIC STUDY PROJECT NO.: 83-513-51 O/MMS

DATE (S): 8-20 May 1984 (Cruise III)

/ REQUIRED ☒ COMPLETED

TASK OR PARAMETER DESCRIPTION	STATION NUMBER														
	43	44	45	46	47	48	49	50	51	52★	19	21★	23★	29★	36★
Epifauna, UTV/BSP Survey (3-4 hrs & 2 km)		X	X		X				X	X	X	X	X	X	X
~~" , UTV/BSP Survey (makeup)~~										/		/	/		/
" , Triangular Dredge (3 trawls)		X	X		X				X	X	X	X	X	X	X
~~" , Triangular Dredge (makeup, 3 trawls)~~												/			
" , Roller Trawl (1 trawl)		X	X		X				X	X	X	X	X	X	X
~~" , Roller Trawl (makeup, 1 trawl)~~												/	/		/
Hydrography, CSTD	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Niskin/DSRT Cast for S,T,DO (surface & bottom)		X									X				X
Met. & Ancillary Marine Data & Surface T°C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Infauna, (10 Diver-type Corers)	X			X		X	X	X							
In Situ Array Servicing (Backup Array Inst. @21										X		X	X	X	X

★ GROUP II

FIELD LEADER: M Tomlinson DATE: 29 May 84 PROJ. MGR.: JJD DATE:

DATA MGR.: DATE: QA/QC REP.: DATE:

Makeup scheme not approved by Dr. R. Avent (MMS COTR) 2 May 84. Revised scheme (see map) is to dredge and trawl at selected lease blocks and to add 1 extra UTV transect to all 10 hard bottom stations.

DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA OCS BENTHIC STUDY PROJ. NO.: 83-513-510/MMS

CRUISE or TRIP DESC.: III (Leg 1)

PLATFORM and/or LOCATION: R/V SUNCOASTER-GULF OF MEXICO

DATE: 8 May 84 DAY OF WEEK: TUE PAGE 1 OF 23

TIME	ENTRY
1000	ESE meets LGL @ FIO (LGL arrived - pm - is pick up) loading
~~1115~~	& set up commence
1915	u/w on Sta. 43

DAY CONT'D NEXT PAGE? Y or (N)

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ TL: [signature] DATE: 9 May 84

PROJ. MGR: [signature] DATE: 6/20/84 DIV. MGR: _____ DATE: _____

[COPIES TO PROJECT and DIVISION FILES]

DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA Ocs BENTHIC STUDY PROJ. No.: 83-513-510/MMS

CRUISE or TRIP DESC.: III (Leg 1)

PLATFORM and/or LOCATION: R/V SUNCOASTER-GULF OF MEXICO

DATE: 9 May 84 DAY OF WEEK: WED PAGE 2 OF 23

TIME	ENTRY
0624	Arr. @ Sta. 43, prep for h. hydrography cast
0704	Hydrocast w/ CSTD complete J.L. DO problem CSTD malfunctioned
	Will be using Hy J-L. & DO for at least the [illegible]
	pH probe on CSTD was functioning (Notes pg 23 bound
	Order of thumbwheels is:
	MO DY YR YR#(4) TIME CR# STA#
	XX XX XX XX XXXX XX XX
0753	Vessel anchored, divers down for infaunal sampling
0820	Weighed anchor, w/w for Sta. 44. Working up infaunal sample
	Divers report applied bottom w/ sed. depth in ripple troughs
	2-3 cm in a full 10 cm core was difficult to obtain
0900	Arr. Sta. 44 Begin hydrography
0945	Hydrography complete, rig for trawling
1013	Trawling completed, begin dredging
1055	Dredging completed, rigging for UTV/BED work
1137	UTV on board, drifting very slowly the wrong direction
	Will reposition ship to center of study area.
1415	On UTV Transect #4, started motoring w/ UTV at half
	speeds too slow. Will use hose clamps on #5 to hold
	UTV cables to winch wire.
1530	UTV work complete & C w/w for Ft. Myers in an attempt
	to repair autopilot which went out earlier today
1740	Anchored just off Ft. Myers to repair autopilot
	fo
22	

DAY CONT'D NEXT PAGE? Y or N

WATCH CHIEF 1: _____ DATE: _____ : _____ DATE: _____ : _____

3: _____ DATE: _____ FTL: _____ DATE: 9 May 84

PROJ. MGR: LJD DATE: _____ DIV. MGR _____ DATE: _____

[COPIES TO PROJECT and DIVISION FILES]

DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA OCS BENTHIC STUDY PROJ. NO.: 83-513-510/MMS

CRUISE or TRIP DESC.: III (Leg 1)

PLATFORM and/or LOCATION: R/V SUNCOASTER-GULF OF MEXICO

DATE: 10 May 84 DAY OF WEEK: THU PAGE 3 OF 23

TIM	N R
0639	Weighing anchor & moving into position @ sta. 45
0650	On sta. & prep for CSTD hydrography
0720	Hydrography completed, changing film in BSC
0737	Moving into position to begin trawling
0836	Trawling sample processed & in position to begin dredging
1117	All dredging (w/ extensive sorting) completed. Begin for UTV/BSP. Procedure for dredge samples was to sort major groups (e.g. sponges, gorgonians, etc.) & photograph, then pick out representative samples. All motile epifauna were saved.
1159	Begin UTV/BSP survey after lunch. Sweeps will be done while drifting, except vessel will maneuver to stay out of trawl. Rich gorgonian bottom.
1500	Just prior to Transect #4, winch hydraulics ended up. Problem unknown.
1511	Problem solved. Beginning #4
1630	UTV (including makeup) completed & u/w for sta. 46
1645	Arr. sta. 46 and prep to anchor
1703	Divers in water to collect infauna, begin hydrography
1725	Hydrography completed
1735	Divers out. All infauna collected & being processed
1820	U/W for sta. 47
1946	Arr. sta. 47, anchored near center

DAY CONT'D NEXT PAGE? Y or N

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ TL: MJ DATE: 10 May 84

PROJ. MGR: LJD DATE: _____ DIV. MGR: _____ DATE: _____

[COPIES TO PROJECT and DIVISION FILES]

DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA OCS BENTHIC STUDY PROJ. NO.: 83-513-510/MMS

CRUISE or TRIP DESC.: (Illegible)

PLATFORM and/or LOCATION: R/V SUNCOASTER - GULF OF MEXICO

DATE: 11 May 84 DAY OF WEEK: FRI PAGE 4 OF 23

TIME	NOTES
0630	Prep. for hydrocast @ Sta. 47. It was announced that vessel had drug anchor ~4 am. We will have to steam back to sta. 47. Also the pin holding the flukes to the anchor shaft is nearly out. We will have to steam slowly in hopes that the pin isn't dislodged and the anchor lost.
0723	Back on sta. 47, ready for hydrography.
0742	All hydrography completed. Ship's crew working on anchor.
0844	fs
0927	Trawl sample processed. Move into position for UTV
1001	Begin UTV survey.
1046	UTV #1 complete. Riding w/ seas while minor repairs and maintenance performed on UTV system.
1126	Begin UTV #2, note: vessel is maneuvering to stay out of trough
1329	UTV #4 completed & u/w for sta. 48
1400	Arr. sta. 48, prep. divers for infauna (w/ vessel anchored)
1451	Infauna sampling & hydrography completed (w/ divers down stream of CSTD) & u/w for sta. 49
1630	Arr. @ sta. 49 anchoring in prep. for infauna sampling and hydrography (to be conducted concurrently)
1718	Weighed anchor & u/w for sta. 50.
1844	Arr. @ Sta. 50, prep. to set anchor.
1853	Anchored w/ divers in water for infauna sampling & begin hydrography.
1916	Infauna sampling & hydrography completed. Processing infauna samples (which freq. req. 2 bottles)
1927	Vessel weighing anchor to repair. 2010 u/w for sta. 51
2110	Arr. @ Sta. 51

DAY CONT'D NEXT PAGE? Y or (N)

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ FTL: (signature) DATE: 11 May 84

PROJ. MGR: (signature) DATE: _____ DIV. MGR: _____ DATE: _____

[COPIES TO PROJECT and DIVISION FILES]

DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA OCS BENTHIC STUDY PROJ. NO.: 83-513-510/MMS

CRUISE or TRIP DESC.: III (Leg 1)

PLATFORM and/or LOCATION: R/V SUNCOASTER-GULF OF MEXICO

DATE: 12 May 84 DAY OF WEEK: SAT PAGE 5 OF 23

TIME	ENTRY
0643	Begin CSTD Hydrography @ Sta. 51
0704	Hydrography completed, weighing anchor to get into position for dredging
0755	Dredging completed, ~~at~~ a lot of prob. w/ LORAN (erratic) Prep. for trawling.
0825	Trawl completed, bringing the large catch (several lbs sponges on board w/ windlass). Positioning for UTV work.
1112	Begin UTV #3 (w/ vessel motoring) The UTV was not brought up on deck. Rather it was left below & the vessel change course.
1209	UTV #5 completed & u/w for Sta. 52
1258	Arr. Sta. 52, surf. mkr. for array still in place! LORAN (using diff. chain) is 30466.45/62603.98 & agrees w/ prev. LORAN fix using ~~ch~~ Slaves 10 & 40 as well. Prep fo
1308	UTV back on board. Strobe not on.
1346	In midst of UTV #1 (w/ a course change in it) & whaler is being put over side for array servicing
1348	Begin. UTV #2 in N dir. to facilitate whaler launch.
*	NOTE: All array instruments will operate on EST only.
1450	Divers back on board after retrieving fouling plates, sed traps, CM's, WG, TLC. They report that a large turtle and a jewfish (est wt. ~200 lbs). ~~B~~ have taken up residence & have moved TLC target as well as destroyed & scattered many fouling plates. Begin cleaning and servicing array instruments.
*	Sed Trap labels: Sta. 52 Smpl. U, M, L (upper, mid, lower) & Rep. 1-5

DAY CONT'D NEXT PAGE? (Y) or N

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ FTL: MJS DATE: 12 May 84

PROJ. MGR: [signature] DATE: _____ DIV. MGR: _____ DATE: _____

[COPIES TO PROJECT and DIVISION FILES]

DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA Ocs BENTHIC STUDY PROJ. NO.: 83-513-510/MMS

CRUISE or TRIP DESC.: III (Leg 1)

PLATFORM and/or LOCATION: R/V SUNCOASTER- GULF OF MEXICO

DATE: 12 May 84 DAY OF WEEK: SAT PAGE 6 OF 23

TIME	ENTRY
1554	UTV on deck & heading for center of sta. to service array & conduct CSTD survey. Most array instrumentation ready but TLC req. some work. Note that TLC record. had not operated long before malfunctioning
1730 1800	Break for dinner.
1754	Dinner completed. Continuing on TLC & divers prep for array servicing.
1838	Diver install CM & 2 sets of fouling plates and take census of remaining plates
1846	Begin trawling @ sta. 52
1850	Divers return to whaler for TLC & battery
1859	Divers return for wave gage & last set of fouling plates
1903	End trawl @ Sta 52.
1906	Divers return for sed. traps & Helle pinger (still below surf. buoy)
1913	Divers return for new marker buoy sys. (old mbu removed.)
1920	Array servicing completed. Note - WG installed - ½ bushing
1930	Divers & whaler back on SUNCOASTER.
1941	Begin dredging.
2025	Dredging completed & u/w for Sta. 19
~~2290~~	Arr. @ Sta. 19
2310	[illegible]

DAY CONT'D NEXT PAGE? Y or (N)

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ FTL: [illegible] DATE: 13 May 84

PROJ. MGR: [illegible] DATE: — DIV. MGR: _____ DATE: _____

[COPIES TO PROJECT and DIVISION FILES]

DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA OCS BENTHIC STUDY PROJ. NO.: 83-513-510/MMS

CRUISE or TRIP DESC.: III (Leg 1)

PLATFORM and/or LOCATION: R/V SUNCOASTER-GULF OF MEXICO

DATE: 13 May 84 DAY OF WEEK: SUN PAGE 7 OF 23

TM	NB
0651	Prep for CSTD & calib cast @ Sta. 19 (rather than calib @ 21)
0804	Hydrography completed. Have to while UTV/ROV is serviced & PSC loaded. Weighing anchor.
0849	Moving into position for dredging.
0926	Dredging completed. Rigging trawl.
1024	Trawl completed. Positioning for UTV
1320	UTV completed @ Sta. 19, w/w for lease block area for some "makeup dredging & trawling"
1340	Begin CSTD calib
*1402	Calib. completed. Note: CSTD recorder inadvertently turned on (possibly by ship's crew during generator switchover) during night & ran to end. ie 1st tape has Sta. up to & incl. 52 & then lots of garbage and 2nd tape begins w/ Sta. 19)
1525	Arr. @ Lease Block 688 (Sta. LB-1) to begin dredging and trawling make as instructed by R. Avent (MMS COR).
1650	3 Dredges (LB-1, LB-2 & LB-3) and trawl (LB-4) completed w/in blocks 688 & 687, w/w for Sta. 21
1737	Arr. @ Sta. 21, drop marker float & break for dinner.
~1830	2 skin divers in water to look for subsurf. buoy.
1904	Divers onboard, putting UTV over side for search.
1952	Bringing UTV on board. (no luck) & no luck w/ ENDECO pinger - recov., vessel prep. to anchor

DAY CONT'D NEXT PAGE? Y or (N)

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ FT L: MMS DATE: 13 May 84

PROJ. MGR: LDV DATE: _____ DIV. MGR: _____ DATE: _____

[COPIES TO PROJECT and DIVISION FILES)

DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA OCS BENTHIC STUDY PROJ. NO.: 83-513-510/MMS

CRUISE or TRIP DESC.: III (Leg 1)

PLATFORM and/or LOCATION: R/V SUNCOASTER – GULF OF MEXICO

DATE: 14 May 84 DAY OF WEEK: MON PAGE 8 OF 23

TIME	ENTRY
0634	Prep. for CSTD cast @ Sta. 21. Search disk was visible @ 17m (no more line left).
0729	Hydrography (incl. extra Whaler DO's because of CSTD-DO probe failure) completed. Weighing anchor.
0828	Last dredge tow completed. Rigging for dewatering.
0915	Trawl samples processed & positioning for UTV survey.
0933	Whaler over side. Divers prep.
1000	Divers off (they will do a surface survey w/sleds)
1010	Begin UTV surveys.
1130	Divers back on board w/an success UTV survey continues
1242	Complete UTV survey @ Sta. 21. Begin array search
1317	Bringing UTV up partway to untangle temporary marker buoy from UTV.
1331	UTV search continues
1417	UTV back on board to drop temp. mkr. buoy for renewed search
1445	Redeployed temp. mkr. buoy. 2 divers over to conduct a deep tethered search @ ~100 ft.
1455	Divers away. SUNCOASTER will attempt an acoustic search
1540	Divers back on board after an fruitless search. Acoustic search continues.
1625	UTV back down to continue search.
1745	Surface skin divers on board after another unsuccessful search
1951	UTV being retrieved – unsuccessful
2000	Temp surf. mkr. retrieved & s/l for lease block mid buoys.
2010	Green flash @ sunset!
2156	Arr. @ Lease Blocks 675-671 for 2 dredges & 2 trawls

DAY CONT'D NEXT PAGE? Y or N

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ FTL: [illegible] DATE: 14 May 84

PROJ. MGR: [illegible] DATE: _____ DIV. MGR: _____ DATE: _____

[COPIES TO PROJECT and DIVISION FILES]

DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA OCS BENTHIC STUDY PROJ. NO.: 83-513-510/MMS

CRUISE or TRIP DESC.: III (Leg 1)

PLATFORM and/or LOCATION: R/V SUNCOASTER - GULF OF MEXICO

DATE 15 May 84 DAY OF WEEK: TUE PAGE 2 OF 23

TIME	ENTRY
0010	u/w for Sta. 23 after completing dredge & trawls
0130	Arr @ Sta. 23 Anchor
0647	Begin hydrography w/ CSTD & Niskin/DGRT
* 0726	Hydrography completed. Note: Double check Sta. 21 Winkler DO's; the 2 samples may be reversed. Prep. temp. buoy float to mark LORAN location of array.
0800	Temp. marker deployed following visual sighting of sub-surface buoy @ a depth of ~45ft. Prep. for dredging & making a pass over array w/ fathometer operating to gain idea of typical array acoustical signature. (Lab Furnace is particularly effective possibly due to narrow beam width & cavitation problems).
1018	Dredging completed, rigging for trawl
1100	Trawl completed. This was a 5 minute tow in keeping w/ policy established on Cr. II for trawling in areas w/ algal pavement (in an effort to reduce wear on trawl).
1116	Begin UTV surveys.
1217	During UTV Tr. #1 the array was observed & recorded on video tape as well as w/ a still camera. The array looks good & the CM appears trim.
1412	UTV surveys completed. Prep. for array servicing
1435	Divers in water to connect servicing line.
1500	Array now suspended to spar buoy (for servicing) and divers commence servicing
1536	CM serviced & returned to divers for installation
*	Note: All Array instrumentation (& equipment checklists) times are recorded as EST rather E

DAY CONT'D NEXT PAGE? (Y) or N

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ FT L: MMD DATE: 15 May 84

PROJ. MGR: J D DATE: _____ DIV. MGR: _____ DATE: _____

{COPIES TO PROJECT and DIVISION FILES}

DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA OCS BENTHIC STUDY PROJ. NO.: 83-513-510/MMS

CRUISE or TRIP DESC.: III (Leg 1)

PLATFORM and/or LOCATION: R/V SUNCOASTER—GULF OF MEXICO

DATE: 15 May 84 DAY OF WEEK: TUE PAGE 9 OF 23

TIME	ENTRY
1550	~~Slowly~~ slowly towing array (still attached to spar buoy) back to the center of the station.
1643	Array deployed. Divers into retrieve receiving line. LORAN coordinates for array obtain for 3 separate pairs of chains
1706	Skin divers in to shorten tether between the primary & secondary sub-surface buoys as the secondary was at the surface.
1718	a/w for sta. 29
2000	Arr. @ sta. 29; temporary mkr. float deployed.

DAY CONT'D NEXT PAGE? Y or (N)

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ FT L: MSD DATE: 15 Ma. 84

PROJ. MGR: LJD DATE: _____ DIV. MGR: _____ DATE: _____

(COPIES TO PROJECT and DIVISION FILES)

DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA OCS BENTHIC STUDY PROJ. NO.: 83-513-510/MMS

CRUISE or TRIP DESC.: III (Leg 1)

PLATFORM and/or LOCATION: R/V SUNCOASTER - GULF OF MEXICO

DATE: 16 May 84 DAY OF WEEK: WED PAGE 10 OF 23

TIME	ENTRY
0630	Prep for CSTD & Niskin hydrocast. We are apparently either in or very near a ship lane @ Sta. 29 as we have seen several large vessel pass nearby [illegible]
0727	Hydrography completed @ Sta. 29 Hy in DSRT dirty - will require a firm rap to insure Hy drops.
	Rigging for dredge tows
*	NOTE - According to vessel master (Chuck Horan) the main trawl winch pays out wire @ a rate of 33 m/min
0935	Dredging completed. Rigging for trawl.
1015	Trawl sample nearly processed. Vessel now maneuvering around temporary mkr. float for surf. search of sub-surf. buoy on array. Rigging for UTV & prepping skin divers for sled search.
1114	UTV survey begins after deploying Whaler & skin divers
1200	Divers on board. No luck so far. UTV continues. A playback of LORAN coord. for temp mkr. float shows that temp mkr. float not placed properly. Will redeploy.
1220	Retrieve UTV to change film in RSC & retrieve temp mkr.
1240	Both on board. Repositioning vessel.
1248	Temp mkr redeployed. Skin divers out in Whaler to resume search.
1306	Resume UTV survey.
~1330	Sub. surf. buoy on array located by skin divers with Whaler & dive sled. Service line hooked up by Sta 29. Many amplipods on nylon line below buoy.
1345	Divers on board. UTV survey continues.
1518	UTV survey completed. Begin positioning vessel for area servicing.

DAY CONT'D NEXT PAGE? (Y) or N

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ FTL: MRD DATE: 16 May 84

PROJ. MGR: [illegible] DATE: _____ DIV. MGR: _____ DATE: _____

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DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA Ocs 13 ENTHIC STUDY PROJ. NO.: 83-513-510/MMS

CRUISE or TRIP DESC.: 711 (Leg i)

PLATFORM and/or LOCATION: R/V SUNCOASTER-GULF OF MEXICO

DATE: 16 May 84 DAY OF WEEK: WED PAGE 11 OF 23

TIME	ENTRY
1553	Array attached to spar buoy in preparation for servicing. A new approach was used @ this sta. The SUNCOASTER dropped the anchor upwind of the array and paid out anchor line to put it in the vicinity of the array. Then w/ only minimal maneuvering the servicing line was snagged and ~~bot~~ retrieval begun.
1558	Divers in water to service array
1620	Array servicing (repl. fouling plates, sed. traps, & service CM174) completed
1641	Divers up from removing servicing line. During redeployment the servicing spar-buoy "broke" apart @ the connector. No harm done & both pieces were retrieved. Closer inspection on deck indicated that it had unscrewed. It will be reassembled & tack welded before next servicing. Weighing anchor
1720	Anchor up.
1730	Retrieve temp mkr float & u/w to retrieve top half of spar buoy.
1744	Spar buoy top recovered & u/w for sta. 36
~2100	Arr. @ sta. 36 & anchor

DAY CONT'D NEXT PAGE? Y or (N)

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ FT L: [illegible] DATE: 16 May 84

PROJ. MGR: [illegible] DATE: _____ DIV. MGR: _____ DATE: _____

[COPIES TO PROJECT and DIVISION FILES]

DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA Ocs BENTHIC STUDY PROJ. No.: 83-513-510/MMS

CRUISE or TRIP DESC.: II (Leg 1)

PLATFORM and/or LOCATION: R/V SUNCOASTER-GULF OF MEXICO

DATE: 17 May 84 DAY OF WEEK: THU PAGE 12 OF 23

TIME	ENTRY
0635	Weighing anchor & repositioning at Sta. 36 (the anchor dragged during the night) Weather deteriorating and seas increasing to 2 m.
0722	Arr. on sta., vessel have to during hydrocast.
0837	Hydrography (CTD & calib. cast) completed, prep. for dredging
1040	Dredging completed; rigging for trawling. Seas are up to 3 m. now.
1232	Trawl samples processed. Weather too rough for array servicing on ROV work. Up for Sta. 21 (to attempt deployment of backup array) Present vessel speed (due to weather) is < 5 kts.
1712	Change course for FIO; no let up in weather anticipated therefore array deployment would be impossible

DAY CONT'D NEXT PAGE? Y or N

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ FTL: MS DATE: 21 May 84

PROJ. MGR: _____ DATE: _____ DIV. MGR: _____ DATE: _____

[COPIES TO PROJECT and DIVISION FILES)

DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA Ocs BENTHIC STUDY PROJ. No.: 83-513-510/MMS

CRUISE or TRIP DESC.: III (Leg 1)

PLATFORM and/or LOCATION: R/V SUNCOASTER-GULF OF MEXICO

DATE: 18 May 84 DAY OF WEEK: FRI PAGE 13 OF 23

TIME	ENTRY
0900	Equipment being calibrated and packed.
1121	Arr. @ F10. Begin offloading equip that will
	not be used during Leg 2.
1310	Vessel unload. Scientific crew off.

DAY CONT'D NEXT PAGE? Y or (N)

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ FTL: [illegible] DATE: 21 May 84

PROJ. MGR: [illegible] DATE: _____ DIV. MGR: _____ DATE: _____

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DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA Ocs BENTHIC STUDY PROJ. NO.: 83-513-510/MMS

CRUISE or TRIP DESC.: III (Leg 2)

PLATFORM and/or LOCATION: R/V SUNCOASTER- GULF OF MEXICO

DATE: 25 May 84 DAY OF WEEK: FRI PAGE 14 OF 23

TIME	ENTRY
1639	u/w for Sta. 36 (E SE ... @ 1100 to begin. prep. E SE Tampa E LGL ~1400).

DAY CONT'D NEXT PAGE? Y or (N)

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ FTL: [illegible] DATE: 26 May 84

PROJ. MGR: [illegible] DATE: 6/20/84 DIV. MGR: _____ DATE: _____

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DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA OCS BENTHIC STUDY PROJ. NO.: 83-513-510/MMS

CRUISE or TRIP DESC.: III (Leg 2)

PLATFORM and/or LOCATION: R/V SUNCOASTER-GULF OF MEXICO

DATE: 26 May 84 DAY OF WEEK: SAT PAGE 15 OF 23

TIM	NR
0820	Arr. @ Sta. 36, check depth before deploying temp. mkr.
*	Note: Array coord. are ~ 250m ESE of Mkr. (Topper Buoy) coordinates. Z = 126m.
0832	Temp. mkr. deployed. Prep. for UTV survey
0913	Begin. UTV #1. Vessel will drift (LGL would rather no tow). ∴ UTV will be brought on deck @ end. of tow. UTV #1 Bottom in sight occurred ~ 1/2 km into sta. ∴ next UTV. deployment will occur ~ 600m E of sta. edge.
0953	UTV on deck just slightly prematurely due to a large tanker on collision course w/ us & not responding to radio.
*	1m long period swells + drift type survey requires a 3 man crew ∴ no searching during UTV survey. Also the new LORAN in lab. reports TD's to nearest 1/10 rather than 1/100 but considering normal vander in TD's this should be OK.
1058	2 lines seen on bottom during UTV surveys. (this was between the Perm. Mkr. & Array positions.
1128	UTV on deck. Loading film magazine to change film in camera. Break for lunch.
1220	In position for drift. UTV deployed.
1440	UTV survey completed. (Note: last Tr. #4 was done w/ hose clamps to allow us to motor during array search). Motoring toward center of sta.
1520	Whaler on water. Divers out to sled search for sub-surf. float. UTV search continues
1545	UTV shows sub-surface float on bottom(!) w/ line trailing out. Will attempt to locate array w/ UTV.

DAY CONT'D NEXT PAGE? (Y) or N

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ FTL: MBS DATE: 26 May 84

PROJ. MGR: LJD DATE: _____ DIV. MGR: _____ DATE: _____

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DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA OCS BENTHIC STUDY PROJ. NO.: 83-513-510/MMS

CRUISE or TRIP DESC.: III (Leg 2)

PLATFORM and/or LOCATION: R/V SUNCOASTER—GULF OF MEXICO

DATE: 26 May 89 DAY OF WEEK: SAT PAGE 16 OF 23

TIME	ENTRY
1615	Whaler secured. Cruising w/ UTV to continue search.
1622	In vicinity of array. (according to mkr. float).
1625	Line — 44486.7/13682.7
1627	Subsurf. Buoy in sight. — 44486.7/13682.6 (~30 ft. away)
1637	Line — 44487.1/13682.7
1649	subsurf. float in sight on bottom, 44486.8/13682.6
1652	Almost on top of sub-surf. float (remnant of 3/16" polycord.
	extends (floats) from top of buoy. 44486.7/13682.7
1716	Line — 44486.8/13682.7 array may have been seen in
	distance.
	Array (UTV literally on top of it & tangled in our
	temp. mkr. float) — 44487.2/13682.6
1744	UTV on deck & the temp. mkr. float + 417ft. 1/2"
	double brd. nylon + F10's lead weight missing May
	have fallen off UTV during retrieval.
1800	Dinner completed, rigging grapnels (w/ otter doors)
	for array recovery attempt.
1848	Grapnels rigged for dragging. Positioning for trawl.
2104	Redeploying grapnels ~~after~~ after bringing on board ~~for~~ to
	untangle to hooks. (Hooks which had been wired in
	place on chain now fastened w/ 1/4" SS cable).
	FTL has decided to stay @ Sta. 36 because array
	has been located & the grapnels are the only viable method
	during this cruise.
2153	Snagged something. Retrieving slowly.
2215	Retrieved Topper Buoy which was on bottom. Rather than retrieve
	RR wheel, cable was cut FTL felt any attempt to
	retrieve would endanger personnel.

Grapnels badly tangled.

DAY CONT'D NEXT PAGE? (Y) or N

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ FTL: MBD DATE: 26 May 89

PROJ. MGR: LJD DATE: _____ DIV. MGR: _____ DATE: _____

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DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA OCS BENTHIC STUDY PROJ. NO.: 83-513- 510/MMS

CRUISE or TRIP DESC.: III (Leg 2)

PLATFORM and/or LOCATION: R/V SUNCOASTER-GULF OF MEXICO

DATE: 26 May 84 DAY OF WEEK: SAT PAGE 17 OF 23

TM	NR
1259	Grapnels untangled & back over the side to continue search.
*	The Topper Buoy was apparently pulled (somehow) to the bottom. (There are longliners operating in area). The foam in the buoy was completely compressed.

DAY CONT'D NEXT PAGE? Y or (N)

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ FTL: [signature] DATE: 26 May 84

PROJ. MGR: [signature] DATE: _____ DIV. MGR: _____ DATE: _____

(COPIES TO PROJECT and DIVISION FILES)

DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA OCS BENTHIC STUDY PROJ.NO.: 83-513-510/MMS

CRUISE or TRIP DESC.: III (Leg 2)

PLATFORM and/or LOCATION: R/V SUNCOASTER - GULF OF MEXICO

DATE: 27 May 84 DAY OF WEEK: SUN PAGE 18 OF 23

M	N R
0000	Retrieval attempt continues.
0023	Something possibly snagged again. (No).
0126	Wire shuddering, it's possible we have snagged something. Retrieving grapnels to check. LORAN acting up.
0219	Engaged in process of untangling ~~fr~~ grapnels. It appears that we have snagged the array (by the subsurface float, which ~~was~~ had lost its buoyancy and was lying on the bottom) - and the temp. mkr. float, line and weight lost during the UTV search.
0238	Array sitting on deck, status follows: • Current meter - ok • Sediment Traps - All 3 missing (& mount for 0.5m trap) • Fouling Plate sets - 4 missing (all ceramic). • Frame - 1 leg (& weight missing). Polished metal on frame & weights indicates that array was drug some distance. Mooring line appears ok. The 400 ft. temp. mkr. line was worn nearly in-half at ~ midpoint.
0253	CM 174 ~~took~~ opened up & it appears ok. Tape ran to the end, batteries dead (wouldn't respond to RESET). New batteries installed, RESET OK. Fouling plates that are to be left on array are being hosed down periodically w/ saltwater to prevent desiccation.
0320	Replacement leg and a small wt. (salvaged from damaged Topper buoy) being welded to array by ship's crew.
0328	CM all serviced. Fouling plate sets being constructed as well as sed. traps.

DAY CONT'D NEXT PAGE? (Y) or N

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ FTL: MBD DATE: 27 May 84

PROJ. MGR: RJD DATE: _____ DIV. MGR: _____ DATE: _____

(COPIES TO PROJECT and DIVISION FILES)

DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA OCS BENTHIC STUDY PROJ. NO.: 83-513-510/MMS

CRUISE or TRIP DESC.: III. (Leg 2)

PLATFORM and/or LOCATION: R/V SUNCOASTER- GULF OF MEXICO

DATE: 27 May 84 DAY OF WEEK: SUN PAGE 19 OF 23

TIME	ENTRY
	Subsurf. buoy being prepped as well as the secondary subsurface and surface buoys. The primary subsurface buoy is an inflatable 60" circumference Polyform float.
	The 0.5 m sed. trap will not be reinstalled. We have only 1 mounting pipe & this is being reserved for the Sta. 21 backup array.
0400	Position vessel for array redeployment. Hosing down of fouling plates continue. LORAN acting up.
0450	Array deployed w/ no problems.
0455	u/w for Sta. 21
1035	Arr. Sta. 21, begin acoustic search using bridge Furuno Fathometer. and rig. temp. mkr. UTV prepped for deployment.
*	Waypts. marked on LORAN plotter, the WP for the March Mkr. TD = 44082.04/13864.70 & the Lat/Lon = 25°17.21'/82°51.96', however, the Lat/Lon calc. w/ the ship's LORAN = 25°17.15'/82°52.00'. This discrepancy amounts to 150 m.
1130	Break for lunch. Seas running 1→1.5 m
1243	UTV down to begin array search.
*	Further note on LORAN plot.
	WP3 - Array locn. (Dec 83)
	WP2 - Mkr. locn. (Dec 83)
	WP1 - Mkr. locn. (Mar 84)
	Center cross - Mkr. locn. (Mar 84) based on orig. Lat/Lon
	First pattern will be to run between WP3 & WP1

DAY CONT'D NEXT PAGE? (Y) or N

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ FTL: [illegible] DATE: 27 May 84

PROJ. MGR: [illegible] DATE: _____ DIV. MGR: _____ DATE: _____

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DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA OCS BENTHIC STUDY PROJ.NO.: 83-513-510/MMS

CRUISE or TRIP DESC.: III (Leg 3)

PLATFORM and/or LOCATION: R/V SUNCOASTER-GULF OF MEXICO

DATE: 27 May 84 DAY OF WEEK: SUN PAGE 20 OF 23

TIME	ENTRY
*	Need rapid links ~~to~~ for grapnels so chains may be parted to aid in untangling.
1306	We have passed over 2 areas where large numbers of urchins are grazing and the effect is to totally denude the bottom. (Photo's take). Also bottom doesn't look right for Sta. 21 (there are no logger head sponges).
1340	Discrepancy discovered between lab LORAN and bridge LORAN w/ bridge LORAN be suspect. The bridge LORAN is off by 10 usec. on one chain resulting in an error of 3 mi. This is being corrected.
1355	Begin retrieving UTV to enable vessel ~~to~~ to motor to the proper location.
1404	UTV on deck & u/w for sta. 21
1429	Arr. @ sta-21 begin UTV deployment
1452	UTV down & resuming search.
1552	RR wheel sighted @ 44081.9/13864.7. Line severed @ the wheel (compared w/ Mar. fix — 44032.04/13864.7)
1613	Pick up acoustic target reaching nearly to surface. Will temporarily concentrate search in vicinity of WP3
1710	Gave up on acoustic target (which showed up twice). Will try for a wider search pattern.
1845	UTV continues, fouling plates & sed. traps, readied for array deployment (if array not found).
2005	Begin retrieving UTV. Getting too dark.
2017	UTV on board, positioning for anchoring.

DAY CONT'D NEXT PAGE? Y or (N)

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ FTL: MBJ DATE: 27 May 84

PROJ. MGR: [illegible] DATE: _____ DIV. MGR: _____ DATE: _____

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DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA OCS BENTHIC STUDY PROJ. NO.: 83-513-510/MMS

CRUISE or TRIP DESC.: III (Leg 2)

PLATFORM and/or LOCATION: R/V SUNCOASTER-GULF OF MEXICO

DATE: 28 May 84 DAY OF WEEK: MON PAGE 21 OF 23

M	NR
0630	Weighing anchor to move into position for UTV work.
0715	Moisture in UTV recorder causes automatic shutdown Trying to dry w/ Freon & hair dryer.
0723	Deploying UTV
0747	UTV down, resuming array search, RR ~~wheel~~ wheel spotted immediately. Search is being concentrated in southern ½ of 1km. sta.
0812	Performed a cross chk. between Lab & bridge
*	LORAN's. One sta. off by 0.1 usec. Recommend that this cross check be performed several times during the day.
0830	UTV search continues. TLC target being constructed. (Steel tubing plates welded to pipe & 5 cm. gradations painted on pipe.)
0919	RR wheel sighted again @ 44082.1/13864.6
0941	Modify search scheme after it was discovered that LORAN array position doesn't agree w/ bearing and range recorded previously. We will check this area.
1139	UTV on deck. Array search terminated. Prep. to deploy "permanent" marker buoy.
1158	Marker buoy deployed. Break for lunch
1215	Divers prep. for photo session & CM installation while array suspended from ship @ a depth of ~ 30 ft.
1245	Array @ 30 ft., CM installed. Divers waiting for TLC strobe flash @ 1259.
1311	Array deployed. Lab LORAN - 13864.3/44083.4 and the depth is 47 m.

DAY CONT'D NEXT PAGE? Y or N

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ FTL: MSJ DATE: 28 May 84

PROJ. MGR: LJD DATE: _____ DIV. MGR: _____ DATE: _____

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DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA OCS BENTHIC STUDY PROJ. NO.: 83-513-510/MMS

CRUISE or TRIP DESC.: III (Leg 2)

PLATFORM and/or LOCATION: R/V SUNCOASTER-GULF OF MEXICO

DATE: 28 May 84 DAY OF WEEK: Mon PAGE 22 OF 23

TIME	ENTRY
1323	Divers up after attaching pinger below sub-surface buoy. Divers also report that primary sub-surf. buoy is @ 42ft. & secondary sub. surf. buoy is @ 22ft. Getting ready to weigh anchor.
1338	aft for F10. Begin packing
**	Note: During photo session divers observed a fair amount of array vertical motion w/ seas @ on 1→1.5m w/ the array attached directly to ship. This vertical motion is hardly evident when array is suspended to span buoy.

DAY CONT'D NEXT PAGE? Y or (N)

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ FTL: MSO DATE: 28 May 84

PROJ. MGR: LJP DATE: _____ DIV. MGR: _____ DATE: _____

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DAILY FIELD LOG

PROJ. TITLE: SW FLORIDA OCS BENTHIC STUDY PROJ. NO.: 83-513-510/MMS

CRUISE or TRIP DESC.: III (leg 2)

PLATFORM and/or LOCATION: R/V SUNCOASTER - GULF OF MEXICO

DATE: 29 May 84 DAY OF WEEK: TUE PAGE 23 OF 23

TIME	ENTRY
0355	Arr. @ F10
0615	Begin offloading.
0810	offloading completed.

DAY CONT'D NEXT PAGE? Y or (N)

WATCH CHIEF 1: _____ DATE: _____ 2: _____ DATE: _____

3: _____ DATE: _____ FTL: [signature] DATE: 29 May 84

PROJ. MGR: [signature] DATE: _____ DIV. MGR: _____ DATE: _____

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