An Interim Report

Sportfishing Creel Census Pilot Study August 1973

Submitted by D. Bowman, W. Brogden and C. Oppenheimer
Marine Science Institute Port Aransas, Texas
March 15, 1974

to

The Lower Nueces River Water Supply District*

The sportfishing creel census project was originated to obtain information relating to the use of the Corpus Christi Bay area for sportfishing, the amount of fish caught and other environmental information relating to the total productivity cycles of the bay system. The Census is to be conducted during the summer months of June, July and August 1974 and the pilot study was made during August 1973. The total catch will be used in a current project to assess carbon, nitrogen, phosporous input and output to the bay system.

The pilot sportfishing creel census of August, 1973 was conducted for two reasons. As a pilot study, the censusing methods were tested and improved upon for future programs. The information collected will serve to fill the void in sportsfishing statistics in the Corpus Christi area. Basic information not only on fishing but also on individuals fishing and the weather was collected.

The 1974 project will be coordinated with the Economic Survey of the Texas Water Development Board and in part with a project being organized by the Texas Parks and Wildlife Division.

METHODS

In order to facilitate surveillance and to include as many types of environments as possible, the Corpus Christi Bay study area (Figure 1)

*This study was made possible through a grant from the Lower Nueces River Water Supply District, volunteers from the Marine Science Institute and the cooporation of the Economics Branch of the Water Development Board who provided computer support for the data analysis.

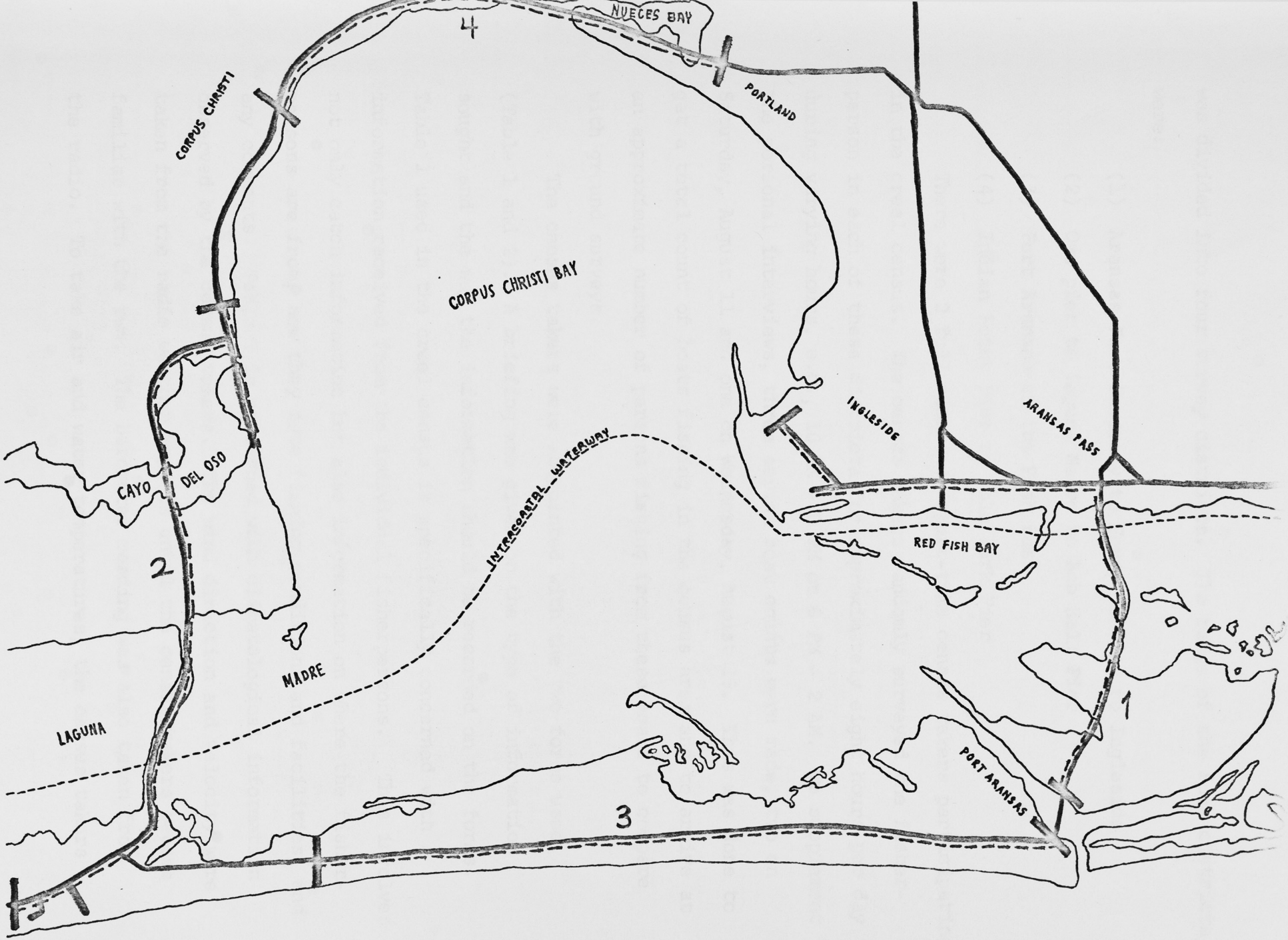

Figure 1. Area of Survey

was divided into four survey districts. The range of the four districts were:

(1) Aransas Pass Causeway to Ferry landing to Ingleside

(2) Oso pier to Laguna Madre to Bob Hall Pier

(3) Port Aransas to the Fish Pass

(4) Indian Point Pier to Cole Park Pier

There were 2 full time and 4 part-time census takers participating in the creel census. The census takers randomly surveyed the fisherperson in each of these districts for approximately eight hours per day during varying hours, e.g., 10 AM - 6 PM or 6 PM - 2 AM. To supplement the personal interviews, three aerial boat counts were made, two on Saturday, August 11 and one on Wednesday, August 15. This was done to get a total count of boats fishing in the census area and to arrive at an approximate number of persons fishing from these boats to compare with ground surveys.

The census takers were acquainted with the two forms used (Table 1 and 2). A briefing was given on the type of information sought and the way the information should be recorded on the forms. Table 1 used in the creel census is specifically concerned with information received from the individual fisherpersons. This involves not only catch information but also information on where the fisherpersons are from, how they rate fishing conditions and facilities, and any comments. Table 2 is concerned with climatological information observed by the census takers. The wind direction and velocity were taken from the radio weather reports until the census takers became familiar with the two. The barometer reading was also taken from the radio. To take air and water temperatures, the census takers

CREEL CENSUS
August 1973

(1) Location of interview, (2) location where fishing done (Biotope)(3) position

A _____

(4) date of interview, (5) time of interview, (6) no. of hours fishing

B _____

(7) species, number, weight, no. of hooks, bait

C _____

C _____

C _____

C _____

C _____

C _____

C _____

C _____

(8) city of residence, (9) county, (10) state

D _____

(11) How many days per year do you fish in salt water in this area

E _____

(12) How many days per year do you fish in fresh water

F _____

(13) If both good fresh water and salt water fishing are available, which do you prefer.

G _____

Rank the following characteristics of this bay that most influenced your decision to come here:

(14) facilities, (15) accessibility, (16) good fishing

H _____

(17) present water conditions, (18) other

I _____

(19) comments, (20) coded by

J _____

TABLE 2

CLIMATOLOGICAL DATA

onth (2) date (3) time (4) Location (5) wind direction (6) wind velocity (7) cloud cover (8) barometer reading (9) air temp. (10) water temp.

were supplied with a thermometer. For identification and naming of the fishes several references and preserved fishes were used. The final list of fish are appended as taken from the literature. The reference list included:

Food and Game Fishes of the Texas Coast. Bulletin #33. Publ. by the Texas Game & Fish Commission. 1954. 68 pp., A List of Common and Scientific Names of Fishes from the United States & Canada. 1970. American Fisheries Society, Special Publ. #6. 150 pp., Key to the Estuarine & Marine Fishes of Texas. 1972. Texas A&M Seagrant Publication. 178 pp., and Moore, R. and H. Hoese. Unpublished manuscript. (also a key on the fishes of Texas)

After the month of surveying, a meeting was held by all participants to critique the forms and discuss any suggestions for the future survey.

As the forms were received, they were checked for errors, and then sent to the Texas Water Development Board, Data Processing Division, for keypunching. The punched cards were used to generate a data file on magnetic tape at the UT computation center, and this file was used as input to a program which read the individual interview sheets, and produced a file of data which could be read by a generalized data management program, ENVIR (Environmental Information Retrieval). This program has been used for several different types of environmental information at the Marine Science Institute. The data file was programmed on the University of Texas timesharing computer system, TAURUS, through a teletype terminal at the Marine Science Institute.

The ENVIR program has provision for storing numerical or alpha-numeric data with considerable flexibility, so that normal biological nomenclature can be used instead of codes. Commands to the program are formulated in natural language under simple syntax rules which are

relatively easy to learn. The basic unit of information which is manipulated is called an "item", each item is composed of a number of descriptors, and each descriptor has a characteristic state for each item. Table 3 shows the descriptors used for the creel census data bank, with an example item. A separate item was generated for each different species caught, as reported on the interview sheet; in addition, a summary item was generated for each interview, containing the total number of fish caught, the total weight, and the word "total" for the species descriptor. The climatological data will be incorporated using the additional descriptors shown in the Table.

After reading the creel census items, ENVIR produced a condensed form of the data, called a data bank, and a vocabulary of all terms used in the data bank. The data bank was stored on magnetic tape at the computation center and examined for misspellings and incorrect use of the various descriptors. Any errors were corrected in the ENVIR data bank, by special "correction" commands.

Finally, ENVIR was used with the corrected data bank, to selectively retrieve the creel census data to produce the various types of information reported in the "results" section. Several different forms of data retrieval are possible using ENVIR; selected data can be printed on the teletype, or at the central computer site, or data can be prepared for further processing by additional programs. In order to produce the totals of weight, hook-hours, etc. as reported in the results section, a program was written to summarize and tabulate the individual interview results.

TABLE 3

CREEL CENSUS DATA BANK DESCRIPTORS

Descriptor Number	Name	Type	Size	Example
1	LOCATION	NAME	240	OSO PIER
2	BIOTOPE	NAME	120	OPEN BAY
3	POSITION	NAME	30	WADE
4	MONTH	NAME	40	AUG
5	DY	ORDER	1 to 31	8
6	YR	ORDER	1970 to 1984	1973
7	TIME	ORDER	0 to 2500	1230
8	HOURS FISHING	ORDER	0 to 120	2
9	SPECIES	NAME	400	CYNOSCION NEBULOSUS
10	NUMBER CAUGHT	ORDER	0 to 500	2
11	WEIGHT	ORDER	0 to 15000	8 (ave wt in 0.1 lbs)
12	HOOKS	ORDER	0 to 250	4
13	BAIT	NAME	200	CUT MULLET
14	RESIDENCE	NAME	400	AUSTIN
15	COUNTY	NAME	240	GOLIAD
16	STATE	NAME	100	TEXAS
17	FISH SALT DAYS	ORDER	0 to 366	10
18	FISH FRESH DAYS	ORDER	0 to 366	20
19	PREFER TO FISH	NAME	20	SALT
20	RANK FACILITIES	NAME	20	3
21	RANK ACCESS	NAME	20	2
22	RANK FISHING	NAME	20	1
23	RANK WATER	NAME	20	4
24	RANK OTHER	NAME	240	1 FREE BEACHES
25	COMMENTS	NAME	500	FISHING WORSE THIS YEAR

Creel Census Data Bank Descriptors (cont.)

Descriptor Number	Name	Type	Size	Example
26	CODED BY	NAME	120	LITWIN
27	BATCH	ORDER	0 to 100	1
28	SHEET	ORDER	0 to 5000	1500
29	WIND DIR	NAME	30	SE
30	WIND VEL	ORDER	0 to 60	10
31	CLOUD COVER	NAME	20	1
32	BAROMETER	ORDER	2800 to 3200	2925
33	AIR TEMP	ORDER	0 to 125	80 (deg. F)
34	WATER TEMP	ORDER	0 to 125	70 (deg. F)

RESULTS

These data have been evaluated and are presented only for research purposes as they relate to a preliminary feasibility study for one month as a pilot project. We have shown the data for several parameters to illustrate how the information can be used and to correct our interview process. Some of the results are pertinent however, such as the total number of fishermen, their home base etc. We must emphasize that no generalizations can be made from the data at this time. The creel census data bank consisted of 1955 total interviews. During the 28 days of the survey there were 16225 fish caught weighing a total of 12206 pounds. Instead of counting the number of fisherpersons, the number of hooks used by the fisherpersons were counted. During the month 4237 hooks were fished for 6218 hours. Our best estimate indicates that this represents 20% of the total fisherpersons during the survey period. Of the 1955 total interviews 940 are from residents of the Corpus Christi Bay area, which includes Corpus Christi, Aransas Pass, Flour Bluff, Portland, and Ingleside. Residents from other areas are listed in Table 4. Of the total persons surveyed 37% preferred salt water, 7% preferred fresh water, 6% had no preference, and 50% did not answer the question.

On Saturday morning, August 11, the aerial survey of the creel census counted 164 boats, on Saturday afternoon 184 boats were counted, and on Wednesday morning, August 15, 147 boats were counted. The Saturday census takers interviewed 16 boatmen, all after 1200. This represents about 10% efficiency of fishing boats surveyed by land as compared to air. Wednesday 6 boatmen were interviewed, also all after 1200 hours. An overall estimate of fishermen per boat for the

[illegible] STATE/RESIDENCE? FOR WEST BAKER,1 OR 2*

USERS ON LINE 14
ØNO. OF ITEMS IN QUERY RESPONSE = 5401
NO. OF ITEMS IN THE DATA BANK = 5401
PERCENTAGE OF RESPONSE/TOTAL DATA BANK =100.00
ALAS
FAIRBANKS
ARIZ
CASHION
TUSCON
AUSTRIA

CALIF
FRESNO
LOS ANGELES
CANADA

COLO
DENVER
FLA
MIAMI LAKES
ILL
CHICAGO
EDWARDSVILLE
EVANSTON
NORTH LAKE
PAXTON
STREAMWOOD
IND
BLOOMINGTON
EVANSVILLE
IOWA
DES MOINES
SIOUX CITY
KAN
LAWRENCE
LA
DE RIDDER
NEW ORLEANS
MASS
BROOKFIELD
MEX
MATAMOROS

MICH
ADRIAN
HOLLAND
YPSILANTI
MINN
ST PAUL
MO
JOPLIN
KANSAS CITY
ST LOUIS
MONT
BILLINGS
MONTERREY
MONTERREY MEXICO
NEB
BEATRICE
NEW JERSEY
WEST BERLIN

N C
CAPE HATTERAS
N J
WEST BERLIN
OHIO
GRANVILLE
OKLA
ALTUS
CARAGEE
CARNEGIE
CHOCTAW
DUKE
EDMOND
ENID
HOLLENVILLE
LAWTON
MIDWEST CITY
MUSTANG
OKLAHOMA CITY
TULSA
SAUDI ARABIA
DHAHRAN
TENN
MEMPHIS
TEX
ABILENE
ALICE
AP
ARLINGTON
AUSTIN
BANDERA
BASTROP
BEEV ILLE
BELTON
BISHOP
BOERNE
BRACKENRIDGE
BRADY
BROWNSVILLE
BRYAN
BURKBURNETT
CALALLEN
CALDWELL
CC
CLEBURNE
COLLEGE STATION
COMFO RT
COMMANCHE
CONV ERSE
CORPUS COVE
COTULLA
DALHART
DALLAS
DEL RIO
DENTON
DEVINE
TEX
DRIPPING SPRINGS
DUBLIN
D#HANNIS
EASTLAND
EDINBURG

EL PASO
EULESS
EVERMAN
FALFURRIAS
FALL CITY
FLOUR BLUFF
FORT STOCKTON
FREDERICKSBURG
FREEMONT
FT WO RTH
FULTON
GALVESTON
GARLAND
GATESVILLE
GEORGETOWN
GOLIAD
GRAND PRAIRIE
GROV ES
HAMILTON
HONDO
HOUSTON
INGLESIDE
IRVING
JACKSBORO
JOURDANTON
KARNES CITY
KERRVILLE
KILLEEN
KINGSVILLE
LAGARDO
LAMPASAS
LAREDO
LA COSTE
LITTLEFIELD
LOCKHART
LUBBOCK
MARBLE FALLS
MARSHALL
MATHIS
MCALLEN
MEXIA
MIDLOTHIAN
MISSION
MT PLEASANT
NEW BRAUNFELS
NIXO N
ODEM
ODESSA
ODUM
PA
PAWNEE
TEX
PLEASONTON
PORTLAND
POST
POTEET
POTSBURO
QUINLAN
REFUGIO
REYNOSA
RICHARDSON
RIO HONDO

```
      SAN ANGELO
      SAN BENITO
      SAN DIAGO
      SAN MARCOS
      SAN SABA
      SEGUIN
      SINTON
      SOMERSET
      STEVENVILLE
      STOCKDALE
      ST. AUGUSTINE
      TAFT
      TAYLOR
      TEMPLE
      TEXAS CITY
      THREE RIVERS
      TULETA
      UNIVERSAL CITY
      UVALDE
      VICTO RIA
      WACO
      WAELDER
      WALNUT SPRING
      WEATHERFORD
      WESLACO
      WICHITA FALLS
      YORKTOWN
      ---
 VIRGINIA
      RICHMOND
 WEST VIRGINIA
      CHARLESTON
      FAYETTEVILLE
 ---
      CC
      ROME ITALY
**END FILE NO.  1
 STATISTICS TAPE FILE NO.:  1


HOW MANY HAVE SPECIES,TOTAL AND RESIDENCE,CC AND NOT RANK ACCESS,UNKNO
WN*
ØHOW MANY HAVE SPECIES,TOTAL AND RESIDENCE,CC AND NOT RANK ACCESS,UNKN
OWN*
ØNO. OF ITEMS IN QUERY RESPONSE =  765
 NO. OF ITEMS IN THE DATA BANK = 5401
 PERCENTAGE OF RESPONSE/TOTAL DATA BANK = 14.16
```

aerial survey was 2.5. The creel interviews showed 2.4 hooks per boat on Saturday and 1.7 hooks per boat on Wednesday.

To determine why the fisherpersons came to Corpus Christi Bay or fished where they did, they were asked to rank several characteristics from one to five, relative to each other. The data are summarized in Table 5 as taken from the computer printout Table 6.

Table 5

		Ranking			
Characteristics	Total Response	1	2	4	4&5
Facilities	1443	227	403	448	365
Access	1734	642	597	302	193
Fishing	1702	790	484	278	150
Water	1315	40	127	298	850
Other	1571	151	113	183	1124

Fishing and accessibility were ranked number 1 by the majority of the persons, while the facilities were ranked 3rd in relation to the other characteristics by 62% of the fisherpersons. The water conditions ranked the lowest. To see the other reasons why fisherpersons came to Corpus Christi Bay see the attached prinout sheet (Table 6).

A. District Breakdown

The district catches were compared to one another for the weight of fish caught, number of fish caught, hours spent fishing, and number of interviews for each districts. The data are shown in Table 7.

```
     NO. OF CHARACTERS IN LONGEST STATE: 3
     OPTION: NAME      NO. OF STATES: 5
                       NO. OF DELETED STATES: 0
                       NO. OF DICTIONARY ENTRIES RESERVED: 20
  LOS•DSSA•NOS     5  1851     5
          1
          2
          3
          4
          5
0 23. RANK WATER
     NO. OF CHARACTERS IN LONGEST STATE: 14
     OPTION: NAME      NO. OF STATES: 6
                       NO. OF DELETED STATES: 0
                       NO. OF DICTIONARY ENTRIES RESERVED: 20
  LOS•DSSA•NOS     6  1871     6
          ONLY PIER OPEN
          1
          2
          3
          4
          5
0 24. RANK OTHER
     NO. OF CHARACTERS IN LONGEST STATE: 29
     OPTION: NAME      NO. OF STATES: 106
                       NO. OF DELETED STATES: 0
                       NO. OF DICTIONARY ENTRIES RESERVED: 240
  LOS•DSSA•NOS   106  1891   106
          BEEN BEFORE
          BOAT BOOKE : VACATION
          BOB HALL PIER FULL
          FIRST TIME
          FREE
          FREE + LIGHTED
          FRIENDS
          FUN
          LIGHTED
          LIGHTED + SAFE
          NATURE
          NDMR
          NOT AS CROWDED
          PLAYGROUND FOR KIDS
          QUIET
          RECREATION
          RELATIVES
          SAFE
          SAFE FOR CHILDREN
          SAFE FOR KIDS
          SAFE FOR SMALL BOYS
          VACATION
          WINTER FISHING
          1
          1 AREA
          1 BEACH
          1 BEACHES
          1 BOB HALL PIER
          1 CABIN HERE
          1 COAST
          1 ELBOW ROOM
          1 ENTERTAINMENT FOR KIDS
```

1 FORMER RESIDENT
1 FREE BEACHES
1 FRIENDS
1 HABIT
1 HOUSE HERE
1 LIGHTED
1 LIGHTED + FREE
1 LIVED HERE BEFORE
1 NIGHT FISHING
1 NOT AS CROWDED
1 OCEAN
1 PLEASURE
1 RELATIVES
1 RELAXATION
1 SIGHTSEEING
1 SMALL TOWN
1 TRYING OUT
1 TRY OUT
1 VACATION
1 VACATION AREA
1 VARIETY OF FISH
1 WORK HERE
1 (VACATION)
2
2 AREA
2 BEACH
2 BEACHES
2 COAST
2 FAMILIARITY
2 FORMERLY STAT HERE
2 FORMER RESIDENT
2 FRIENDS
2 HABIT
2 HOUSE HERE
2 PEOPLE
2 RELAXATION
2 SAFE FOR KIDS
2 VACATION
2 (HABIT)
3
3 BEACH
3 BEACHES
3 CLEANER AREA
3 LIGHTED
3 RECCOMMENDATION
3 RELATIVES
3 VACATION
4
4 BEACHES
4 FRIENDS
4 VARIETY OF FISHES
5
5 BEACHES
5 FORMER RESIDENT
5 FREE
5 FREE + LIGHTED
5 GALVESTON NOT LIGHTED
5 GET AWAY
5 HABIT
5 LIGHTED

```
        5 NEWS
        5 NO TRASH ON BOTTOM
        5 PRICE CHEAPER
        5 QUIETNESS
        5 RELATIVES
        5 RELAXATION
        5 REST
        5 SAFE
        5 VACATION
        5 WOMEN
0 25. COMMENTS
      NO. OF CHARACTERS IN LONGEST STATE: 39
      OPTION: NAME      NO. OF STATES: 123
                        NO. OF DELETED STATES: 0
                        NO. OF DICTIONARY ENTRIES RESERVED: 500
  LOS,DSSA,NOS   123  2131   123
        ACCESS ROADS IN POOR CONDITION
        BAFFINBAY
        BAFFIN BAY FISHERMEN
        BAIT AND TACKLE TOO EXPENSIVE
        BEACHES DIRTIER THIS YEAR
        BEACH RESIDENT
        BETTER HERE YESTERDAY-WATER WARMER
        BETTER THAN AVERAGE DAY
        BLUE WATER NEAR END OF PIER
        BUOY ;3
        CALM
        CALM CLEAR
        CALM WATER
        CALM + CLEAR
        CALM + RAINY
        CAL + CLEAR
        CAL + MUDDY
        CAMPSITES TOO CROWDED
        CATCH FOR PREVIOUS NIGHT
        CLEARWATER
        CROAKERS CAUGHT IN SURF
        CUMMINGS CUT
        DOBBS
        EXTREMELY WINDY
        FACILITIES CLEANER THAN AT GALVESTON
        FACILITIES IMPROVED
        FAVORITE AREA OF COAST
        FERRY LINES TOO LONG
        FIN AND FEATHER
        FISHING BEST IN BAYS
        FISHING BETTER IN LAGUNA MADRE
        FISHING IS USUALLY BETTER
        FISHING WORSE SINCE CELIA
        FISHING WORSE THIS YEAR
        FISH FOUND IN GILL NETS
        FLYROD
        HARD TO GET LIVE BAIT
        J
        JERRY#S MARINA
        KINGFISHING GOOD ON CHARTER BOATS
        LAGUNA SHORES ROAD
        LIKES JETTIES
        LOTS OF FLOATING SEAWEED
        LOTS OF SEAWEED
```

MORE CHARTER BOAT INFORMATION
MORE LIGHTS
MORE RESTROOMS BY PIERS
MOSQUITOES
MOSQUITO CONTROL
MUDDY WALK AFTER RAIN
NDMB
NEAR BAFFIN BAY
NEED ARTIFICAL REEFS
NEED LIGHTS AT NIGHT
NEED LIGHTS ON JETTY
NEED MORE FISHING PIERS
NEED MORE LIGHTS
NEED MORE PARKING-CAMPING AREAS
NEED MORE PUBLIC SHOWERS
NEED MORE RESTROOMS
NEED RESTROOM FACILITIES
NICE PEOPLE HERE
NOT ENOUGH CAMP FAC
NO BAY SHRIMPERS
NO DRINKING WATER ON BEACH
NO LIVE BAIT AVAILABLE
NO RESTROOMS CLOSE BY + LIMITED PARKING
NO SIDEWALKS OR BATHROOM
OIL
OIL IN CHANNEL
OIL ON SURFACE
OIL ON WATER
OIL SLICK
ONLY PIER OPEN
PA MORE FISHING ORIENTED THAN GALVESTON
PEAT ISLAND
PIER CROWDED
PIER FISHING WORSE TODAY
PREFERS FISHING ON SOUTH PADRE
PREFERS INDIAN POINT
PRICES TOO HIGH
PROBLEM WITH SURFERS
RAINING
RAIN SHOWERS
REALLY LIKE FISHING HERE
REDS THROWN BACK
RED AND SPECS IN BAY YESTERDAY
RED FISHING POOR THIS YEAR
RED THROWN BACK
RETIRED HERE
ROADS NEED REPAIR
ROAD TO OSO BRIDGE IS TERRIBLE
ROUGH
ROUGH MUDDY
ROUGH WATER
ROUGH : MUDDY
SAIL LINE
SEVERAL POMPANO THIS MORNING
SHAMROCK BAY
SHARK RIGS
SPECS AT FISH PASS
STATIONED AT PORT ARANSAS
STRONG CURRENT
SUGGEST RENTAL ROWBOATS

```
        TOO MUCH TRASH ON BEACH
        TURBID
        TURBID-CHOPPY
        TURBID·CHOPPY
        TURBID + CHOPPY
        UNUSUALLY BIG MACKEREL
        WATER LOWER THIS YEAR
        WATER MUDDY
        WATER VERY CLEAR
        WINDY
        WINDY + ROUGH
        WORSE IN JULY AND AUGUST
        1
        3 LARGE SPECS LAST NIGHT
        6-FOOT SWELLS
0 26. CODED BY
      NO. OF CHARACTERS IN LONGEST STATE: 11
      OPTION: NAME      NO. OF STATES: 10
                        NO. OF DELETED STATES: 0
                        NO. OF DICTIONARY ENTRIES RESERVED: 120
  LOS,DSSA,NOS    10  2631     10
        DOBBS
        DONNA MIGET
        LITWIN
        MCNUTT
        MIGET
        M WOLFE
        NDMB
        TEXAS
        TI
        WHITE
0 27. BATCH
      NO. OF CHARACTERS IN LONGEST STATE: 3
      OPTION: ORDER     NO. OF STATES: 101
         FROM 0
         TO 100
         BY 1
         NO LABEL
0 28. SHEET
      NO. OF CHARACTERS IN LONGEST STATE: 4
      OPTION: ORDER     NO. OF STATES: 5001
         FROM 0
         TO 5000
         BY 1
         NO LABEL
0END*
0TOTAL RUN TIME IN SECONDS
 CENTRAL PROCESSOR: 235.598      PERIPHERAL PROCESSOR:    0.000
```

TABLE 7

District	Weight	Number	Hours	Count
1	1608.1	1437	530	200
2	7404	6997	3051	848
3	4146.1	4120	1270	445
4	1576.5	2480	1253	458

District 2 showed the highest overall totals perhaps because it was the largest district and had the highest fishing pressure. District 1 had some of the lowest returns because it was surveyed only 5 days a week with no night censusing and was started 4 days later than the other survey districts. Districts 3 and 4 were surveyed as originally planned.

B. Daily Breakdown

To see if there was any particular day that received either more or less fishing pressure than other days and to test the method of daily surveys the same comparison as above was made. These data are in Table 8.

TABLE 8

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Number	3682.0	1847.0	1373	2056	2507	1956	3142
Weight	2969.2	1435.8	947.9	1353.3	1603.2	1321.3	2242.4
Hours	997.0	605	614	724	506	687	1001
Surveys	335	217	250	302	195	251	405

The number of fish caught and the poundage were the greatest on Sundays while the greatest number of hours spent fishing and the surveys were on Saturdays.

Tuesdays were lowest in poundage and fish caught while Mondays were lowest in hours spent fishing and number of surveys.

C. Time Breakdown

The time of day is believed to have some effect on the success of fishing. The results are shown in Table 9.

TABLE 9

Time	Weight	Number	Hours	Count	
0600-1200	922.8	977	528	185	morning
1700-2000	4972.5	4448	1628	547	evening
0600-2000	13419.1	12681	5120	1547	day
2000-0600	1189.7	2204	893	341	night

The morning hours were less successful than the evening in all categories. The fact that most fishermen go to work on week day mornings and usually fish after work has some effect on these returns. The day returns were much higher than the night, even though there were a great number of people fishing at night, was shown by the information on 2 nights out of the week.

D. Biotope distribution

To compare the biotopes as outlined by Oppenheimer & Gordon, 1973, the same type of breakdown was conducted in order to see if any particular environment was preferred by the fishermen. The data are in Table 10.

The shallow bay biotope was the highest in all categories, while the hypersaline was the next most successful. The hypersaline biotope is used for the Baffin Bay area or any unrecognized fishing spot in the upper Laguna Madre.

The jetty biotope was eliminated as such for most people fishing off the jetty were actually fishing in the channel or shallow Gulf. Very few persons were fishing directly amid the submerged rocks of the jetty.

TABLE 10

Biotopes	Weight	Number	Hours	Count
Open Bay & Oil Rigs	144.6	112	24	6
Open Bay	365.8	284	77	20
Bulkhead	80	201	128	64
Channel	1077.2	1348	475	154
Shallow Pass	409.3	707	189	72
Grass Flat	1476.4	915	368	115
Hypersaline	2123.7	1552	669	128
Gulf	10	1	5	2
Inshore Gulf	1346.2	125	67	12
Shallow Gulf	2045.1	2276	1086	323
Surf	947.7	1510	476	180
Jetty	0	0	1	1
Oil Rig (offshore)	281	19	24	4
Oyster Reef	391.1	777	364	144
Pier	186.6	240	75	21
Shallow Bay	3376.1	4651	1983	695
Shallow Channel	90.2	50	10	5

E. 15 Major Species and Baits

Table 11 shows results concerning the success of the various baits used to catch the different species of fish.

Dead shrimp were used by more fishermen, produced mediocre catches per effort, and produced mediocre sized fishes. Gold spoons were highly successful in catching King mackerel, redfish, and speckled trout. King mackerel produced the highest catch per effort of all the species. It becomes obvious from only one return for the combination of cut hard head and croaker, that this combination is not used for some reason. For a comparison between live baits, dead baits, and artificial baits see Table 12.

Natural baits were more successful than artificial baits especially for black drum, sheepshead, and blue crabs. On a total weight basis, dead baited hooks caught more fish than live bait except speckled trout and sheepshead. However, live bait caught more fish per unit effort than dead bait.

F. Sportfishing vs. Commercial Fishing

To see how the creel census poundage information compared with the commercial poundage, the Texas Parks & Wildlife Commission fishery statistics for Corpus Christi Bay, Nueces Bay, and upper Laguna Madre during August 1973 and 1972 were used in Table 13.

CREEL DATA ANALYSIS

Species	Hours	Hooks	Number Caught	Total fish Weight(lbs)	Hook Hours	Catch/ Effort	Bait	Average fish Size (lbs)
Spotted Seatrout	1735	675	3017	3663.9	3358	1.091	all baits	1.214
" "	221	98	149	150	425	.353	dead shrimp	1.016
" "	1046	258	2205	2758.7	1487	1.855	live shrimp	1.251
" "	17	6	40	37	23	1.000	all color worms	.475
" "	54	32	21	40.8	161	.253	cut bait	1.943
" "	10	3	4	17	10	1.700	cut croaker	4.250
" "	9	3	2	8	27	.296	cut bait & eel	4.000
" "	68	13	109	89	116	.767	cut pinfish	.817
" "	12	1	45	36	12	3.000	flies	.800
" "	4	66	4	5.2	264	.020	dead shrimp & cut croaker	1.300
" "	17	66	13	16.5	282	.059	dead shrimp & cut bait	1.269
" "	25	4	44	52	19	2.737	gold & silver spoons	1.182
" "	55	11	120	198	63	3.143	gold spoon	1.650
" "	9	2	12	16	9	1.778	lure	1.333
" "	6	3	25	25	18	1.389	humpy lures	1.000
" "	3	1	1	.8	3	.267	live pinfish	.800
" "	5	3	14	7	15	.467	live shrimp & red worms	.500
" "	2	1	1	3	2	1.500	live threadfin	3.000
" "	1	3	1	1.5	3	.500	orange & yellow lure	1.500
" "	22	35	69	90.5	69	1.312	plastic worm	1.312
" "	3	2	1	1	6	.167	red & orange worms	1.000
" "	15	7	30	30	34	.882	red worm	1.000
" "	13	3	4	6.5	13	.500	silver spoon	1.625
" "	4	1	2	1	4	.250	spinners	.500
" "	15	6	1	4	90	.044	squid	4.000
" "	23	6	29	29	25	1.160	white worm	1.000
" "	12	11	30	29.5	42	.702	yellow worm	.983
" "	6	3	7	7	18	.389	yellow & red lure	1.000
" "	3	1	10	10	3	3.333	live bait	1.000
" "	4	3	32	30.5	117	.261	jigs/speck rig	.953
" "	5	4	10	11	10	1.100	mirror lure	1.100

Species	Hours	Hooks	Number Caught	Total Weight(lbs)	Hook Hours	Catch/ Effort	Bait	Average Size (lbs)
Sand Seatrout	1018	690	2676	2030.8	2213	.918	all baits	.759
" "	11	31	6	3.6	98	.037	all color worms	.6
" "	182	119	159	162.1	565	.287	cut bait	1.019
" "	51	167	713	571.3	647	.883	cut bait & dead shrimp	.801
" "	20	7	28	27	24	1.125	cut croaker	.964
" "	114	53	206	165.6	177	.936	cut croaker & pinfish	.804
" "	623	402	647	508.9	1435	.355	dead shrimp	.787
" "	14	2	42	33	14	2.357	ribbonfish	.786
" "	4	66	500	250	264	.947	dead shrimp & cut croaker	.5
" "	2	2	2	.4	4	.1	dead shrimp & cut perch	.2
" "	10	2	13	12.1	10	1.21	spoon	.930
" "	38	4	69	73.5	38	1.934	jig	1.065
" "	17	8	39	17.9	50	.358	red worm	.459
" "	91	55	173	133.3	194	.687	live shrimp	.770
" "	5	3	1	.5	15	.033	live shrimp & red worm	.5
" "	6	1	60	48	6	8	plastic worm	.8
" "	2		3	12			seine	4
" "	21	23	17	13.8	56	.246	squid	.812
" "	2	2	2	1	4	.25	shrimp & cut ribbonfish	.5
" "	20	12	12	9.1	70	.13	speck rig	.758
Atlantic Croaker	1283	1011	2186	1069.8	3107	.344	all baits	.489
" "	249	205	285	110.5	861	.128	cut bait	.389
" "	66	132	391	273.2	465	.588	cut bait & dead shrimp	.699
" "	6	2	12	3.6	12	.3	eel	.3
" "	29	15	50	23.3	48	.485	cut pinfish	.466
" "	95	32	106	86.9	149	.583	live shrimp	.82
" "	1	1	1	.2	1	.2	cut mullet	.2
" "	21	5	57	28.5	388	.073	cut croaker	.5
" "	972	638	1213	516	2365	.218	dead shrimp	.425
" "	11	7	11	4.3	42	.102	ribbonfish	.39
" "	36	36	51	15.9	118	.135	squid	.312
" "	4	1	2	.8	4	.2	dead shrimp & squid	.4
" "	13	32	7	7.2	99	.073	plastic worm & all color worm	1.02
Black Drum	77	62	46	75.4	176	.428	all baits	1.639
" "	5	1	1	3	5	.6	cut pinfish	3
" "	74	47	40	62.9	168	.374	dead shrimp	1.573
" "	14	6	3	8	54	.148	live shrimp	2.667
" "	8	46	2	1.5	184	.008	dead shrimp & cut bait	.75

Species	Hours	Hooks	Number Caught	Total Weight(lbs)	Hook Hours	Catch/ Effort	Bait	Average Size (lbs)
Gafftopsail Catfish	609	503	458	637.3	2445	.261	all baits	1.391
" "	97	43	54	172.8	212	.815	cut bait	3.200
" "	35	148	30	58.1	594	.978	cut bait & dead shrimp	1.937
" "	13	7	5	4.3	22	.195	cut croaker	.86
" "	7	2	2	10	14	.714	cut pinfish	5
" "	356	193	321	265	1102	.240	dead shrimp	.826
" "	4	66	5	15	264	.057	dead shrimp & cut croaker	3
" "	24	18	10	38.3	61	.628	eel	3.83
" "	4	2	1	2	8	.25	eel & squid	2
" "	1	1	1	1	1	1	gold spoon	1
" "	5	1	3	1.5	5	.3	jig	.5
" "	12	11	9	10.8	31	.348	live shrimp	1.200
" "	5	1	1	3	5	.6	plastic worm	3
" "	46	12	17	54.5	132	.413	squid	3.206
" "	3	2	1	5	6	.833	squid & cut mullet	5
Southern Kingfish	176	136	392	266.8	483	.552	all baits	.681
" "	19	15	10	3.3	57	.058	cut bait	.33
" "	9	3	5	2.0	27	.074	cut bait & eel	.4
" "	6	2	3	3.0	6	.5	cut pinfish	1
" "	153	84	147	92.9	376	.247	dead shrimp	.632
" "	4	66	100	100	264	.379	dead shrimp & cut croaker	1
" "	14	106	106	54.7	408	.134	cut croaker & cut bait	.516
" "	4	2	3	.9	8	.113	live shrimp	.3
" "	9	4	2	1.	36	.028	ribbonfish	.5
" "	2	2	2	1.	4	.25	spoon	.5
" "	8	14	15	8.3	42	.198	squid	.553
Gulf Kingfish	580	375	642	480.6	1517	.317	all baits	.749
" "	39	12	16	11.1	129	.086	squid	.694
" "	1	2	1	.1	2	.05	crab & squid	.1
" "	108	68	94	96.6	321	.301	cut bait	1.028
" "	6	10	15	18.9	20	.945	dead shrimp & cut bait	1.260
" "	354	263	469	325.6	913	.338	dead shrimp	.653
" "	2	1	1	.5	2	.25	dead shrimp & cut croaker	.5
" "	14	6	11	8.9	22	.405	live shrimp	.809
" "	1	2	1	.3	2	.15	speck rig	.300
" "	47	8	18	14.5	90	.161	cut pinfish	.81

Species	Hours	Hooks	Number Caught	Total Weight(lbs)	Hook Hours	Catch/ Effort	Bait	Average Size (lbs)
Pinfish	1118	875	2133	557.5	3228	.173	all baits	.261
"	2	20	1	.1	40	.003	worms	.1
"	1	2	5	.5	2	.25	crab & squid	.1
"	148	128	259	67.5	386	.175	cut bait	.261
"	57	116	200	48.0	459	.105	cut bait & dead shrimp	.24
"	12	4	45	15.0	19	.789	cut pinfish	.333
"	3	2	3	1.2	6	.2	cut pinfish & ribbonfish	.4
"	772	511	1502	400.7	1920	.209	dead shrimp	.267
"	6	2	6	2.4	12	.2	eel	.4
"	2	1	1	.2	2	.1	dead shrimp & cut croaker	.2
"	2	2	10	2.	4	.5	dead shrimp & cut perch	.2
"	32	23	47	9.3	66	.141	live shrimp	.198
"	1	1	1	.3	1	.3	orange worm	.3
"	15	6	5	1.0	90	.011	ribbonfish	.2
"	4	2	4	.6	4	.15	silver spoon	.15
"	12	6	8	1.6	24	.067	speck rig	.2
"	4	1	2	.2	4	.05	spinners	.1
"	57	58	64	12.9	218	.059	squid	.202
Red Drum	855	367	844	2126.2	1732	1.228	all baits	2.519
" "	30	58	35	83.4	173	.482	all color worms	2.383
" "	29	18	9	14.8	97	.153	cut bait	1.644
" "	24	14	10	7.8	64	.122	cut bait & dead shrimp	.78
" "	22	9	7	20	26	.769	cut pinfish	2.857
" "	315	160	331	750.3	729	1.029	dead shrimp	2.267
" "	1	1	1	2	1	2	gig	2
" "	33	5	31	112	33	3.613	spoons	3.393
" "	24	1	1	1	24	.041	jig	1
" "	25	9	45	125	43	2.907	gold spoon	2.778
" "	2	5	3	9	10	.9	live mullet	3
" "	4	7	8	5.3	14	.379	squid	.663
" "	327	72	296	747.1	473	1.579	live shrimp	2.524
" "	4	3	13	32.5	12	2.708	mullet	2.5
" "	9	3	1	4.0	27	.148	live pinfish	4
" "	2	1	1	4.0	2	2	live threadfin	4
" "	4	1	2	8	4	2	silver spoon	4

Species	Hours	Hooks	Number Caught	Total Weight(lbs)	Hook Hours	Catch/ Effort	Bait	Average Size (lbs)
Sea Catfish	1208	892	1905	811.5	2877	.282	all baits	.426
" "	8	1	2	1.6	8	.2	all color worms	.8
" "	225	137	197	76.8	744	.103	cut bait	.39
" "	1	2	10	4.0	2	2	cut bait & croaker	.4
" "	67	85	107	38.0	322	1.18	dead shrimp & cut croaker	.355
" "	37	18	67	39.8	53	.751	cut pinfish	.594
" "	9	3	4	1.6	27	.059	cut bait & eel	.4
" "	971	635	1220	521.2	2456	.212	dead shrimp	.424
" "	1	2	2	1.0	2	.5	eel	.5
" "	3	2	3	.6	6	.1	cut ribbonfish	.2
" "	4	66	50	25.0	264	.095	dead shrimp & cut croaker	.5
" "	4	1	4	1.2	4	.3	dead shrimp & squid	.3
" "	2	2	5	1.0	4	.25	dead shrimp & cut perch	.2
" "	4	2	2	.6	8	.075	eel & squid	.3
" "	5	1	15	7.5	5	1.5	jig	.5
" "	2	1	1	.3	2	.15	live fish	.3
" "	105	77	141	50.8	359	.142	squid	.360
" "	86	43	69	41.1	158	.260	live squid	.596
" "	2	2	1	.3	4	.075	speck rig	.3
" "	4	1	1	.2	4	.05	yellow worm & cut bait	.2
Sheepshead	45	40	29	46.7	106	.441	all baits	1.610
"	1	1	2	2	1	2	crabs	1
"	15	14	13	12.8	34	.376	dead shrimp	.985
"	29	25	14	31.9	71	.449	live shrimp	2.279
Southern Flounder	135	58	74	102.7	246	.417	all baits	1.388
" "	14	2	5	17.0	14	1.214	plastic worm & all color worm	3.4
" "	12	3	8	13.4	12	1.170	gig	1.675
" "	22	6	2	1.5	68	.022	cut bait	.75
" "	10	8	2	.6	36	.017	cut bait & dead shrimp	.300
" "	58	29	22	39.3	126	.312	dead shrimp	1.790
" "	51	15	22	26.7	79	.338	live shrimp	1.213
" "	5	5	1	.6	25	.024	mullet	.600
" "	8	1	12	136	8	.450	lure	.300

Species	Hours	Hooks	Number Caught	Total Weight(lbs)	Hook Hours	Catch/ Effort	Bait	Average Size (lbs)
Spanish Mackerel	57	29	40	57.7	115	.502	all baits	1.443
" "	3	4	3	8.0	5	1.500	cut bait	2.667
" "	9	3	1	1.0	27	.037	cut bait & lure	1.000
" "	12	10	8	31.0	29	1.069	ribbonfish	3.875
" "	5	3	4	2.3	8	.288	dead shrimp	.575
" "	14	5	21	13.5	23	.587	jig	.643
" "	9	2	1	0.4	18	.222	lure	.400
" "	3	1	1	1.0	3	.333	spoon	1.000
" "	2	1	1	0.5	2	.250	squid	.500
King Mackerel	52	35	146	2150.0	224	9.513	all baits	14.73
" "	9	3	9	180.0	27	6.67	cut bait & lure	20.000
" "	7	1	4	80.0	7	11.428	gold spoon	20.000
" "	6	3	8	80.0	18	4.444	red & white feather jig	10.000
" "	4	2	20	260.0	8	32.5	revel lure	13.000
" "	59	26	105	1550.0	164	9.451	ribbonfish	14.762
Blue Crab	306	369	1159	532.6	917	.581	all baits	.460
" "	98	134	539	264.1	287	.920	chicken	.490
" "	2		12	4.8			chicken & hardhead	.4
" "	62	57	118	44.2	166	.266	cut bait	.375
" "	9	3	6	1.8	27	.067	cut bait & eel	.3
" "	3	14	20	12.8	14	.914	cut hardhead	.64
" "	1	5	4	.8	5	.17	cut hardhead & croaker	.2
" "	11	19	89	41.8	25	1.672	cut mullet	.470
" "	3	7	14	5.8	9	.644	cut mullet & pinfish	.414
" "	120	85	154	55.6	429	.130	dead shrimp	.361
" "	14	26	87	42.1	86	.490	fish head	.484
" "	8	10	7	2.9	22	.132	live shrimp	.414
" "	4	1	1	.4	4	.1	pork rind	.4
" "	15	6	3	1.5	90	.017	ribbonfish	.5
" "	2	2	1	.3	4	.075	shrimp & cut ribbonfish	.3
" "	6	9	52	26	18	1.444	soupbone	.5
" "	8	10	5	1.8	26	.069	squid	.36
" "	5	9	55	27.5	25	1.1	stew meat	.5

TABLE 12

Species	Live Bait Catch/ Effort	Live Bait Average Size	Dead Bait Catch/ Effort	Dead Bait Average Size	Natural Bait Catch/ Effort	Natural Bait Average Size	Artificial Bait Catch/ Effort	Artificial Bait Average Size	Total Weight Live Bait	Total Weight Dead Bait	Total Weight Natural	Total Weight Artificial
Spotted Seatrout	1.855	1.251	.240	1.091	1.081	1.231	1.240	1.201	2772.5	330.59	3103	601.5
Sand Seatrout	.687	.770	.543	.748	.551	.749	.604	.825	133.3	1732.1	1865.4	164.2
Atlantic Croaker	.583	.820	.227	.470	.239	.487	.073	1.020	86.9	976.3	1063.2	7.2
Black Drum	.148	2.667	.189	1.567	.183	1.639	--	--	8	67.4	75.4	0
Gafftopsail Catfish	.348	1.200	.259	1.401	.260	1.397	.500	1.100	10.8	625	635.8	5.5
Southern Kingfish	.113	.300	.218	.684	.217	.681	.250	.500	.9	265.2	266.1	1
Gulf Kingfish	.405	.809	.304	.731	.306	.732	.150	.300	8.9	449.3	458.2	.3
Pinfish	.141	.198	.177	.263	.176	.261	.038	.175	9.3	551.4	560.7	2.8
Red Drum	1.492	2.539	.882	2.198	1.097	2.349	1.189	2.889	764.1	830.7	1594.8	329.4
Sea Catfish	.259	.591	.179	.420	.182	.427	.457	.505	41.4	761.6	803.0	9.6
Sheepshead	.471	2.119	.376	.985	.441	1.610	--	--	33.9	12.8	46.7	0
Southern Flounder	.338	1.213	.165	1.556	.206	1.402	2.409	3.118	26.7	42	68.7	53
Spanish Mackerel	--	--	.950	2.613	.950	2.613	.339	.648	--	41.8	41.8	14.9
King Mackerel	--	--	9.451	14.762	9.451	14.762	12.727	13.125	--	1550.0	1550.0	420.0
Blue Crab	.132	.414	.436	.457	.431	.456	--	--	2.9	529.7	532.6	0

TABLE 13

	Aug. 1973 Creel Census	Aug. 1973 Comm. Fishing Stat.*	Aug. 1972 Comm. Fishing Stat.*
Croaker	1069.8	7846	0
Redfish	2126.2	33970	21273
Flounder	102.7	513	633
Trout	5694.7	29054	20373
Crabs	532.6	0	963
Black Drum	75.4	12833	41504
Gafftop	637.3	860	0
Sheepshead	46.7	769	2405
Pompano	16.2	3	154

In some cases the creel census poundage is very close to the commercial poundage, so if the total estimated sport fishing population (present data x5) had been surveyed, the sport fishing poundage would have exceeded the commercial poundage.

It has been suggested that the reason that no crabs were reported during August 1973 in the commercial fishery report is that the crabs are shipped to Palacios for processing and missed being counted.

CONCLUSION

The pilot creel census of August 1973 indicated that only minor changes were necessary to fulfill the two main purposes of the Summer 1974 summer study to supply sportsfishing statistics on the local area. Sampling will be extended to a 24 hour basis to cover night and afternoon fishing effort.

Since August, both Tables 1 and 2 have been revised (Tables 14 & 15), to add more needed information and to simplify the filling out

*Texas Parks and Wildlife information on commercial fish catch.

TABLE 14

Water Development Board and University of Texas
Sport Fishing Creel Census

(1) site (2) date (3) time (4) interviewer (5) biotope (6) position

A _____

(7) species (8) # caught (9) # kept (10) average weight (11) # hooks (12) bait

B _____

B _____

B _____

B _____

B _____

B _____

B _____

B _____

B _____

(13) # hours fishing (14) check if previously interviewed (15) total duration of trip

C _____ ☐ _____

(16) city of residence (17) county (18) type of outing family other

D _____ ☐ ☐

(19) # person in party (20) # under 18 (21) total expected cost of trip

E _____

(22) How many days/yr. do you fish in saltwater in this area? (23) freshwater? (24) preference

F _____

TABLE 15

CLIMATOLOGICAL DATA

(1) Month	(2) date	(3) time	(4) Location	(5) wind direction	(6) wind velocity	(7) cloud cover	(8) barometer reading	(9) air temp.	(10) water temp.	(11) total fishing	(12) total inter-viewed	(13) tidal flow

procedure. The ranking question of the original survey form was dropped because of the confusion of the fishermen in answering the question. Also, a complete information guide has been written in order to assist the census takers while they are in the field. District 2 will be split in future surveys, so instead of 4 survey districts there will be 5.

There will be 5 barometer stations established, one in each district in order to achieve better climatological results. The climatological data of August 1973 has not been processed and will be discussed at a later date.

The future creel census will be run in the same manner as previously discussed except for the above changes as shown in Table 16 Instructions.

At present, January-June 1974, approximately 50 students from 5 area high schools are participating in the creel census as volunteers which will provide some continuity. The summer program will be conducted during June, July and August of 1974.

From the effort evaluation we have concluded that the August data represent 20% of the total effort in the system. This indication will be used to determine the creel census efficiency during the summer of 1974.

Budget Summary

Total funds available from Lower Nueces Water District were $1500.

Salaries (7 persons) and mileage (10¢ mile)	$ 1,287.79
Aerial survey and communications, etc.	212.21

TABLE 16

GENERAL INSTRUCTIONS (CENSUS SHEET)

1. For a given category and situation, try to use a descriptor which is already in the dictionary instead of creating a new one. For example, for the category position: "shore" is already in the dictionary; do not use "bank" since for our purposes it means the same as "shore".

2. Whenever you find a situation not already defined in the dictionary; create a new descriptor, but be sure to add it to the dictionary.

3. Uniformity in spelling, word order, spacing, and punctuation is necessary. Although "dead shrimp" and "shrimp-dead" mean the same thing they would be listed as two separate descriptors in the data bank.

4. The symbols: "," (comma) "and" "or" "for" "with" "not" have special meaning to the ENVIR program. They can't be used within any descriptor.

   (a) In place of "and", use "+" (plus)
   (b) In place of "," (comma) use "-" (hyphen)

5. Any descriptor state not known should be left blank. Commas must be included between all blanks unless at the end of a line.

6. The letter "o" should be written "ø". The number "zero is written normally.

   The number "one" should be written 1.

   The number "seven" should be written 7.

   The letter "zee" should be written Z.

7. Print legibly only in #2 pencil (signatures as well).

8. The following symbols can't be used.

   & (ampersand)
   ' (apostrophe)

9. Any abbreviations may be used as long as they are recorded as such in the dictionary and explained in the appendix.

10. Any category using numeric descriptors will not accept words of any kind.

11. The numeric categories: no. of hours fishing, no. caught, no. kept, and no. of hooks should contain only integer numbers.

12. For the numeric category no. of hours fishing all values less than one hour should be considered one hour. For values greater than one hour: round up if one-half or greater, round down if less than one-half.

GENERAL INSTRUCTIONS (CLIMATOLOGICAL DATA)

1. The category time will use a 24 hour clock.

2. All date categories will use numbers only and include month, day, year in that order.

3. The category location should correspond exactly to the location of interview category on the census sheets.

4. The category wind direction will use letter abbreviation (e.g. NW) and should be as specific as "SSE".

5. The category wind velocity should use knots and approximate to the nearest 5 knots (in multiples of 5).

6. All temperatures should be recorded as Farenheit values, with no degree (^{o}) symbols used.

7. No words can be used in any numeric category (e.g. 50F is not acceptable) except for #15.

8. All climatological readings will be taken at specified areas.

VOCABULARY (CENSUS SHEET)

(1) Location of Interview

1 - Caldwell Pier
2 - City Pier
3 - CCSC 3
4 - CCSC 7
5 - Fish Pass
6 - Gulf Beach - City
7 - Gulf Beach - 1A
8 - Gulf Beach - 1
9 - Gulf Beach - 2
10 - Gulf Beach - 3
11 - PA Jetty
12 - PA Marina
13 - Station St. Pier
14 - Bob Hall Pier
15 - Jerry's Marina
16 - Kennedy Causeway
17 - Marina Madre
18 - Ocean Drive
19 - Oso Bridge
20 - Oso Pier
21 - Aransas Pass Causeway
22 - Fin & Feather
23 - Hogan's Ramp
24 - Mom's Bait Stand
25 - Redfish Bay
26 - Bahia Marina
27 - Indian Point Pier
28 - Paradise Pier
29 - T-head
30 - L-head
31 - Cole Park Pier
32 - Portland Causeway Boat Ramp

(2) Location Where Fishing Done (Biotope)

1 - Bulkhead
2 - Channel
3 - Grassflats
4 - Hypersaline
5 - Inshore Gulf
6 - Oil Platform
7 - Open Bay
8 - River Mouth
9 - Shallow Bay
10 - Shallow Gulf
11 - Shallow Pass
12 - Surf
13 - Open Gulf
14 - Oyster Reef

(3) Position

Bridge
Boat
Jetty
Pier
Shore
Wade

(4) Date of Interview

Month	Day	Year
1-12	1-31	1973 1974

(5) Time of Interview

0005 - 2400 (5 minute intervals)

(6) No. of Hours Fishing

1-128 (integers)

(7) Species

Carcharhinus falciformis
Carcharhinus leucas
Carcharhinus lumbatus
Rhizoprionodon terraenovae
Sphyrna lewini
Sphyrna tiburo
Raja texana
Dasyatis sabina
Dasyatis sayi
Lepisosteus spatula
Elops saurus
Megalops altantica
Anguilla rostrata
Ophichthus gomesi
Gymnothorax nigromarginatus
Brevoortia patronus
Synodus foetens
Galeichthys felis
Bagre marinus
Opsanus tau
Centropomus undecimalis
Epinephelus nigritus
Epinephelus itajara
Pomatomus saltatrix
Rachycentron canadum
Caranx hippos
Caranx crysos
Oligoplites saurus
Seriola dumerili
Trachinotus carolinus
Trachinotus falcatus
Lutjanus campechanus
Lutjanus griseus
Lutjanus jocu
Lutjanus analis
Rhomboplites aurorubens
Lobotes surenamensis
Conodon nobilis
Orthopristis chrysoptera
Archosargus probatocephalus
Lagodon rhomboides
Bairdiella chrysura
Cynoscion arenarius
Cynoscion nebulosus
Cynoscion nothus
Leiostomus xanthurus
Sciaenops ocellata
Menticirrhus littoralis
Menticirrhus americanus
Micropogon undulatus
Umbrina coroides
Menticirrhus saxatilis
Chaetodipterus faber
Mugil cephalus
Polydactylus octonemus
Trichiurus lepturus
Scomberomorus cavalla
Scomberomorus maculatus
Prionotus tribulus
Paralichthys lethostigma
Paralichthys albigutta
Balistes capriscus
Aluterus schoepfi
Lagocephalus laevigatus
Chilomycterus shoepfi
Eel

Number caught

1-500

Number kept

1-500

Weight

1-15000

No. of Hooks

1-250

Bait

1 - Chicken
2 - Cut Bait
3 - Dead Shrimp
4 - Dead Mullet
5 - Eel
6 - Jig
7 - Fish heads
8 - Goldspoon
9 - Hootie
10 - Live Mullet
11 - Live Shrimp
12 - Lure
13 - Plastic worms
14 - Plastic worm-red
15 - Plastic worm-white
16 - Plastic worm -yellow
17 - Plastic worm-orange
18 - Plastic worm-pink
19 - Ribbonfish
20 - Silverspoon
21 - Spec Rig
22 - Squid
23 - Mirror Lure
24 - Live pinfish
25 - Bingo lure

City of Residence

SA - San Antonio
CC - Corpus Christi
PA - Port Aransas
AP - Aransas Pass
Ft Wørth

(9) County

(10) Days Per Year Fish in Salt Water

0 - 366

(11) Days Per Year Fish in Fresh Water

0 - 366

(12) Salt or Fresh Water Preference

S - Salt
F - Fresh
Nø - Nø Preference

VOCABULARY (climatøløgical data)

(1) Mønth

1-12

(2) Date

1 - 31

(3) Year

1973
1974

(4) Løcatiøn (same as on census sheets)

(5) Wind Directiøn

N	E	S	W
NNE	ESE	SSW	WNW
NE	SE	SW	NW
ENE	SSE	WSW	NNW

(6) Wind Velocity

5	25	45	65
10	30	50	70
15	35	55	75
20	40	60	80

(7) Cløud Cøver

1 - Cløudy
2 - Hazy
3 - Clear
4 - Rain
5 - Størm
6 - Partly Cløudy

(8) Barømeter reading

(9) Air Temp

0 - 125

(10) Water Temp

0 - 125

(11) Tidal Fløw

R - Rising
F - Falling
S - Slack

(12) No. of Peøple Fishing

0 - 500

(13) No. of Peøple Interviewed

0 - 500

ABBREVIATION APPENDIX

City

SA = San Antøniø

CC = Cørpus Christi

PA = Pørt Aransas

AP = Aransas Pass

Tex = Texas