DATA DOCUMENTATION FORM

76-1212

NOAA FORM 24-13 (4-72)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEANOGRAPHIC DATA CENTER
RECORDS SECTION
ROCKVILLE, MARYLAND 20852

FORM APPROVED O.M.B. No. 41-R2651

This form should accompany all data submissions to NODC. Section A, Originator Identification, must be completed when the data are submitted. It is highly desirable for NODC to also receive the remaining pertinent information at that time. This may be most easily accomplished by attaching reports, publications, or manuscripts which are readily available describing data collection, analysis, and format specifics. Readable, handwritten submissions are acceptable in all cases. All data shipments should be sent to the above address.

A. ORIGINATOR IDENTIFICATION (IN HOUSE)

THIS SECTION MUST BE COMPLETED BY DONOR FOR ALL DATA TRANSMITTALS Detail

1. NAME AND ADDRESS OF INSTITUTION, LABORATORY, OR ACTIVITY WITH WHICH SUBMITTED DATA ARE ASSOCIATED

U. S. Geological Survey
Office of Marine Geology
P. O. Box 6732
Corpus Christi, Texas 78411

2. EXPEDITION, PROJECT, OR PROGRAM DURING WHICH DATA WERE COLLECTED

OCS - South Texas Baseline Study

3. CRUISE NUMBER(S) USED BY ORIGINATOR TO IDENTIFY DATA IN THIS SHIPMENT

OCS - South Texas

4. PLATFORM NAME(S)

R/V Kana Keoki

5. PLATFORM TYPE(S) *(E.G., SHIP, BUOY, ETC.)*

Ship

6. PLATFORM AND OPERATOR NATIONALITY(IES)

PLATFORM	OPERATOR
U. Hawaii USA	U. Hawaii USA

7. DATES

FROM: MO/DAY/YR	TO: MO/DAY/YR
10/26/74	12/21/74

8. ARE DATA PROPRIETARY?

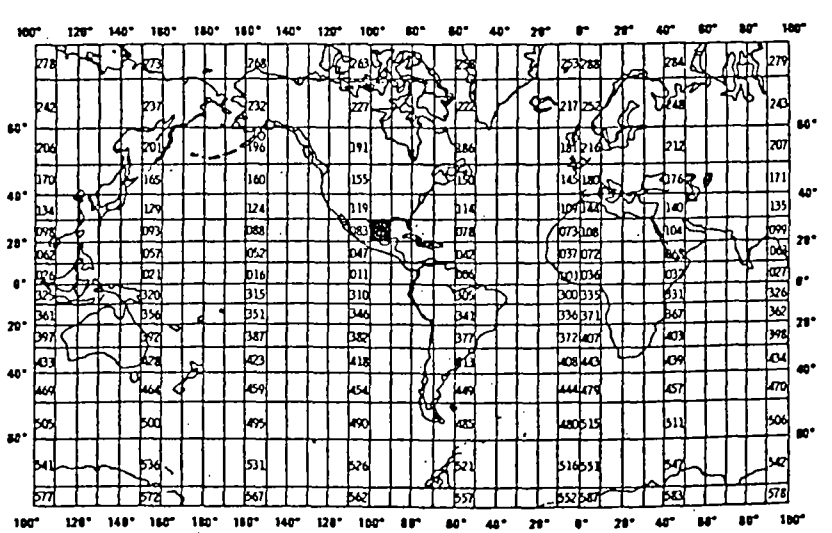
XX NO ☐ YES

IF YES, WHEN CAN THEY BE RELEASED FOR GENERAL USE? YEAR____ MONTH____

11. PLEASE DARKEN ALL MARSDEN SQUARES IN WHICH ANY DATA CONTAINED IN YOUR SUBMISSION WERE COLLECTED.

MARSDEN SQUARE 082

GENERAL AREA



9. ARE DATA DECLARED NATIONAL PROGRAM (DNP)?

(I.E., SHOULD THEY BE INCLUDED IN WORLD DATA CENTERS HOLDINGS FOR INTERNATIONAL EXCHANGE?)

☐ NO XX YES ☐ PART *(SPECIFY BELOW)*

10. PERSON TO WHOM INQUIRIES CONCERNING DATA SHOULD BE ADDRESSED WITH TELEPHONE NUMBER *(AND ADDRESS IF OTHER THAN IN ITEM-1)*

Henry Berryhill
(512) 888-3241
FTS 734-3241

NOAA FORM 24-13

USCOMM-DC 44289-P72

Acc# 76-1212 C. DATA FORMAT IN HOUSE TAPE ~~USER~~

COMPLETE THIS SECTION FOR PUNCHED CARDS OR TAPE, MAGNETIC TAPE, OR DISC SUBMISSIONS.

1. LIST RECORD TYPES CONTAINED IN THE TRANSMITTAL OF YOUR FILE
GIVE METHOD OF IDENTIFYING EACH RECORD TYPE

Header or Master Record: one type
BLMSTG - in columns 1-6

Detail Records: 2 types
B1 - in columns 79-80
B2 - in columns 75-76

2. GIVE BRIEF DESCRIPTION OF FILE ORGANIZATION

UDL=SER=7343,9TRK,1600bpi,Label=(,SL),DSN=BENTHOS,
DCB=(RECFM=FB,BLKSIZE=800,LRECL=80)

USER TAPE

ATTRIBUTES AS EXPRESSED IN ☐ PL-1 ☐ ALGOL ☐ COBOL ☐ FORTRAN ☐ _____ LANGUAGE

4. RESPONSIBLE COMPUTER SPECIALIST:
NAME AND PHONE NUMBER _____
ADDRESS _____

COMPLETE THIS SECTION IF DATA ARE ON MAGNETIC TAPE

5. RECORDING MODE
☐ BCD ☐ BINARY
☐ ASCII ☒ EBCDIC
☐ _____

6. NUMBER OF TRACKS (CHANNELS)
☐ SEVEN
☒ NINE
☐ _____

7. PARITY
☐ ODD
☐ EVEN

8. DENSITY
☐ 200 BPI ☒ 1600 BPI
☐ 556 BPI
☐ 800 BPI
☐ _____

9. LENGTH OF INTER-RECORD GAP (IF KNOWN)
☐ 3/4 INCH
☐ _____

10. END OF FILE MARK
☐ OCTAL 17
☐ _____

11. PASTE-ON-PAPER LABEL DESCRIPTION *(INCLUDE ORIGINATOR NAME AND SOME LAY SPECIFICATIONS OF DATA TYPE, VOLUME NUMBER)*

12. PHYSICAL BLOCK LENGTH IN BYTES

13. LENGTH OF BYTES IN BITS

Acc# 76-1212

C. DATA FORMAT IN HOUSE TAPE USER
VOL=SER=1876

COMPLETE THIS SECTION FOR PUNCHED CARDS OR TAPE, MAGNETIC TAPE, OR DISC SUBMISSIONS.

1. LIST RECORD TYPES CONTAINED IN THE TRANSMITTAL OF YOUR FILE
GIVE METHOD OF IDENTIFYING EACH RECORD TYPE

Same as Tape 7343

2. GIVE BRIEF DESCRIPTION OF FILE ORGANIZATION

VOL=SER=1876, 9TRK, 1600 bpi., LABEL=(,SL), DSN=BENTEXAS,
DCB=(RECFM=FB, BLKSIZE=800, LRECL=80)

USER TAPE

ATTRIBUTES AS EXPRESSED IN ☐ PL-1 ☐ ALGOL ☐ COBOL ☐ FORTRAN ☐ _____ LANGUAGE

4. RESPONSIBLE COMPUTER SPECIALIST:

NAME AND PHONE NUMBER _____

ADDRESS _____

COMPLETE THIS SECTION IF DATA ARE ON MAGNETIC TAPE

5. RECORDING MODE ☐ BCD ☐ BINARY ☐ ASCII ☐ EBCDIC ☐ _____

6. NUMBER OF TRACKS (CHANNELS) ☐ SEVEN ☐ NINE ☐ _____

7. PARITY ☐ ODD ☐ EVEN

8. DENSITY ☐ 200 BPI ☐ 1600 BPI ☐ 556 BPI ☐ 800 BPI ☐ _____

9. LENGTH OF INTER-RECORD GAP (IF KNOWN) ☐ 3/4 INCH ☐ _____

10. END OF FILE MARK ☐ OCTAL 17 ☐ _____

11. PASTE-ON-PAPER LABEL DESCRIPTION *(INCLUDE ORIGINATOR NAME AND SOME LAY SPECIFICATIONS OF DATA TYPE, VOLUME NUMBER)*

12. PHYSICAL BLOCK LENGTH IN BYTES

13. LENGTH OF BYTES IN BITS

Acc# 76-1212 RECORD FORMAT DESCRIPTION IH HOUSE TAPE USER

VOL=SER=1876

RECORD NAME _____

14. FIELD NAME	15. POSITION FROM-1 MEASURED IN _____ (e.g., bits, bytes)	16. LENGTH NUMBER	16. LENGTH UNITS	17. ATTRIBUTES	18. USE AND MEANING
Same documentation as Tape 7343 See Data Format for Tape 7343					

NOAA FORM 24-13

USCOMM-DC 44289-P72

RECORD FORMAT DESCRIPTION

Benthos

RECORD NAME Biological Community Statistics I

DOL=SER= 7343

14. FIELD NAME	15. POSITION FROM-1 MEASURED IN _____ (e.g., bits, bytes)	16. LENGTH NUMBER	16. LENGTH UNITS	17. ATTRIBUTES	18. USE AND MEANING
Station title	1	3	bytes	I3	Same as master record
Sample type	4	1	"	A1	" " " "
	5	2		BLANK	
Count of species	~~57~~	~~53~~	"	I3 ~~I5~~	Number of species
	10	1		BLANK	
Count of polychaeta	11 ~~10~~	~~32~~	"	I2 ~~I3~~	Percent of total species
	13	1		BLANK	
Count of arthropoda	~~13~~14	~~32~~	"	I2 ~~I3~~	" " " "
	16	1		BLANK	
Count of mollusca	~~16~~17	~~32~~	"	I2 ~~I3~~	" " " "
	19	1		BLANK	
Count of remaining portion of sample	~~19~~ 20	~~32~~	"	I2 ~~I3~~	" " " "
	22	2		BLANK	
Count of individuals	~~22~~ 24	~~64~~	"	I4 ~~I6~~	Number of individuals
	28	1		BLANK	
Count of polychaeta	~~28~~ 29	~~32~~	"	I2 ~~I3~~	Percent of total individuals
	31	1		BLANK	
Count of arthropoda	~~31~~ 32	~~32~~	"	I2 ~~I3~~	" " " "
	34	1		BLANK	
Count of mollusca	~~34~~ 35	~~32~~	"	I2 ~~I3~~	" " " "
	37	1		BLANK	
Count of remaining portion of sample	~~37~~ 38	~~32~~	"	I2 ~~I3~~	" " " "
	40	2		BLANK	
Biomass	~~40~~ 42	~~97~~	"	F7.4 ~~F9.4~~	Total (Grams)
	49	1		BLANK	
Biomass of polychaeta	~~49~~ 50	~~32~~	"	I2 ~~I3~~	Percent of total biomass
	52	1		BLANK	
Biomass of arthropoda	~~52~~ 53	~~32~~	"	I2 ~~I3~~	" " " "
	55	1		BLANK	
Biomass of mollusca	~~55~~ 56	~~32~~	"	I2 ~~I3~~	" " " "
	58	1		BLANK	
Biomass of remaining portion of sample	~~58~~ 59	~~32~~	"	I2 ~~I3~~	" " " "
	61	2		BLANK	
Diversity	~~61~~ 63	~~97~~	"	F7.4 ~~F9.4~~	
	70	2		BLANK	
Equitability	~~70~~ 72	~~75~~	"	F5.4 ~~F7.4~~	
	77	2		BLANK	
Card type	~~77~~ 79	~~42~~	"	A2 ~~A4~~	~~"BI"~~ "B1"

NOAA FORM 24-13 EOR

USCOMM-DC 44289-P72

RECORD FORMAT DESCRIPTION

RECORD NAME Biological Community Statistics II

14. FIELD NAME	15. POSITION FROM-1 MEASURED IN _____ (e.g., bits, bytes)	16. LENGTH NUMBER	16. LENGTH UNITS	17. ATTRIBUTES	18. USE AND MEANING
Station title	1	3	bytes	I3	Same as master record
Sample type	4	1	"	A1	" " " "
	5	2		BLANK	
Count of species of polychaeta	~~5~~ 7	~~5~~ 3	"	I3 ~~I5~~	Number of species
	10	1		BLANK	
Count of polychaeta	~~10~~ 11	~~4~~ 3	"	I3 ~~I4~~	Number of individuals
	14	1		BLANK	
Biomass of polychaeta	~~14~~ 15	~~7~~ 6	"	F6.4 ~~F7.4~~	Grams
	21	2		BLANK	
Count of species of arthropoda	~~21~~ 23	~~3~~ 5	"	I3 ~~I5~~	Number of species
	26	1		BLANK	
Count of arthropoda	~~26~~ 27	~~4~~ 3	"	I3 ~~I4~~	Number of individuals
	30	1		BLANK	
Biomass of arthropoda	~~30~~ 31	~~7~~ 6	"	F6.4 ~~F7.4~~	Grams
	37	2		BLANK	
Count of species of mollusca	~~37~~ 39	~~5~~ 3	"	I3 ~~I5~~	Number of species
	42	1		BLANK	
Count of mollusca	~~42~~ 43	~~4~~ 3	"	I3 ~~I4~~	Number of individuals
	46	1		BLANK	
Biomass of mollusca	~~46~~ 47	~~7~~ 6	"	F6.4 ~~F7.4~~	Grams
	53	2		BLANK	
Count of phyla in remaining portion of sample	~~53~~ 55	~~5~~ 3	"	I3 ~~I5~~	Number of phyla
	58	1		BLANK	
Count of species in remaining portion of sample	~~58~~ 59	~~4~~ 3	"	I3 ~~I4~~	Number of species
	62	1		BLANK	
Count of individuals in remaining portion of sample	~~62~~ 63	~~4~~ 3	"	I3 ~~I4~~	Number of individuals
	66	1		BLANK	
Biomass of remaining portion of sample	~~66~~ 67	~~7~~ 6	"	F6.4 ~~F7.4~~	Grams
	73	2			
Record type	~~73~~ 75	~~4~~ 2	"	A2 ~~A4~~	~~"BB2"~~ "B2"
	77	4		BLANK	

NOAA FORM 24-13

USCOMM-DC 44289-P72

EOR

B. SCIENTIFIC CONTENT

NAME OF DATA FIELD	REPORTING UNITS OR CODE	METHODS OF OBSERVATION AND INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH FILTERING AND AVERAGING
See attached excerpt "Methods of study," for description of techniques. From Berryhill, H. L., et al, 1975, Environmental studies, South Texas Outer Continental Shelf, 1975: Geology, Part I - Geologic description and interpretation				

B. SCIENTIFIC CONTENT

NAME OF DATA FIELD	REPORTING UNITS OR CODE	METHODS OF OBSERVATION AND INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH FILTERING AND AVERAGING

and provinciality. Knowledge of the overall extent and intensity of biogenic activity, both laterally and vertically, is a key in predicting the impact of contaminants introduced on and into benthic sediments.

Identification of the benthic community structure and function are necessary for making paleoecological interpretations and for reconstructing ancient depositional environments. Information on bathymetry, temperature, salinity, oxygen, current and wave orientation, and habitat diversity during earlier stages of deposition can be gained from the study of benthic biological processes.

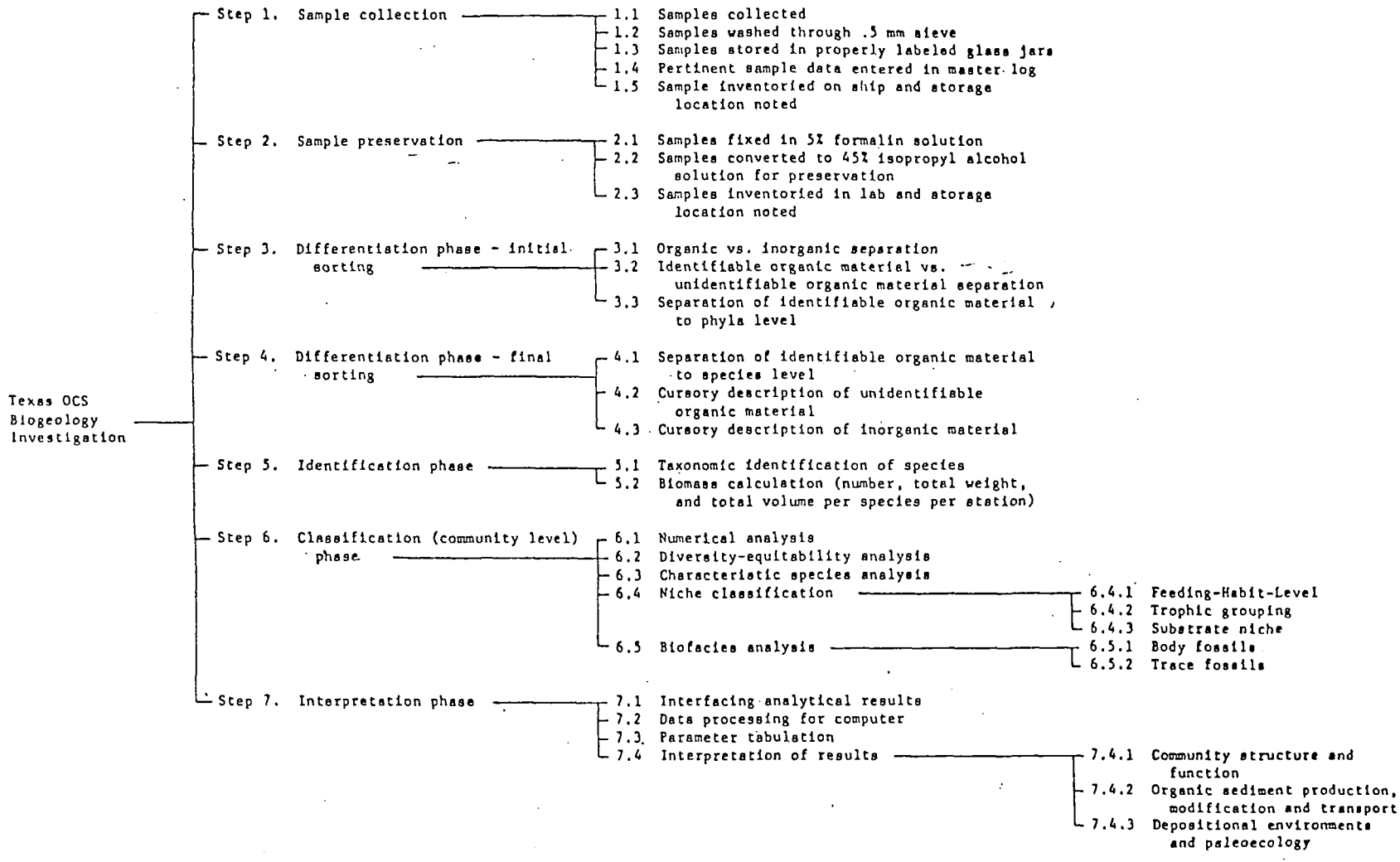
The biogeologic studies have been designed to identify, classify, and interpret significant benthic (macrobenthic infauna) biological processes as they relate to the sedimentological processes operative over the South Texas Outer Continental Shelf. Because data from only 81 of 264 stations were available at the time this report was written, the results must be considered preliminary.

Relatively few studies have been directed toward the interaction of physical and biological processes on the continental shelves. In the United States, investigations of animal-sediment relationships have largely been restricted to the Atlantic coast, especially Georgia (e.g., Howard and Reineck, 1972). Animal-sediment relationships off the Texas coast have received only meager study (e.g., Hunter and others, 1972; Hill, 1974).

Methods of Study

To accomplish the study objectives, samples from 81 stations were examined (fig. 63) and a number of investigative steps were established as outlined in Table I.

Table 1--General outline of investigative steps used in the biogeologic studies of the South Texas OCS



After subsamples for sedimentological and geochemical studies were removed from the bottom samples, the remaining part of the grab sample (0.09 m^3) and the upper 10 cm of the box core were washed aboard ship through a large (46 cm diameter) aluminum funnel having a 0.5 mm mesh "Saran" bag acting as a screen at the terminal end. The sample was gently washed and then stored (sample in bag) in a glass jar in 5 percent buffered formalin. Labels were put inside each bag, in each jar, and the outside of the jar and lid were also labeled. Any significant remarks about the sample were entered into the master station log book kept by the Chief Scientist on each cruise.

The biological samples were removed from the ship to the laboratory after each cruise leg. Each sample was transferred to a 45 percent isopropyl alcohol solution until such a time as it could be sorted, counted, and identified. After all available samples were sorted, a checklist was compiled from the species collected; species were sorted to phyla and then assigned a species identification number (e.g., Polychaete, P-17). All identifications eventually will be submitted for verification to qualified biologists.

The spatial distribution along and normal to shoreline trends were determined by compiling the counts from each traverse. Biomass was determined using a Perkin-Elmer Autobalance AD-2^R, accurate to 1.0×10^{-6} g. For some species, because of their very small size and fragmentation, an average weight per individual was calculated and used in biomass calculations.

A classification type of numerical analysis was utilized to determine macrobenthic infaunal assemblages. The computer program was supplied by Dr. Joseph L. Simon, Department of Biology, University of South Florida. Correlation coefficients were determined using the modified U.S.G.S. RAS-STATPAC program for correlation analysis (D0101) and general regression analysis (D0095).

The Shannon diversity index $H' = -\sum P_i \log_e P_i$ is the proportion of the i^{th} species in the collection (Shannon and Weaver, 1963), was utilized to calculate diversity because it is influenced by two components: the total number of species present (species richness component) and the evenness of distribution of the individuals among the different species (equitability component) (Lloyd and Ghelardi, 1964). To apply Shannon's formula to a sample from a population, it must be estimated by the equation,

$$H'' = -\sum \frac{N_i}{N} \log_e \frac{N_i}{N} \text{ natural bels/individual;}$$

where N_i is the number of individuals in the i^{th} species and

N is the total number of individuals collected.

The species richness component was measured by Margalef's index, $d = (S-1)/\log N$, where s = number of species and N = total number of individuals in the sample (Margalef, 1958). Relative species abundance was measured by Lloyd and Ghelardi's (1964) equitability index, $E = s'/s$, where s' is the number of species predicted for the calculated H' by the "broken-stick" model of MacArthur (1967) and S is the number of species.

Macrobenthic Infaunal Zonation

In order to identify, classify, and interpret significant benthic biological processes as they relate to the sedimentological processes operating in the study area, basic descriptive biological and sedimentological studies were conducted. The study focused on the macrobenthic infauna because they make the most significant biogenic impact on the sediments. Sediment parameters referred to in the discussions are those determined by Gerald L. Shideler in the sedimentology studies.

Before benthic biological processes can be interpreted, macrobenthic infaunal zonation must be described and the factors controlling such zonation defined. Macrobenthic infaunal distribution patterns across the shelf and changes in these distribution patterns through time were determined.

ACCESSION NUMBER	76-1212

DATA DOCUMENTATION FORM 1 of 2

NOAA FORM 24-13 (4-72)

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
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RECORDS SECTION
ROCKVILLE, MARYLAND 20852

FORM APPROVED
O.M.B. No. 41-R2651

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1. NAME AND ADDRESS OF INSTITUTION, LABORATORY, OR ACTIVITY WITH WHICH SUBMITTED DATA ARE ASSOCIATED

U. S. Geological Survey
Office of Marine Geology
P. O. Box 6732
Corpus Christi, Texas 78411

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OCS - South Texas Baseline Study

3. CRUISE NUMBER(S) USED BY ORIGINATOR TO IDENTIFY DATA IN THIS SHIPMENT

OCS - South Texas

4. PLATFORM NAME(S)	5. PLATFORM TYPE(S) (E.G., SHIP, BUOY, ETC.)	6. PLATFORM AND OPERATOR NATIONALITY(IES)		7. DATES	
		PLATFORM	OPERATOR	FROM: MO/DAY/YR	TO: MO/DAY/YR
R/V Kana Keoki	Ship	U. Hawaii USA	U. Hawaii USA	10/26/74	12/21/74

8. ARE DATA PROPRIETARY?

XX NO ☐ YES

IF YES, WHEN CAN THEY BE RELEASED FOR GENERAL USE? YEAR____ MONTH____

9. ARE DATA DECLARED NATIONAL PROGRAM (DNP)?

(I.E., SHOULD THEY BE INCLUDED IN WORLD DATA CENTERS HOLDINGS FOR INTERNATIONAL EXCHANGE?)

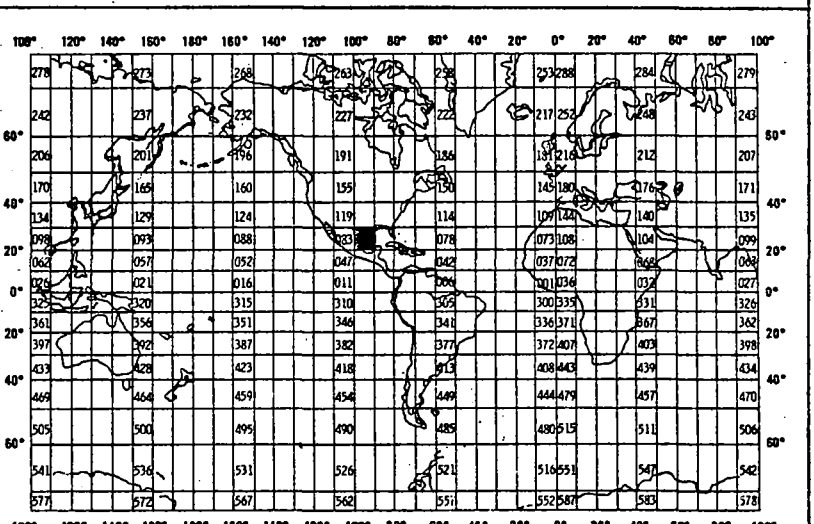
☐ NO XX YES ☐ PART *(SPECIFY BELOW)*

10. PERSON TO WHOM INQUIRIES CONCERNING DATA SHOULD BE ADDRESSED WITH TELEPHONE NUMBER *(AND ADDRESS IF OTHER THAN IN ITEM-1)*

Henry Berryhill
(512) 888-3241
734-3241

11. PLEASE DARKEN ALL MARSDEN SQUARES IN WHICH ANY DATA CONTAINED IN YOUR SUBMISSION WERE COLLECTED.

____GENERAL AREA



USCOMM-DC 44289-P72

RECORD FORMAT DESCRIPTION

RECORD NAME Header Record

14. FIELD NAME	15. POSITION FROM-1 MEASURED IN _____ (e.g., bits, bytes)	16. LENGTH NUMBER	16. LENGTH UNITS	17. ATTRIBUTES	18. USE AND MEANING
					VOL=SER=7343
File Name	1	6	bytes	A6	"BLMSTG" Bureau of Land Management, South Texas Geology
∅	7	1	"		
Station Title	8	3	"	I3	
Sample Type	11	1	"	A1	G= Grab X= XBT C= Pipe Core D= Drift Bottle B = Box Core W= Suspended sediment sample
∅	12	3	"		
Positioning method	15	1	"	I1	0 = Simultaneous fix & sample 1 = Approximate fix on position
Position latitude	16	8	"	I8(2)	I2 = degrees I2 = minutes I4(2) = seconds to hundredths
Position longitude	24	8	"	I8(2)	" "
Position X-Lambert	32	8	"	I8	When Lambert coordinates were not available, "∅Loran∅Hi∅Fix∅∅∅"
∅	40	1	"		
Position Y-Lambert	41	7	"	I7	Lambert coordinates are in feet increasing north and east from base references
Bathymetry	48	3	"	I3	Meters
∅	51	1	"		
Size analysis of sediment	52	2	"	A2	MD = mud SN = sand GV = gravel

Header Record (cont.) **RECORD FORMAT DESCRIPTION**

RECORD NAME _____

14. FIELD NAME	15. POSITION FROM-1 MEASURED IN _____ (e.g., bits, bytes)	16. LENGTH NUMBER	16. LENGTH UNITS	17. ATTRIBUTES	18. USE AND MEANING
ⱥ	54	8	"		
Sample analysis performed	62	7	"	I7	111111 = Tests performed include Textural analysis Mineralogical analysis Trace element analysis Carbon analysis Archive sample available 1111111 = In addition, a quality control sample was taken n.b. above designation significant only for grabs; ⱥ = sample type not grab
ⱥ	69	1	"		
Length of core sample	70	3	"	I3	Centimeters
ⱥ	73	1	"		
Time, month	74	1	"	I1	0 = October 1 = November 2 = December
Time, Day	75	2	"	I2	Day of the month
Time	77	4	"	I4	Time of day(GMT) Hours, minutes

Header Record

B. SCIENTIFIC CONTENT

NAME OF DATA FIELD	REPORTING UNITS OR CODE	METHODS OF OBSERVATION AND INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH FILTERING AND AVERAGING
Position-- Latitude Longitude	Degrees (2) Minutes (2) Seconds to hundredths (4)	HI FIX except during sky wave problems at night when a combination of Satellite Loran A and Hi Fix within two to three lane counts were used.	When Hi Fix positioning within two to three land counts was used, the lane count was tied to a petroleum platform position during the daylight hours so the lane counts could be postplotted as accurately as possible.	
Size analysis of sediment sample	Code: MD = mud SN = sand GV = gravel	General description, visual approximation		
Bathymetry	Meters	Ships echo sounder read as position was taken at each station.		
Length of core sample	Centimeters	Direct measure		

B. SCIENTIFIC CONTENT

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		Hi-Fix	Lambert Base Coordinates 1. Texas South Zone Ref.: X-origin = 2,000,000 ft at 98°30' Y-origin = 0.00 ft at 25°40' 2. Texas South Central Zone Ref.: X-origin = 2,000,000 ft at 99°00' Y-origin = 0.00 ft at 27°50' Lambert increases east and north from base ref.	

Navigation and Positioning

Field station positioning for the sampling and vessel navigation for the geophysical surveying for most of the work was provided by Decca Survey Systems, Inc. on a subcontract to USGS. The precision system was Hi Fix^{R} operating in a hyperbolic mode with a lane transmitting separation of 50 feet. The system consisted of a master transmitting station, two slave stations and a shipboard receiving system consisting of two receivers and an antenna. For the South Texas OCS two Hi Fix^{R} service chains were utilized during the geological cruise: Palacios and Brownsville. Lane counts were acquired at specified petroleum production platforms and temporary buoys, and were tracked on an analog recorder. During the seismic reflection profiling, shot point fixes were taken every 2000 feet. All station locations and geophysical tracks were replotted by Decca from material and specifications provided by USGS.

Use of alternate navigation systems in lieu of Hi Fix^{R} during parts of Leg Charlie were necessary because of sky wave problems during the night hours when it was necessary to run continuously during seismic reflection profiling. A combination of Satellite, Loran A and Hi Fix^{R} within two to three lane counts was used during the night hours. When Hi Fix^{R} positioning within two to three lane counts was used, the lane count was tied to a petroleum platform position during daylight hours so that the lane counts could be post-plotted as accurately as possible.

Station Sampling

A sampling net of 274 bottom stations spaced along 27 transects was established. The location of the bottom stations is shown on figure 5 (plate B). The modified base has been used to show all sample locations so that station locations can be related to the more detailed bathymetry shown. The following

rationale was used in establishing the bottom station network: adequate regional coverage; spacing to provide a sample for each of the blocks nominated for lease bid; and the geology of the area to the extent known prior to the study, including the physiography of the sea floor and general sedimentological and tectonic patterns.

At 264 stations, a bottom grab was taken using a Smith-MacIntyre sampler having 0.1 m^3 capacity. From each grab sample, seven subsamples were taken for the various analyses to be made and for the archives. The subsamples were taken by inserting plastic tubes 15 cm long and 3.8 cm in diameter into the sediment. The tubes were capped and sealed. Subsamples for organic carbon, carbonate and archive samples were frozen aboardship and transferred to the laboratory frozen. At 90 selected stations, a pipe core was obtained: 80 cores were taken at the grab sample stations; 10 cores were taken at stations other than at bottom grab stations. The gravity-fall pipe corer was constructed of stainless steel and the core was retained in a plastic liner having an inside diameter of 7 cm (2.75 in). At 74 of the 90 pipe core stations, a box core was taken using a sampler of 1 ft^3 capacity. The location of the pipe core stations is shown by figure 6 and the box core stations by figure 7. Although they are included on figure 5, the locations of the pipe core and box core stations are repeated for clarity and utility.

At 24 of the 264 bottom grab stations, samples were taken at three levels in the water column for suspended sediment: surface, mid-water depth, and near-bottom. The locations for the suspended sediment samples are shown by figure 8.

As augmentation to the physical oceanographic studies, XBT (expendable bathythermograph) casts were made at 128 of the 264 bottom grab stations and surface drifter bottle casts at 80 stations. The locations of the XBT and surface drifter stations are shown by figures 9 and 10.

'A summary of samples collected by type and number is shown by the listing.

Summary: samples collected by type and number

Temperature and depth (XBT)	128
Suspended sediments for trace metal analysis	72
Sediment samples for benthic infauna analysis (box core stations)	74
Sediment stations for hydrocarbon analysis (box core stations)	74
Sediment samples for trace metals analysis	264
Sediment samples for textural analysis	264
Sediment samples for clay mineralogy	74
Sediment samples for percent heavy minerals	74
Sediment samples for carbonate analysis	264
Sediment samples for organic C analysis	264
Cores for lithologic stratification and biogenic structures	90
Box cores for near surface depositional structures	74
Bottom photographs	60
Sediment samples for biogeologic studies (washings of all grab samples)	264
Drop of surface drifters (bottles), three at each of 80 stations	80
Total	2,120

Geophysics

Geophysical data used for compiling the geologic framework were 11,260 km of high resolution seismic reflection analog profiles, including 8,860 km made available by the Conservation Division of USGS and some 1,600 km collected on cruise leg Charlie. In addition several hundred miles of side scan profiles

DATA DOCUMENTATION FORM

76-1212

NOAA FORM 24-13 (4-72)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEANOGRAPHIC DATA CENTER
RECORDS SECTION
ROCKVILLE, MARYLAND 20852

FORM APPROVED
O.M.B. No. 41-R2651

This form should accompany all data submissions to NODC. Section A, Originator Identification, must be completed when the data are submitted. It is highly desirable for NODC to also receive the remaining pertinent information at that time. This may be most easily accomplished by attaching reports, publications, or manuscripts which are readily available describing data collection, analysis, and format specifics. Readable, handwritten submissions are acceptable in all cases. All data shipments should be sent to the above address.

A. ORIGINATOR IDENTIFICATION 2 of 2 (ORIGINATORS)

THIS SECTION MUST BE COMPLETED BY DONOR FOR ALL DATA TRANSMITTALS DETAIL RECORDS

1. NAME AND ADDRESS OF INSTITUTION, LABORATORY, OR ACTIVITY WITH WHICH SUBMITTED DATA ARE ASSOCIATED

U. S. Geological Survey
Office of Marine Geology
P. O. Box 6732
Corpus Christi, Texas 78411

2. EXPEDITION, PROJECT, OR PROGRAM DURING WHICH DATA WERE COLLECTED

OCS - South Texas Baseline Study

3. CRUISE NUMBER(S) USED BY ORIGINATOR TO IDENTIFY DATA IN THIS SHIPMENT

OCS - South Texas

4. PLATFORM NAME(S)

R/V Kana Keoki

5. PLATFORM TYPE(S) *(E.G., SHIP, BUOY, ETC.)*

Ship

6. PLATFORM AND OPERATOR NATIONALITY(IES)

PLATFORM	OPERATOR
U. Hawaii USA	U. Hawaii USA

7. DATES

FROM: MO/DAY/YR	TO: MO/DAY/YR
10/26/74	12/21/74

8. ARE DATA PROPRIETARY?

XX ☐ NO ☐ YES XX

IF YES, WHEN CAN THEY BE RELEASED FOR GENERAL USE? YEAR____ MONTH____

9. ARE DATA DECLARED NATIONAL PROGRAM (DNP)?

(I.E., SHOULD THEY BE INCLUDED IN WORLD DATA CENTERS HOLDINGS FOR INTERNATIONAL EXCHANGE?)

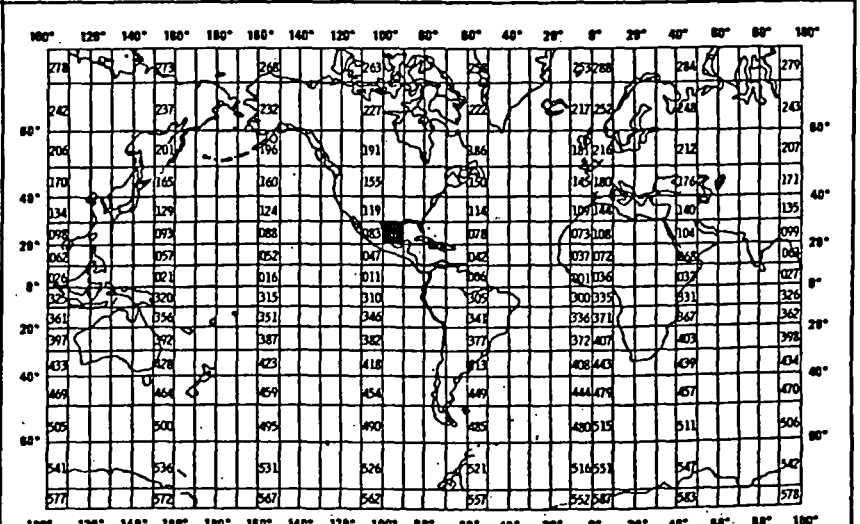
☐ NO ☒ YES ☐ PART *(SPECIFY BELOW)*

10. PERSON TO WHOM INQUIRIES CONCERNING DATA SHOULD BE ADDRESSED WITH TELEPHONE NUMBER *(AND ADDRESS IF OTHER THAN IN ITEM-1)*

Henry Berryhill
(512) 888-3241
FTS 734-3241

11. PLEASE DARKEN ALL MARSDEN SQUARES IN WHICH ANY DATA CONTAINED IN YOUR SUBMISSION WERE COLLECTED.

GENERAL AREA



NOAA FORM 24-13

USCOMM-DC 44289-P72

Benthos

RECORD FORMAT DESCRIPTION

RECORD NAME Biological Community Statistics I

14. FIELD NAME	15. POSITION FROM-1 MEASURED IN _____ (e.g., bits, bytes)	16. LENGTH NUMBER	16. LENGTH UNITS	17. ATTRIBUTES	18. USE AND MEANING
Station title	1	3	bytes	I3	Same as master record
Sample type	4	1	"	A1	" " " "
Count of species	5	5	"	I5	Number of species
Count of polychaeta	10	3	"	I3	Percent of total species
Count of arthropoda	13	3	"	I3	" " " "
Count of mollusca	16	3	"	I3	" " " "
Count of remaining portion of sample	19	3	"	I3	" " " "
Count of individuals	22	6	"	I6	Number of individuals
Count of polychaeta	28	3	"	I3	Percent of total individuals
Count of arthropoda	31	3	"	I3	" " " "
Count of mollusca	34	3	"	I3	" " " "
Count of remaining portion of sample	37	3	"	I3	" " " "
Biomass	40	9	"	F9.4	Total (Grams)
Biomass of polychaeta	49	3	"	I3	Percent of total biomass
Biomass of arthropoda	52	3	"	I3	" " " "
Biomass of mollusca	55	3	"	I3	" " " "
Biomass of remaining portion of sample	58	3	"	I3	" " " "
Diversity	61	9	"	F9.4	
Equitability	70	7	"	F7.4	
Card type	77	4	"	A4	"ØB1"

RECORD FORMAT DESCRIPTION

RECORD NAME _____

14. FIELD NAME	15. POSITION FROM - 1 MEASURED IN _____ *(e.g., bits, bytes)*	16. LENGTH		17. ATTRIBUTES	18. USE AND MEANING
		NUMBER	UNITS		

RECORD FORMAT DESCRIPTION

RECORD NAME Biological Community Statistics II

FIELD NAME	15. POSITION FROM-1 MEASURED IN _____ (e.g., bits, bytes)	16. LENGTH NUMBER	16. LENGTH UNITS	17. ATTRIBUTES	18. USE AND MEANING
Station title	1	3	bytes	I3	Same as master record
Sample type	4	1	"	A1	" " " "
Count of species of polychaeta	5	5	"	I5	Number of species
Count of polychaeta	10	4	"	I4	Number of individuals
Biomass of polychaeta	14	7	"	F7.4	Grams
Count of species of arthropoda	21	5	"	I5	Number of species
Count of arthropoda	26	4	"	I4	Number of individuals
Biomass of arthropoda	30	7	"	F7.4	Grams
Count of species of mollusca	37	5	"	I5	Number of species
Count of mollusca	42	4	"	I4	Number of individuals
Biomass of mollusca	46	7	"	F7.4	Grams
Count of phyla in remaining portion of sample	53	5	"	I5	Number of phyla
Count of species in remaining portion of sample	58	4	"	I4	Number of species
Count of individuals in remaining portion of sample	62	4	"	I4	Number of individuals
Biomass of remaining portion of sample	66	7	"	F7.4	Grams
Record type	73	4	"	A4	"ØØB2"

NOAA FORM 24-13

USCOMM-DC 44289-P72

EOR

RECORD FORMAT DESCRIPTION

RECORD NAME _____

14. FIELD NAME	15. POSITION FROM-1 MEASURED IN _____ (e.g., bits, bytes)	16. LENGTH		17. ATTRIBUTES	18. USE AND MEANING
		NUMBER	UNITS		

USCOMM-DC 44289-P72

B. SCIENTIFIC CONTENT

NAME OF DATA FIELD	REPORTING UNITS OR CODE	METHODS OF OBSERVATION AND INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH FILTERING AND AVERAGING

USCOMM-DC 44289-P72

B. SCIENTIFIC CONTENT

NAME OF DATA FIELD	REPORTING UNITS OR CODE	METHODS OF OBSERVATION AND INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH FILTERING AND AVERAGING
See attached excerpt "Methods of study," for description of techniques. From Berryhill, H. L., et al, 1975, Environmental studies, South Texas Outer Continental Shelf, 1975: Geology, Part I - Geologic description and interpretation				

and provinciality. Knowledge of the overall extent and intensity of biogenic activity, both laterally and vertically, is a key in predicting the impact of contaminants introduced on and into benthic sediments.

Identification of the benthic community structure and function are necessary for making paleoecological interpretations and for reconstructing ancient depositional environments. Information on bathymetry, temperature, salinity, oxygen, current and wave orientation, and habitat diversity during earlier stages of deposition can be gained from the study of benthic biological processes.

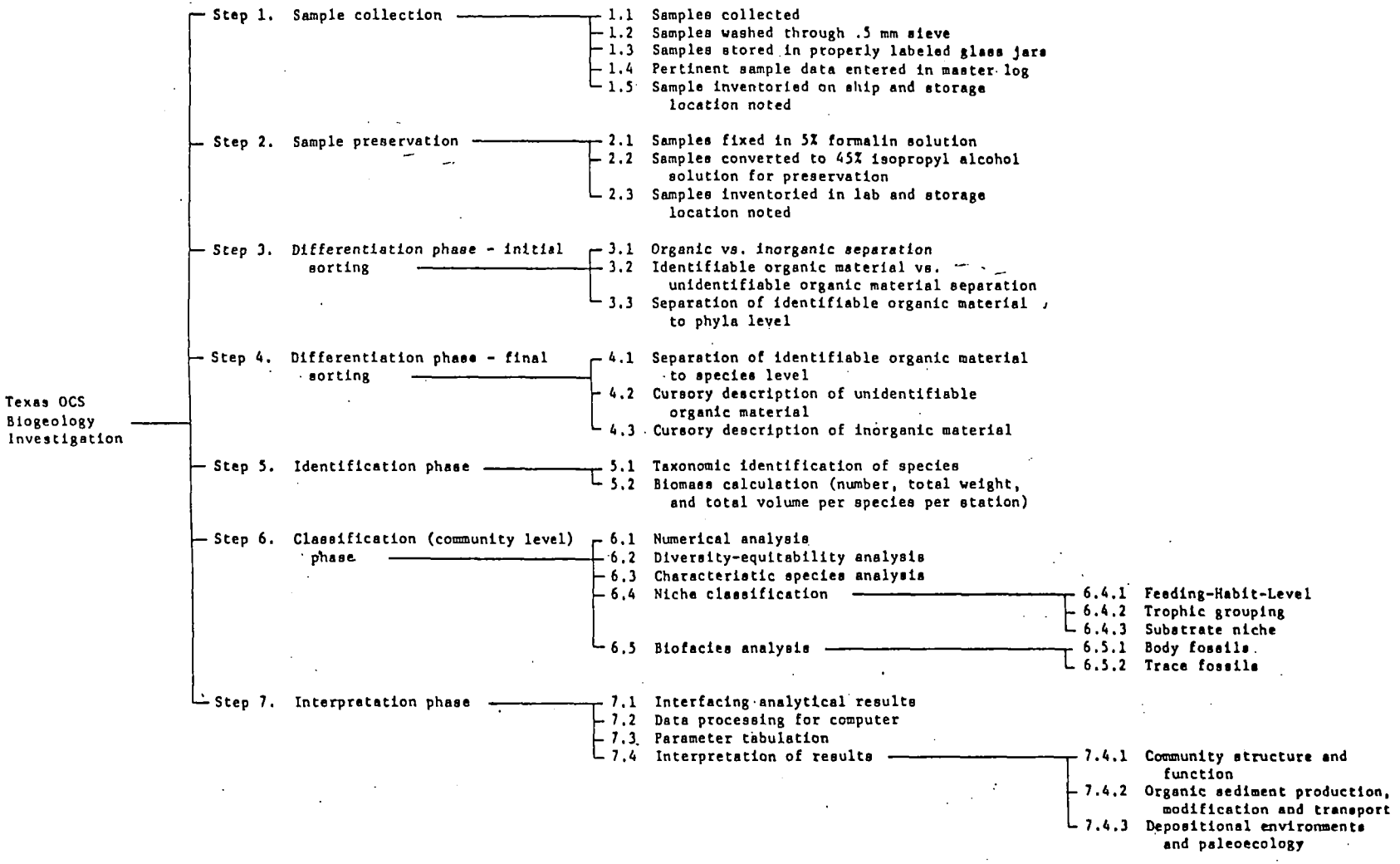
The biogeologic studies have been designed to identify, classify, and interpret significant benthic (macrobenthic infauna) biological processes as they relate to the sedimentological processes operative over the South Texas Outer Continental Shelf. Because data from only 81 of 264 stations were available at the time this report was written, the results must be considered preliminary.

Relatively few studies have been directed toward the interaction of physical and biological processes on the continental shelves. In the United States, investigations of animal-sediment relationships have largely been restricted to the Atlantic coast, especially Georgia (e.g., Howard and Reineck, 1972). Animal-sediment relationships off the Texas coast have received only meager study (e.g., Hunter and others, 1972; Hill, 1974).

Methods of Study

To accomplish the study objectives, samples from 81 stations were examined (fig. 63) and a number of investigative steps were established as outlined in Table I.

Table 1--General outline of investigative steps used in the biogeologic studies of the South Texas OCS



After subsamples for sedimentological and geochemical studies were removed from the bottom samples, the remaining part of the grab sample (0.09 m^3) and the upper 10 cm of the box core were washed aboard ship through a large (46 cm diameter) aluminum funnel having a 0.5 mm mesh "Saran" bag acting as a screen at the terminal end. The sample was gently washed and then stored (sample in bag) in a glass jar in 5 percent buffered formalin. Labels were put inside each bag, in each jar, and the outside of the jar and lid were also labeled. Any significant remarks about the sample were entered into the master station log book kept by the Chief Scientist on each cruise.

The biological samples were removed from the ship to the laboratory after each cruise leg. Each sample was transferred to a 45 percent isopropyl alcohol solution until such a time as it could be sorted, counted, and identified. After all available samples were sorted, a checklist was compiled from the species collected; species were sorted to phyla and then assigned a species identification number (e.g., Polychaete, P-17). All identifications eventually will be submitted for verification to qualified biologists.

The spatial distribution along and normal to shoreline trends were determined by compiling the counts from each traverse. Biomass was determined using a Perkin-Elmer Autobalance AD-2^R, accurate to 1.0×10^{-6} g. For some species, because of their very small size and fragmentation, an average weight per individual was calculated and used in biomass calculations.

A classification type of numerical analysis was utilized to determine macrobenthic infaunal assemblages. The computer program was supplied by Dr. Joseph L. Simon, Department of Biology, University of South Florida. Correlation coefficients were determined using the modified U.S.G.S. RAS-STATPAC program for correlation analysis (D0101) and general regression analysis (D0095).

The Shannon diversity index $H' = -\sum P_i \log_e P_i$ is the proportion of the i^{th} species in the collection (Shannon and Weaver, 1963), was utilized to calculate diversity because it is influenced by two components: the total number of species present (species richness component) and the evenness of distribution of the individuals among the different species (equitability component) (Lloyd and Ghelardi, 1964). To apply Shannon's formula to a sample from a population, it must be estimated by the equation,

$$H'' = -\sum \frac{N_i}{N} \log_e \frac{N_i}{N} \text{ natural bels/individual;}$$

where N_i is the number of individuals in the i^{th} species and

N is the total number of individuals collected.

The species richness component was measured by Margalef's index, $d = (S-1)/\log N$, where s = number of species and N = total number of individuals in the sample (Margalef, 1958). Relative species abundance was measured by Lloyd and Ghelardi's (1964) equitability index, $E = s'/s$, where s' is the number of species predicted for the calculated H' by the "broken-stick" model of MacArthur (1967) and S is the number of species.

Macrobenthic Infaunal Zonation

In order to identify, classify, and interpret significant benthic biological processes as they relate to the sedimentological processes operating in the study area, basic descriptive biological and sedimentological studies were conducted. The study focused on the macrobenthic infauna because they make the most significant biogenic impact on the sediments. Sediment parameters referred to in the discussions are those determined by Gerald L. Shideler in the sedimentology studies.

Before benthic biological processes can be interpreted, macrobenthic infaunal zonation must be described and the factors controlling such zonation defined. Macrobenthic infaunal distribution patterns across the shelf and changes in these distribution patterns through time were determined.