SOUTH FLORIDA RESEARCH CENTER

Report T-546

Fishery Data Management Handbook, Everglades National Park, 1979

Everglades National Park, South Florida Research Center, P.O. Box 279, Homestead, Florida 33030

FISHERY DATA MANAGEMENT HANDBOOK

EVERGLADES NATIONAL PARK

1979

Report T-546

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I. SUMMARY

A data acquisition and summary program for monitoring the fishery resources in Everglades National Park is described. The sources of catch and fishing effort data are trip tickets from professional guides and commercial fishermen, and dockside interviews with sport fishermen. The results of regression analyses of aerial boat surveys on boat trailer counts at the Flamingo launching ramp are presented which define equations for estimating total boating and fishing activity in the park from the ramp counts alone. Detailed instructions for collection of data and utilization of National Park Service computer facilities for production of data summaries are given. Included in the quarterly and annual reports are catch rates for gray snapper, spotted seatrout, red drum, snook, white mullet, stripped mullet, spanish mackerel, pompano, and stone crabs from 19 areas in Everglades National Park. Reported and observed catches and estimated total harvest are also reported. These catches are stratified by four skill types of sport fishermen, and four types of commercial fishermen. The content and format of these reports are described. Procedures for preparing weekly, monthly, quarterly, and annual public reports are defined, and examples provided.

II. OBJECTIVES

The fisheries data acquisition program at Everglades National Park has two major objectives: (1) to gather data to estimate total human fishery harvest in Everglades National Park; and (2) to monitor population levels of the sport and commercial species comprising the major park fisheries.

III. INTRODUCTION

Even though fishery scientists have been using catch per unit of fishing effort techniques to monitor the relative abundance of fish populations since the 1890's (Rounsfell, 1975), most large scale fishery statistical systems do not collect or report an effective measure of fishing effort. Furthermore, catch statistics for recreational marine and estuarine fisheries are not conveniently acquired, and until recently, sport harvests have apparently not been considered significant impacts on these resources. The routine procedure of reporting only total commercial harvest by county (Shields and Joyce, 1972) does not provide the basic information necessary to effectively understand and manage the mixed recreational and commercial fishery in the multi-ecosystem environment of Everglades National Park in accordance with National Park Service policy (National Park Service, 1975).

The program described here provides accurate estimates of total harvest for the major sport and commercial fisheries, and also yields catch rate estimates of fish availability with sufficient precision to permit evaluation of seasonal fluctuations. It also provides accurate estimates of boating and fishing activity. The early development of this program and the methods of calculating catch rates and their standard errors have been discussed elsewhere (Higman, 1967; Caillouet and Higman, 1973a and b).

The need for fishery data from Everglades National Park was established as early as 1935, when the National Park Service was committed to managing the fishery resources of Florida Bay and the mangrove-lined estuaries along the southwestern coast of Florida within the park by A. B. Cammerer, Director of the National Park Service (Copeland, Hoffman, and Porter, 1936).

Four years after the park was established in 1947, the first special regulations concerning fisheries management in the park were promulgated in the Code of Federal Regulations, but it was not until 1958 that any systematic effort was made to collect the basic data necessary to monitor the fisheries to determine whether or not the management goal of "sustained yield" (Wirth, 1959) was being achieved. For ten years, from 1958 to 1969, investigators from the nearby University of Miami, principally James B. Higman, conducted surveys of fishermen at Flamingo, Florida. These National Park Service supported studies are the foundation of the present fisheries data collection program. Summaries of this work and recommendations for improvements in data collection and analysis have been published previously (Higman, 1967; Caillouet and Higman, 1973a and b). One of the recommendations was to collect catch data from the professional guides and commercial fishermen fishing in Everglades National Park.

Since 1965, all commercial and guide fishermen fishing in the park have been required to obtain a no-fee fishing permit from the Superintendent of the park, and report their catches to him as a condition of the permit (36 CFR 7.45 g). Until 1972, these catch data consisted of monthly total catches, by species, for each fisherman. They were summarized in annual aquatic resources reports NPS (M)-3 for Everglades National Park (file N2621). Unfortunately, these catch reports did not include any measure of fishing effort or specific area of harvest so it was not possible to monitor populations by ecosystem or management unit, nor to evaluate the degree to which fishermen complied with the reporting requirements of their permits.

Development of the present data acquisition program began in 1972. Its primary aim was to improve the precision of catch rate estimates and measures of fishing effort for both sport and commercial segments of park fisheries. It also standardized all fishery data collection and provided real time quarterly reports which included estimates of total harvest and fishing effort in the park. Caillouet and Higman (1973a) found the variability in sport fishermen's catch rates to be so great they could not collect large enough samples to detect population changes in all but the two most abundant species in the sport fishery, except on an annual basis. A detailed stratification of the fishermen and refined measures of their fishing effort were added to alleviate this problem.

Improved precision in calculating the catch rates was achieved by using the regression line fitting technique suggested by Caillouet and Higman (1973a). Fishing effort parameters were added to commercial and guide catch reports.

The purpose of this handbook is to describe the fishery data acquisition program currently used in Everglades National Park. Data are collected and summarized in five categories: 1) boating activity, 2) sport fishing, 3) guide fishing, 4) commercial fishing, and 5) stone crab trapping. Six standardized reports are produced from these data: weekly, quarterly, and annual sport fishing activity; quarterly and annual commercial and guide fishing activity; and monthly boating activity. In

addition, the sportfishing and the commercial fishing data are combined to produce quarterly and annual fishery status reports. The collection and summary of data, and the preparation of each report is described in detail in the following sections.

Used in conjunction with the Everglades Resource Information System (ERIS), briefly described here, this data acquisition program provides park managers with the basic information needed to evaluate their management actions and other factors influencing fishery resources in the park.

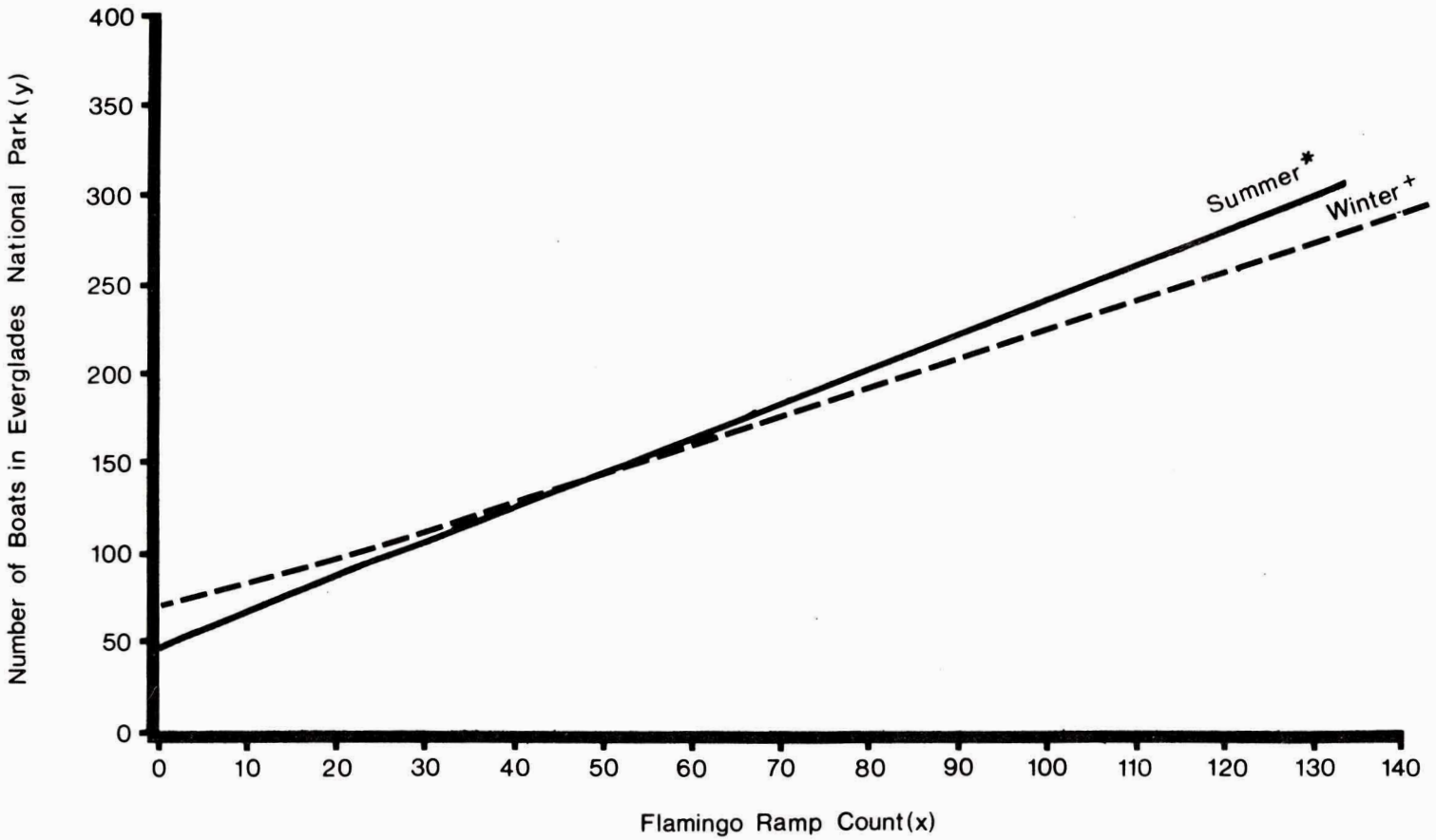
IV. DATA COLLECTION

A. Boating Activity. Daily counts of empty boat trailers are made every morning before 1100 hours at the launching ramp at Flamingo.

Aerial surveys were conducted of the waters in Everglades National Park during which all boats observed in the park were counted and their locations recorded. Boats were also categorized by type as sport fishing, commercial fishing, sail, canoe, houseboat/cruiser, or National Park Service patrol. Surveys were flown on randomly selected mornings, stratified by month. From July 1972 through June 1973, seven flights were made each month stratified by day of the week. From July 1973 to July 1975, and from October 1977 to October 1978, four surveys were flown each month, with two weekend days and two weekdays randomly selected.

Flamingo is situated centrally between Florida Bay, the Gulf of Mexico and Whitewater Bay, and provides boaters access to all three bodies of water. Since boating activity originating at Flamingo was representative of all park waters, acting as a "barometer" of total boating activity, the ramp counts at Flamingo were used as an index of boating use in the park. Park-wide aerial survey counts of fishing boats were regressed on corresponding trailer ramp counts to produce two seasonal predictive equations (Fig. 1). These were applied to the daily ramp counts to estimate the total number of boats in the park. The accuracy of the aerial boat surveys were evaluated by comparing the distribution of National Park Service patrol boats in general areas, i.e., northeast Florida Bay, determined after the flights and the flight observations of the patrols. Of 127 ranger boats available for sighting, 121 (95%) were observed during the flights. In addition, monthly mean counts for Area 6 were compared with monthly mean counts of aerial surveys flown independently by the Deltona Corporation over the same area (Deltona, 1975) from July 1972 to July 1974. There was no significant difference between the 24 paired surveys ($t = 0.28$, p 0.01), suggesting little bias in the techniques of either group of observers.

B. Sport fishing. In 1971 and 1972, dockside interviews with fishermen were conducted at launching ramps at Chokoloskee Island, Flamingo, Key Largo, Plantation Key, Upper Matecumbe Key and by boat in eastern Florida Bay. Economic constraints restricted interviewing efforts to ramps at Flamingo and Chokoloskee after 1973. In 1972, interviews were conducted on both weekdays and weekends. After 1972, only weekend days were sampled. Each interview consisted of 19 data elements recorded on a 79 column format (Fig. 2). Length measurements were made of selected species. A minimum of 1,100 interviews per quarter for Flamingo, and 200 for Everglades City need to be conducted to maintain the



*y = 1.996 x+42.5 (r=0.89 N=80)

+y = 1.640x+68.9 (r=0.84 N=108)

Figure 1. Least squares regression lines describing relationships between Flamingo Ramp Count and total number of boats in Everglades National Park.

EVERGLADES NATIONAL PARK SPORT FISHING REPORT

Page of

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
INTERVIEW NUMBER (1 2 3 4 5)															
DATE MMDDYY (6 7 8 9 0 1 1 1)															
DAY OF WEEK (1 2)															
TRIP HOURS (1 1 3 4)															
NO. of PEOPLE (1 1 5 6)															
HRS. FISHING (1 1 7 8)															
NO. OF FISH CAUGHT (1 2 9 0 2 1)															
SPECIES PREFERRED (2 2 2 2 2 2 3 4 5 6)															
AREA FISHED (2 2 7 8)															
INTERVIEW LOCATION (2 2 9 0)															
INTERVIEW TIME (3 3 1 2)															
INTERVIEWER (3 3 3 4)															
PARTY COMPOSITION (3 3 5 6)															
ORIGIN OF FISHING TRIP (3 3 7 8)															
FISHERMAN RES. (3 3 9 0)															
CATCH SPECIES (4 4 1 2)															
CATCH NO. KEPT (4 4 3 4)															
CATCH NO. RELEASED (4 4 5 6)															
CATCH SPECIES (4 5 7 8)															
CATCH NO. KEPT (5 5 9 0)															
CATCH NO. RELEASED (5 5 1 2)															
CATCH SPECIES (5 5 3 4)															
CATCH NO. KEPT (5 5 5 6)															
CATCH NO. RELEASED (5 5 7 8)															
CATCH SPECIES (6 6 9 0)															
CATCH NO. KEPT (6 6 1 2)															
CATCH NO. RELEASED (6 6 3 4)															
CATCH SPECIES (6 6 5 6)															
CATCH NO. KEPT (6 6 7 8)															
CATCH NO. RELEASED (7 7 9 0)															
SOURCE (7 7 1 2)															

Figure 2. Everglades National Park Sport Fishing Report data collection form.

desired levels of accuracy and precision of catch rates and harvest estimates. The sportfishing interview data are recorded directly on key punch forms (Fig. 2) using the codes in Appendices A and B, and are stored in ERIS according to the format shown in Table 1.

Sportfishing data are collected by interviewing sportfishermen at the completion of their trips. Fishermen volunteer their information. The interviewer explains that the reason for the interview is to collect data for the purpose of estimating total harvest and monitoring fishery resources. The following questions are suggested to gather the necessary information.

1. What time did you leave the dock to go fishing?

2. How many people on your boat fished? If the answer is none, fill in Column 1-18 and Columns 26-38. The element area fished will be understood to be boating area.

3. How much time did your party spend fishing?

4. Did you prefer to catch a particular species?

5. Where did you fish? If resistance is encountered to this question show them the map of the six areas (Fig. 3) used to record locations, and explain that you only need an answer as to the area fished, not their particular 'fishing hole.'

6. Why did you go fishing? This question will help determine the type fisherman. The skilled fisherman shows his expertise in many ways, such as knowledge of the park waters, fishing experience, fishing rods rigged with appropriate artificial lures or fishing in a specialized manner for particular fish. The family designation is applied to groups of adults and children, or to groups of adults whose primary interest is other than fishing. The novice fisherman has little experience fishing, or little experience in the park. The sustenance fisherman is primarily fishing for food and usually keeps everything caught.

7. Where did you launch your boat?

8. Where are you from? If party members are from different areas, use the residence of the boat owner.

9. What species of fish did you catch? If the answer is more than four species, additional lines may be used for a total of 20 species (five lines). Additional lines are coded only with interview number, date, and species repeats.

10. How many fish of each species did you keep? For confirmation, interviewer must see and count the catch.

Table 1. Formats for Recording and Storing Sportfishing Data

Recording Format		ERIS Storage Format			
Item	Column	Field Name	Type[a]	Indexed[b]	Stored Length
Interview number	1-5	INTRVWNO	CHR	YES	5
Date (MMDDYY)	6-11	DATE	CHR		6
		DATEN	INT		6
		YM	CHR	YES	4
		YEAR	CHR		2
		MONTH	CHR		2
		DAY	CHR		2
Day of week	12	WEEKDAY	CHR		1
Trip Hours	13-14	TRIPHRS	INT		2
No. of people	15-16	NOPEOPLE	INT		2
Hrs. fished	17-18	FISHHRS	INT		2
No. of Fish caught	19-21	NOCAUGHT	INT		3
Species preferred	22-25	SPECPREF	CHR	YES	10
Area Fished	26-27	LOCID	CHR	YES	8
Interview location	28-29	INTRVWLC	CHR		2
Interview time	30-31	INTRVWTM	CHR		2
Interviewer	32-33	INTRVWR	CHR		2
Party Composition	34-35	PRTYCOMP	CHR		2
Origin of fishing trip	36-37	TRIPORGN	CHR		2
Fisherman res.	38	PRTYRES	CHR		1
		COMMENTS	CHR		63
Species repeat #1	39-48	SPECRPT	CHR		16
		SPECIES	CHR	YES	10
		NOKEPT	INT		3
		NORLSD	INT		3
Species repeat #2	49-58				
Species repeat #3	59-68				
Species repeat #4	69-78				
Source	79	SOURCE	CHR	YES	1

[a]CHR = Character, INT = integer

[b]Indexed = prefixed key, see Infodata 1978, sec. II. 1.

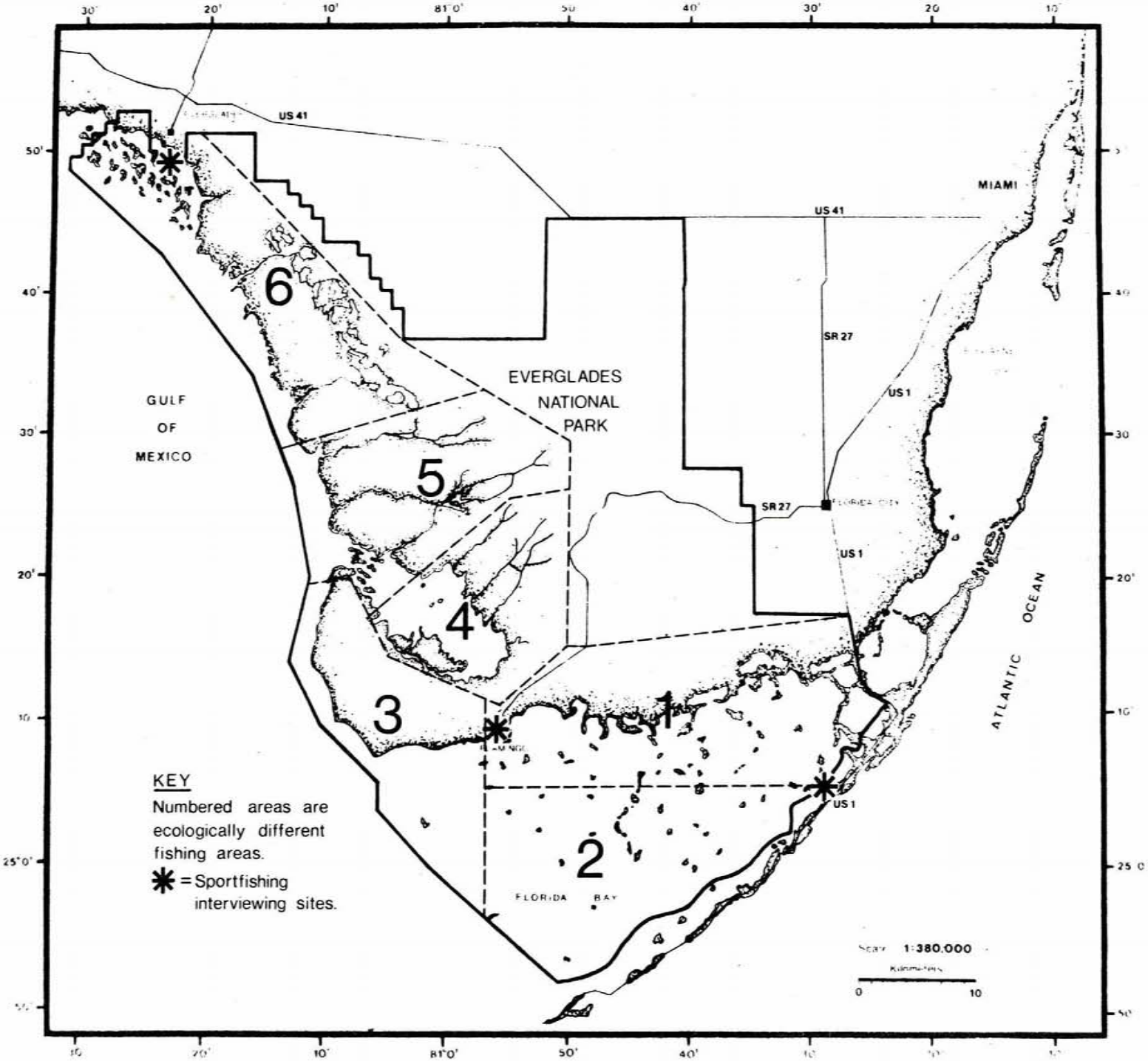


Figure 3. Ecologically different fishing areas in Everglades National Park.

11. How many fish of each species did you release? The interviewer should probe here, as most fishermen don't think you wish to know about 'trash' fish such as catfish. If there are any comments regarding the fishing trip, either by the interviewer or the fisherman, use an additional line and enter the interview number and date in columns 1-11, and the comment in Columns 12-74.

C. Commercial Fishing. Catch reports are submitted monthly by commercial line, net and trap fishermen and professional guides on trip tickets (Figs. 4 & 5). These catch and fishing effort data are checked for completeness and transcribed to a 78 column format (Fig. 6). If reports are incomplete or of questionable validity (i.e., exceptionally large catches or reported catches from closed areas), the fisherman should be contacted as soon as possible to verify the report or remind him of his obligation to provide complete, accurate reports.

The commercial fishing data are copied according to the codes in Appendices A and C on a key punch form (Fig. 6) and these data are stored in ERIS according to the format shown in Table 2.

V. DATA MANAGEMENT SYSTEM

A. Introduction to ERIS

The Everglades Resources Information System (ERIS) was developed by Infodata Systems Incorporated and the National Park Service office of Data Systems in Washington, D.C. ERIS operates in conjunction with the NPS data base management system, INQUIRE. ERIS queries are written with INQUIRE to produce reports needed from the ERIS data base. INQUIRE is a question-oriented information storage and retrieval system which allows the user to maintain and make effective use of a large body of information. The INQUIRE user language manual (Infodata Systems Inc., 1978) guides the user in constructing queries for retrieval and reporting operations.

The Time Sharing Option (TSO) command language of Boeing Computer Services (BCS) is used to access ERIS and construct queries. This language is offered on the BCS nationwide timesharing system, MAINSTREAM. The command language consists of more than 80 commands and subcommands. A TSO command language manual is available (BCS, 1977). In addition, help can be obtained from:

Boeing Customer Service, 800-336-3336

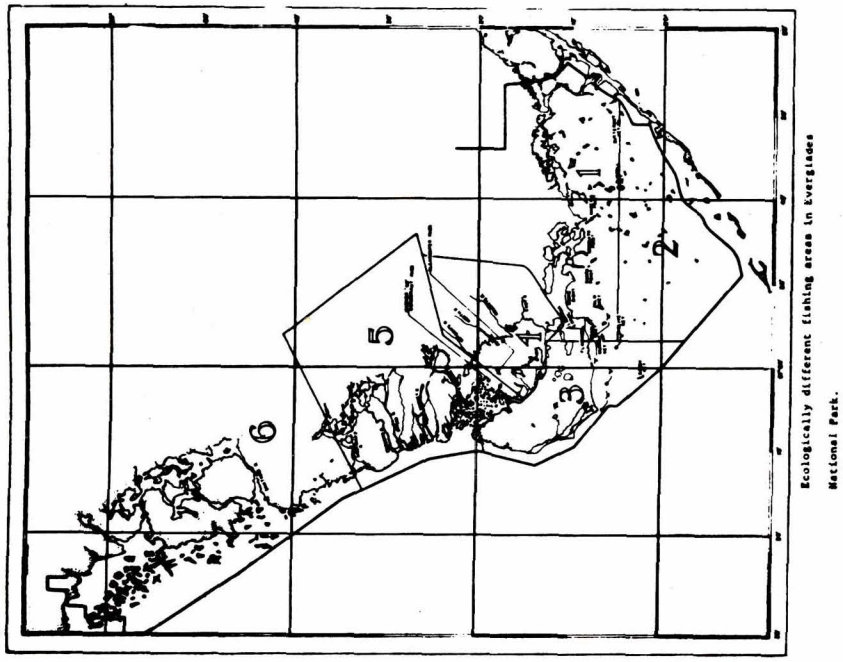
Boeing Computer Services, 202-821-6119

INQUIRE Customer Service, 202-578-0008

Infodata Systems 202-523-5124

Research Center Manager, EVER

Marine Research Biologist, EVER Research Center



ENP-P169A

COMMERCIAL AND GUIDE FISHING BOOK

Date _____ Permittee _____ Permit No. _____

No. of hours fished _____ No. of fishermen _____

Species preferred _____

Kind caught	Number of fish		Pounds kept	Area	Gear	No. of sets (for nets)
	Kept	Released				

ENP-P169A

INSTRUCTIONS FOR USING COMMERCIAL AND GUIDE FISHING LOG BOOK

Information concerning fishing pressure and harvest are needed to manage the fish populations in Everglades National Park. This information can best be provided by those doing the fishing, your cooperation in this matter is appreciated.

One page in your log book should be filled out for **each day of fishing.**

Fill in **every blank:** Date, Name, Permit No., hours fished, number of people fishing, kind of fish caught, total weight of fish, total number of fish, area (see map on back cover), and gear used. Net fishermen put number of sets (strikes) made.

If you do not catch anything on a trip, indicate that fact on a log page with the date, hours fished, people fishing, net sets, and the area.

(Continued on back cover)

(Continued from front cover)

If you do not fish in the park for a calendar month, fill out one page in the log saying just that.

Tear out and **send each month's** log pages to the Superintendent of Everglades National Park, P. O. Box 279, Homestead, Florida 33030 on the **last day** of **every month.**

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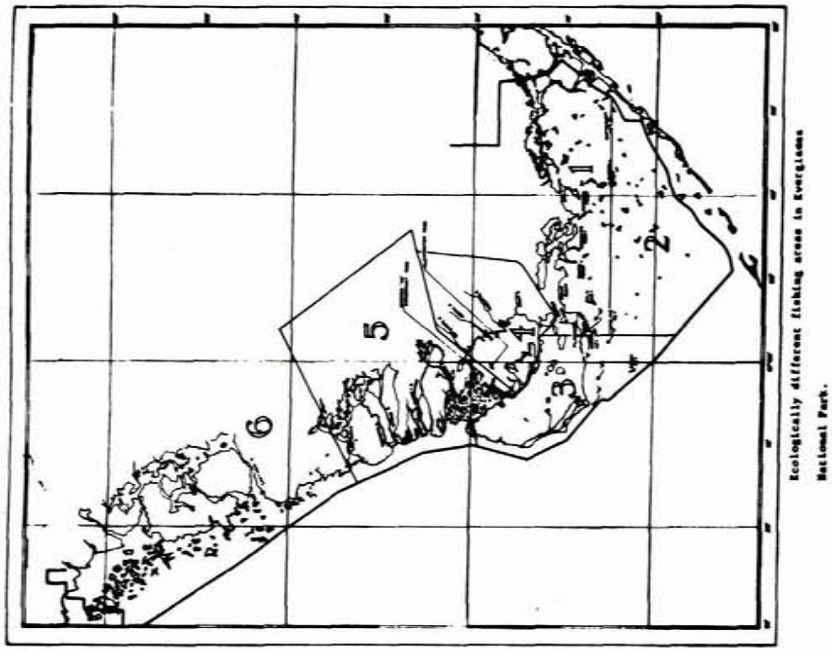
Figure 4. Commercial and Guide Fishing Catch Report log book (ENP-P169A)



ENP-P169B

EVERGLADES NATIONAL PARK

STONE CRAB CATCH REPORT

PERMITTEE _____ PERMIT NO. _____

Date Traps Pulled	No. of Traps	No. of nights Traps out	Catch in pounds	Area

ENP-P169B

INSTRUCTIONS FOR USING STONE CRAB CATCH REPORT

Information concerning fishing pressure and harvest are needed to manage the stone crab populations in Everglades National Park. This information can best be provided by those doing the trapping, your cooperation is appreciated.

Identify each page with your **name**, or initials, and your **National Park Service permit number.**

Fill in **every blank:** (Date, number of traps, number of nights traps out, catch, and area) **everytime** you **pull** your **traps.**

If you **do not trap in the park** for a calendar month, fill out one page with your name and number and state that you "did not trap in the park for the month of _____."

(Continued on back cover)

(Continued from front cover)

Tear out and **send each month's** report pages to the Superintendent of Everglades National Park, P.O. Box 279, Homestead, Florida 33030 on the **last day** of **every month** during the stone crab season.

Figure 5. Stone Crab Catch Report log book (ENP-P169B).

EVERGLADES NATIONAL PARK
COMMERCIAL AND GUIDE FISHERMAN
CATCH REPORT

Page of

	PERMIT NUMBER (1–5)	PERMIT I.D. (6)	DATE YYMMDD (7–12)	HOURS FISHED (13–14)	PEOPLE FISHING (15–16)	AREA FISHED (17–18)	GEAR USED (19)	NET SETS (20–21)	TRAP TYPE (22)	TRAPS PULLED (23–26)	NIGHTS FISHED (27–28)	SPECIES PREFERENCE (29–32)		SPECIES CODE (33–36)	WEIGHT (37–40)	NUMBER KEPT (41–44)	NUMBER RELEASED (45–47)	SPECIES CODE (48–51)	WEIGHT (52–55)	NUMBER KEPT (56–59)	NUMBER RELEASED (60–62)	SPECIES CODE (63–66)	WEIGHT (67–70)	NUMBER KEPT (71–74)	NUMBER RELEASED (75–77)	SOURCE (78)
1																										
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										
13																										
14																										
15																										

Figure 6. Everglades National Park Commercial and Guide Fisherman Catch Report data form.

Table 2. Formats for Recording and Storing Commercial Fishing Data

Recording Format		ERIS Storage Format			
Item	Column	Field Name	Type[a]	Indexed[b]	Stored Length
Permit number	1-5	PERMITNO	CHR	YES	5
Permit ID	6	PERMITID	CHR		1
Date (YYMMDD)	7-12	DATE	CHR		6
		DATEN	INT		6
		YM	CHR	YES	4
		YEAR	CHR		2
		MONTH	CHR		2
		DAY	CHR		2
Hours fished	13-14	FISHHRS	INT		2
People fishing	15-16	NOPEOPLE	INT		2
area fished	17-18	LOCID	CHR	YES	8
Gear used	19	GEAR	CHR		1
Net sets	20-21	NETSUSED	INT		2
Trap type	22	TRAPTYPE	CHR		1
Traps pulled	23-26	TRAPSPUL	INT		4
Nights fished	27-28	TRAPNITE	INT		2
Species preference	29-32	SPECPREF	CHR		63
Species code (species repeat #1)	33-36	SPECIES	CHR	YES	10
Weight	37-40	NOKEPT	INT		4
Number kept	41-44	WEIGHT	INT		4
Number released	45-47	NORLSD	INT		3
species repeat #2	48-62				
Species repeat #3	63-77				
Source	78	SOURCE	CHR	YES	1

[a]CHR = character, INT = Integer

[b]Indexed = prefixed key, see Infodata 1978.

1. Listing and Editing an ERIS Query

To change an existing query, use the following steps:

a. Log on BCS "MAINSTREAM" TSO

b. Enter L ERIS.DATA (QUERY name)

The contents of the query will be printed out. When you list out a query for editing, it is more economical to list it our first via the list command and then EDIT the program from the listing.

c. Enter EDIT ERIS.DATA (QUERY name)

Queries are members of a data set called ERIS.DATA. The member name for the sportfishing query is FISHRPT1, and the member name for the commercial query is FISHRPT2.

d. Use the CHANGE command to change dates. To change dates in an existing query from January through March 1976 to April through June 1976, use the TSO edit subcommand "CHANGE" (BCS 1977, p. 174) entering the following:

C ALL/YM=7601 to YM=7603/YM=7604 to YM=7606

e. When the desired EDIT is completed, enter END SAVE. The system will respond SAVED. READY.

2. Submitting an ERIS Job

a. To submit a job you must enter 1) the database name, 2) the data set name, 3) the query name, 4) the priority, and, 5) the time, if extra time is needed. i.e., ERIS SPRTFSH FISHRPT1 O T(15). (Use priority 0 to have job run overnight, this has a cost advantage. If it is necessary to obtain a job quickly, use priority 7 for execution within an hour).

b. The system will respond Submit III Job XXXX accepted. The time parameter has been specified as 15.

3. Retrieving an ERIS Job

When the system responds: $HASP 165 JOB XXXX NPS 600. ENDED APPROX COSTS $000.00 COMPL CN(00), the job has been completed. The results of the job are obtained in two ways. The job can be examined immediately on the remote terminal, but may contain errors in printing due to poor data transmission over telephone lines. The job will also be printed at the BCS facility and mailed to the park.

a. Procedures for immediate read out: Enter PO and job number. This results in the routing of the output to your terminal.

b. After examining the readout on the remote terminal, enter:

OUT (JOB NUMBER XXXX) dest (local) NOHOLD. This will cause the job to be printed at the BCS facility and mailed to the park.

B. Key Punching

Data are key punched in the National Park Service Regional Office directly from the data sheets completed in the field. They are mailed at the end of each quarter to:

Ms. Vera Martin
National Park Service
Finance Office
1895 Phoenix Boulevard
Atlanta, Georgia 30349
FTS 260-9330 ext. 327

The sportfishing data are mailed after the last weekend of each quarter. The commercial data are mailed two weeks after the end of each quarter in order to allow time for the commercial reports to be received from the fishermen through the mail.

All data are read into the respective ERIS data bases from the Atlanta Regional Office (or Everglades National Park Research Center) at the BCS facilities in McLean, Virgina. The original data and the key punched cards are mailed back to the Research Center, Everglades National Park, where they are kept on file.

VI. PREPARATION OF REPORTS

Standardized reports are prepared regularly at weekly, monthly, quarterly, and annual intervals. In addition, a fishery status report describing the current condition of the park fishery is prepared quarterly and annually. These reports inform park management, the park staff, and the local community of the immediate conditions in the fisheries by showing what and how much is being caught. The reports also describe seasonal trends in fish availability and harvest. They identify guide and commercial fishermen who are complying with the provisions of their permits by reporting their catches. These standardized reports also provide the basis for long-term trend identification and detailed analysis of fish population dynamics, boating use patterns, and fishery harvests.

The following descriptions of report preparation are intended to enable a fishery technician to prepare these standardized reports, not to analyze the data.

A. Weekly Sport Fishing

A summary of the catch and fishing effort from the sport fishing interviews at the Flamingo ramp is prepared after each weekend. It includes the total catch, by species, observed by the interviewers, the size range for each species measured, and the number of fishermen interviewed. These data are presented in tabular form and are accompanied by a short narrative statement. The statement includes an estimate of the total number of boaters in the park over the weekend derived from the Flamingo ramp counts and the regression equations (Fig. 1). It also summarizes the highlights of the data from the table, such as the total number of fish caught, the percentages of the more popular sport fish in the catch, and provides some perspective on general conditions compared with the recent past conditions (see Appendix D for example). This report is completed on Monday of each week and distributed to:

1. Everglades National Park Management and Staff:

   Superintendent
   Chief Ranger
   Chief Interpreter
   Visitors Center, Parachute Key
   Ranger Stations at Flamingo, Key Largo, and Everglades City
   Marine Research Biologist
   Research Director
   Fishery Technician (2 copies)

2. Miami Herald Sports Department
   Miami Herald Building
   1 Herald Plaza
   Miami, FL 33130
   Attn: Mr. Jim Hardy

3. South Florida Fishing News
   1035 N.E. 125th Street
   Miami, FL 33181
   Attn: Capt. Criddle

4. Posted on the Flamingo ramp bulletin board.

The following six steps describe the preparation of this report.

1. Collect field data by interviewing sportfishermen; record data on prepared data sheets using appropriate codes found in Appendices A and B.

2. Use weekly report standardized format (Appendix D) to summarize weekend data.

3. Obtain the number of fishermen interviewed at Flamingo for the weekend by totaling the people fishing (Col. 15-16) element on the weekend's data sheets.

4. Use the daily Flamingo ramp count and the appropriate formula to obtain the total number of boats in the park for each day of the weekend (See section VI B).

   Multiply the number of boats in the park by the mean party size to get the total number of boaters on park waters for the weekend.

5. Total the number of fish caught (cols. 19-21) on the weekend's data sheets to determine the total number of fish caught for the weekend by interviewed fishermen.

6. Total the number of each species caught and record the percentage of the total catch each species comprises.

B. Monthly Boating Activity

The regression equations from Figure 1 are applied to the daily ramp counts reported by the Flamingo Rangers to yield daily estimates of boating activity in the park. The monthly total is reported to the Chief Ranger's Office (CRO) at the end of each month for the monthly public use report (SF-10-157). The monthly totals are also used to estimate total fishing effort for the Quarterly Sportfishing Report.

To calculate the total number of boats in the park for the quarter, obtain the monthly morning ramp count from the Flamingo Ranger Station or CRO and calculate the total boats for each day, sum these for monthly count, sum months for quarterly count.

During the months from November through May the number of boats in the park daily is equal to the daily Flamingo ramp count multiplied by 1.640 plus 68.9, and from June through October, the ramp count is multiplied by 1.996 plus 42.5. Expressed as equations, they are:

Winter $y = 1.640\ x + 68.9$,

Summer $y = 1.996\ x + 42.5$,

where:

y = Total number of boats in the park

x = Flamingo ramp count

C. Quarterly and Annual Reports

An in-house standardized report summarizing the sportfishing and commercial fishing activity is prepared quarterly and annually (Appendices E, F, H, and I). They may be prepared with the same ERIS queries. The sportfishing and commercial fishing data are combined to produce quarterly and annual status reports. These reports are not standardized, however sections on the relative abundance of fishery stocks, estimated total harvest of fish by species, and recent trends are always included (see Appendices G and J).

Distribution List of Quarterly and
Annual Fishing Status Reports,
Everglades National Park

Superintendent
CRO
Research Director
District Ranger, Key Largo
District Ranger, Everglades City
District Ranger, Flamingo
Visitors Center, Parachute Key
Visitors Center, Flamingo
Marine Research Biologist
Management Biologist, BISC

Mr. Jeff Klinkenberg
P.O. Box 615
Miami, Florida 33311

Mr. Jim Austin
Evening Independent
490 First Avenue South
St. Petersburg, Florida 33731

Organized Fishermen of Florida
P.O. Box 972
Cortez, Florida 33522

Mr. Vic Dunnaway
Florida Sportsman
2701 S. Bayshore Drive
Miami, Florida 33133

Islamorada Fishing Guides
Association, Inc.
P.O. Box 936
Islamorada, Florida 33036

Miami Sportfishing Club
P.O. Box 610965
North Miami, Florida 33161

Mr. Bob Walters
Everglades Park Co., Inc.
Flamingo

Mr. Jim Hardie
Miami Herald Building
1 Herald Plaza
Miami, Florida 33132

South Florida Fishing News
1035 N.E. 125 Street
Miami, Florida 33181

Mr. John Wood
South Dade News Leader
30090 S.W. 147 Avenue
Leisure City, Florida 33030

Mr. Rick Berry
Outdoors Editor, Florida Keys Angler
P.O. Box 33
Key Largo, Florida 33037

South Dade Anglers
13101 S.W. 105 Avenue
Miami, Florida 33176

Miami Beach Rod and Reel Club
208 Hibiscus Island
Miami Beach, Florida 33139

Florida Department of Natural Resources
Marine Research Laboratory
100 Eighth Avenue S.E.
St. Petersburg, Florida

1. Sportfishing

Sportfishing reports include the total number of fish caught, the total number of fishing boats in the park, and a summary of the fishermen's skill, fish species preference, residence, and party size. The reports use a tabular form to summarize fishing effort and total catch of gray snapper, spotted seatrout, red drum, and snook caught by each of the skill groups. The following steps explain the preparation of the sportfishing reports.

a. Edit field sheets at the end of each quarter for recording errors.

Common mistakes: Duplicate interview numbers and summation of total catch.

b. Mail field data sheets to:

Ms. Vera Martin
National Park Service Finance Office
1895 Phoenix Boulevard
Atlanta, Georgia 30349
Phone: FTS 260-9330

These data sheets and the resultant key punched cards are returned to Everglades National Park.

c. The information for the sportfish quarterly reports is retrieved by editing the stored ERIS query FISHRPT1 (process for listing and editing ERIS queries, Section V. A.). The format for this quarterly report is shown in the example in Appendix E. It consists of a narrative statement with blanks to be filled in, and two tables to be completed. The first table to be completed lists the total number of fish caught in the park by the four skill categories of fishermen, and the total number of gray snapper, spotted seatrout, red drum, and snook caught by each of the skill groups. Each species' percentage of the total catch by each type of fisherman is indicated in parenthesis. To complete Table 2, the current catch rates are added to their respective columns, thereby extending the period of record.

The variables needed to complete this report are:

i. Number of fishermen in the park*

ii. Number of boats in the park*

iii. Number of fish caught by sport fishermen*

iv. Percentage of the fishermen who caught no fish+

v. Mean length of time spent fishing on each trip+

vi. Mean number of fish caught by the entire party on each trip+

vii. Percentage fishermen living in local, south Florida, or other areas+

viii. Percentage of fishermen classified as novice, skilled, family, or "food" fishermen+

ix. Percentage of fishermen with no species preference+

x. Species most preferred by fishermen+

xi. Percentage of fishermen who preferred species named in item 10+

xii. Species and percentage of the three next most preferred species, listed in descending order of preference+

xiii. Catch rates for each species and all fish by skill type+

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*Calculated
+From ERIS query FISHRPT1

d. To obtain the total number of boats in the park for the quarter, add the three monthly total figures (Section VI, B.).

e. To obtain the number of fishermen in the park use the formula:

t x p x a = f

where:

t = total boats in the park

p = percentage of total boats that are fishing boats

a = mean party size

f = fishermen in the park.

The percentage of boats in the park that are engaged in fishing was determined by aerial surveys and was different seasonally: in the summer 92% were fishing and in the winter 86% were fishing.

f. To obtain the successful man-hours fished use the formula:

a x b x c = M

where:

a = mean party size

b = successful interviews

c = mean hours fished

M = successful man-hrs fished.

g. To estimate the total number of fish of each species caught by each skill category, use the formula:

$$\frac{M \times p \times r}{b} = N$$

where:

M = successful man-hours fished

p = number of parties catching each species by skill code

b = Total number of successful interviews

r = catch rate for species by skill code

N = estimated total number fish of each species by skill code for Everglades National Park

h. Percentages are obtained by dividing the species totals by the total fish for each type of fisherman.

2. Commercial Fishing

The format of this report consists of a list of the commercial fishermen who reported their activities, their respective park permit numbers, and the number of days of fishing each reported. There is also a summary of the reported and estimated total catch, in both numbers and weight of fish and stone crab claws, and a description of the fishing activity by area.

The fishing effort by professional guides for red drum, gray snapper, spotted seatrout, and snook are tabulated. The number and type of fishermen contacted on the water by Park Rangers is also reported. The following steps explain the preparation of the commercial fishing reports:

a. Transcribe catch reports received from the fishermen onto standard format sheets (Figs. 5 and 6) using appropriate codes (Appendices A and C).

b. Edit data sheets two weeks after the end of each quarter for transcribing errors. Common mistake: Duplicate permit number and date. Note: All data fields need not be filled as this is a combined form for all types of commercial fishermen.

c. Mail completed data sheets to:

Ms. Vera Martin
National Park Service Finance Office
1895 Phoenix Boulevard
Atlanta, Georgia 30349

The data sheets and the resultant key punched cards are returned to Everglades National Park.

d. The information for the commercial quarterly reports is retrieved by editing the stored ERIS query FISHRPT2 .

The variables needed to complete the commercial report are:

i. Number of trips reported by each permittee

ii. Total number of permitees reporting, by type

iii. Number of trips reported by each permit type.

iv. Total trips reported

v. Total fish kept

vi. Catch rate for each species and all species combined by permit type

vii. Mean weight for each species

viii. Total weight for each species

ix. Total weight for all fish and crabs

x. Total number of trap nights fished

xi. Mean weight of claws caught per trap night

xii. Total number of trips reported for each area

Field checks by Park Rangers are used to evaluate the degree of compliance by commercial fishermen and professional guides in reporting their catches. Rangers on boat patrols report sightings and contacts with permittees. The dates, areas, and catches (when available) reported by the Rangers are compared with the fishing activity reported by the fishermen. Nearly 600 Ranger-reported contacts from July 1971 to July 1975 showed that most of the permittees who were observed fishing in the park reported their catches accurately. Further, it was apparent that fishermen who did not report their catches were consistent in their non-compliance. Therefore, the total commercial and guide catch was estimated from the reported catch by assuming that the non-reporting fishermen were catching and fishing at the same rates as the reporting fishermen, and adjusting the reported catch by the percentage of the fishermen observed by Rangers in the park who do not report their catches.

3. Fishery Status Report

The fishery status reports combine the sportfishing and commercial fishing data in a creative manner to report the status of the total park fishery and note recent trends (Appendices G and J).

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APPENDIX A. Input Codes for all Species of Fish and Common Invertebrates Caught in Everglades National Park

Invertebrates

Code	Family
01	Penaeidae (Shrimp)
10	Ostredae (oysters)
12	Palinuridae (spiny lobsters)
25	Portunidae (swimming crabs)
27	Xanthidae (mud crabs)

Fishes

Code	Family
01	Acanthuridae (surgeonfishes)
02	Albulidae (bonefishes)
03	Amiidae (bowfins)
04	Anguillidae (freshwater eels)
05	Antennariidae (frogfishes)
06	Aphredoderidae (pirate perches)
07	Apogonidae (cardinalfishes)
08	Ariidae (sea catfishes)
09	Atherinidae (silversides)
10	Aulostomidae (trumpetfishes)
11	Balistidae (triggerfishes and filefishes)
12	Batrachoididae (toadfishes)
13	Belonidae (needlefishes)
14	Blenniidae (combtooth blennies)
15	Bothidae (lefteye flounders)
16	Branchiostegidae (tilefishes)
17	Callionymidae (dragonets)
18	Carangidae (jacks and pompanos)
19	Carcharhinidae (requiem sharks)
20	Catostomidae (suckers)
21	Centrarchidae (sunfishes)
22	Centropomidae (snooks)
23	Chaetodontidae (butterflyfishes)
24	Cichlidae (cichlids)
25	Cirrhitidae (hawkfishes)
26	Clariidae (airbreathing catfishes)
27	Clinidae (clinids)
28	Clupeidae (herrings)
29	Congridae (conger eels)
30	Coryphaenidae (dolphins)
31	Cynoglossidae (tonguefishes)
32	Cyprinidae (minnows and carps)
33	Cyprinodontidae (killifishes)

34 Cactyloscopidae (sand stargazers)
35 Dasyatidae (stingrays)
36 Diodontidae (porcupinefishes)
37 Echeneidae (remoras)
38 Eleotridae (sleepers)
39 Elopidae (tarpons)
40 Engraulidae (anchovies)
41 Ephippidae (spadefishes)
42 Esocidae (pikes)
43 Exocoetidae (flyingfishes and halfbeaks)
44 Fistulariidae (cornetfishes)
45 Gerreidae (mojarras)
46 Gobiesocidae (clingfishes)
47 Gobiidae (gobies)
48 Grammistidae (soapfishes)
49 Holocentridae (squirrelfishes)
50 Ictaluridae (freshwater catfishes)
51 Istiophoridae (billfishes)
52 Kyphosidae (sea chubs)
53 Labridae (wrasses)
54 Lamnidae (mackerel sharks)
55 Lepisosteidae (gars)
56 Lobotidae (tripletails)
57 Loricariidae (armored catfishes)
58 Lutjanidae (snappers)
59 Mobulidae (mantas)
60 Molidae (molas)
61 Mugilidae (mullets)
62 Mullidae (goatfishes)
63 Muraenidae (morays)
64 Myliobatidae (eagle rays)
65 Ogcocephalidae (batfishes)
66 Ophichthidae (snake eels)
67 Ophidiidae (cusk-eels and brotulas)
68 Opistognathidae (jawfishes)
69 Orectolobidae (carpet sharks)
70 Ostraciidae (boxfishes)
71 Pempheridae (sweepers)
72 Percidae (perches)
73 Pleuronectidae (righteye flounders)
74 Poeciliidae (livebearers)
75 Polynemidae (threadfins)
76 Pomacentridae (damselfishes)
77 Pomadasyidae (grunts)
78 Pomatomidae (bluefishes)
79 Priacanthidae (bigeyes)
80 Pristidae (sawfishes)
81 Rachycentridae (cobias)
82 Rajidae (skates)
83 Rhinobatidae (guitarfishes)
84 Scaridae (parrotfishes)
85 Sciaenidae (drums)

86	Scombridae (mackerels and tunas)
87	Scorpaenidae (scorpionfishes)
88	Serranidae (sea basses)
89	Soleidae (soles)
90	Sparidae (porgies)
91	Sphyraenidae (barracudas)
92	Sphyriindae (hammerhead sharks)
93	Stromateidae (butterfishes)
94	Syngnathidae (pipefishes and seahorses)
95	Synodontidae (lizardfishes)
96	Tetraodontidae (puffers)
97	Triglidae (searobins)
98	Uranoscopidae (stargazers)
99	Xiphiidae (swordfishes)

Code	Common Name	Scientific Name
	01 - Penaeidae	
0132	Pink shrimp	Penaeus duorarum
	10 - Ostredae	
1001	Eastern oyster	Crassostrea virginica
	12 - Palinuridae	
1211	spiny lobster	Panulirus argus
	25 - Portunidae	
2532	Blue crab	Callinectes sapidus
	27 - Xanthidae	
2740	Stone crab	Minippe mercenaria
	69 - Orectolobidae - carpet sharks	
6901	Nurse shark	Ginglymostoma cirratum
	54 - Lamnidae - mackerel sharks	
5401	White shark	Carcharodon carcharias
5402	Basking shark	Cetorhinus maximus
5403	Shortfin mako	Isurus oxyrinchus
5404	Porbeagle	Lamna nasus
	19 - Carcharhinidae - requiem sharks	
1901	Finetooth shark	Aprionodon isodon
1902	Blacknose shark	Carcharhinus acronotus
1903	Bignose shark	Carcharhinus altimus
1904	Silky shark	Carcharhinus falciformis
1905	Bull shark	Carcharhinus leucas
1906	Blacktip shark	Carcharhinus limbatus
1907	Oceanic whitetip shark	Carcharhinus longimanus
1908	Spinner shark	Carcharhinus maculipinnis
1909	Sandbar shark	Carcharhinus milberti
1910	Dusky shark	Carcharhinus obscurus
1911	Smalltail shark	Carcharhinus porosus
1912	Reef shark	Carcharhinus springeri
1913	Tiger shark	Galeocerdo cuvieri

1914	Night shark	Hypoprion signatus
1915	Smooth dogfish	Mustelus canis
1916	Florida smoothhound	Mustelus norrisi
1917	Lemon shark	Negaprion brevirostris
1918	Blue shark	Prionace glauca
1919	Atlantic sharpnose shark	Rhizoprionodon terraenovae

92 - Sphyrnidae - hammerhead sharks

9201	Scalloped hammerhead	Sphyrna lewini
9202	Great hammerhead	Sphyrna mokarran
9203	Bonnethead	Sphyrna tiburo
9204	Smalleye hammerhead	Sphyrna tudes
9205	Smooth hammerhead	Sphyrna zygaena

80 - Pristidae - sawfishes

8001	Smalltooth sawfish	Pristis pectinata
8002	Largetooth sawfish	Pristis perotteti

83 - Rhinobatidae - guitarfishes

8301	Atlantic guitarfish	Rhinobatos lentiginosus

82 - Rajidae - skates

8201	Ocellate skate	Raja ackleyi
8202	Clearnose skate	Raja eglanteria
8203	Little skate	Raja erinacea
8204	Rosette skate	Raja garmani
8205	Barndoor skate	Raja laevis
8206	Freckled skate	Raja lentiginosa
8207	Winter skate	Raja ocellata
8208	Spreadfin skate	Raja olseni
8209	Thorny skate	Raja radiata
8210	Smooth skate	Raja senta
8211	Spinytail skate	Raja spinicauda
8212	Roundel skate	Raja texana

35 - Dasyatidae - stingrays

3501	Southern stingray	Dasyatis americana
3502	Roughtail stingray	Dasyatis centroura
3503	Atlantic stingray	Dasyatis sabina
3504	Bluntnose stingray	Dasyatis sayi
3505	Pelagic stingray	Dasyatis violacea
3506	Spiny butterfly ray	Gymnura altavela
3507	Smooth butterfly ray	Gymnura micrura
3508	Yellow stingray	Urolophus jamaicensis

64 - Myliobatidae - eagle rays

6401	Spotted eagle ray	Aetobatus narinari
6402	Bullnose ray	Myliobatis freminvillei
6403	Southern eagle ray	Myliobatis goodei
6404	Cownose ray	Rhinoptera bonasus

59 - Mobulidae - mantas

5901	Atlantic manta	Manta birostris
5902	Devil ray	Mobula hypostoma

55 - Lepisosteidae - gars

5501	Spotted gar	Lepisosteus oculatus
5502	Longnose gar	Lepisosteus osseus
5503	Shortnose gar	Lepisosteus platostomus
5504	Florida gar	Lepisosteus platyrhincus
5505	Alligar gar	Lepisosteus spatula

03 - Amiidae - bowfins

0301	Bowfin	Amia calva

39 - Elopidae - tarpons

3901	Ladyfish	Elops saurus
3902	Tarpon	Megalops atlantica

04 - Anguillidae - freshwater eels

0401	American eel	Anguilla rostrata

63 - Muraenidae - morays

6301	Pygmy moray	Anarchias yoshiae
6302	Chain moray	Echidna catenata
6303	Viper moray	Enchelycore nigricans
6304	Green moray	Gymnothorax funebris
6305	Spotted moray	Gymnothorax moringa
6306	Blackedge moray	Gymnothorax nigromarginatus
6307	Purplemouth moray	Gymnothorax vicinus
6308	Goldentail moray	Muraena miliaris
6309	Reticulate moray	Muraena retifera
6310	Marbled moray	Uropterygius diopus

29 - Congridae - conger eels

2901	Bandtooth conger	Ariosoma impressa
2902	Conger eel	Conger oceanicus
2903	Manytooth conger	Conger triporiceps
2904	Yellow conger	Congrina flava
2905	Whiptail conger	Congrina gracilior
2906	Slender pike eel	Neoconger mucronatus
2907	Garden eel	Nystactichthys halis
2908	Margintail conger	Paraconger caudilimbatus

66 - Ophichthidae - snake eels

6601	Key worm eel	Ahlia egmontis
6602	Stripe eel	Aprognathodon platyventris
6603	Whip eel	Bascanichthys scuticaris
6604	Sooty eel	Bascanichthys teres
6605	Blotched snake eel	Callechelys muraena
6606	Shorttail snake eel	Callechelys perryae
6607	Slantlip eel	Caralophia loxochila
6608	Ridgefin eel	Cryptopterygium holochroma
6609	Horsehair eel	Gordiichthys irretitus
6610	Thread eel	Gordiichthys springeri
6611	Sailfin eel	Letharchus velifer
6612	Sharptail eel	Myrichthys acuminatus
6613	Goldspotted eel	Myrichthys oculatus
6614	Speckled worm eel	Myrophis punctatus
6615	Spotted spoon-nose eel	Mystriophis intertinctus
6616	Snapper eel	Mystriophis mordax
6617	Stippled spoon-nose eel	Mystriophis punctifer
6618	Shrimp eel	Ophichthus gomesi
6619	Blackpored eel	Ophichthus melanoporus
6620	Palespotted eel	Ophichthus ocellatus
6621	Spotted snake eel	Ophichthus ophis
6622	Surf eel	Sphagebranchus ophioneus
6623	Academy eel	Verma ansp
6624	Finless eel	Verma kendalli

28 - Clupeidae - herrings

2801	Blueback herring	Alosa aestivalis
2802	Alabama shad	Alosa alabamae
2803	Skipjack herring	Alosa chrysochloris
2804	Hickory shad	Alosa mediocris
2805	Alewife	Alosa pseudoharengus
2806	American shad	Alosa sapidissima
2807	Finescale menhaden	Brevoortia gunteri
2808	Gulf menhaden	Brevoortia patronus
2809	Yellowfin menhaden	Brevoortia smithi
2810	Atlantic menhaden	Brevoortia tyrannus

2811	Atlantic herring	Clupea harengus harengus
2812	Gizzard shad	Dorosoma cepedianum
2813	Threadfin shad	Dorosoma petenense
2814	Round herring	Etrumeus teres
2815	False pilchard	Harengula clupeola
2816	Redear sardine	Harengula humeralis
2817	Scaled sardine	Harengula pensacolae
2818	Dwarf herring	Jenkinsia lamprotaenia
2819	Little-eye herring	Jenkinsia majua
2820	Shortband herring	Jenkinsia stolifera
2821	Atlantic thread herring	Opisthonema oglinum
2822	Spanish sardine	Sardinella anchovia
2823	Orangespot sardine	Sardinella brasiliensis

40 - Engraulidae - anchovies

4001	Key anchovy	Anchoa cayorum
4002	Cuban anchovy	Anchoa cubana
4003	New Jersey anchovy	Anchoa duodecim
4004	Striped anchovy	Anchoa hepsetus
4005	Bigeye anchovy	Anchoa lamprotaenia
4006	Dusky anchovy	Anchoa lyolepis
4007	Bay anchovy	Anchoa mitchilli
4008	Longnose anchovy	Anchoa nasuta
4009	Flat anchovy	Anchoviella perfasciata
4010	Camiguana anchovy	Engraulis estauquae
4011	Silver anchovy	Engraulis eurystole

42 - Esocidae - pikes

4201	Redfin pickerel	Esox americanus americanus
4202	Grass pickerel	Esox americanus vermiculatus
4203	Chain pickerel	Esox niger

95 - Synodontidae - lizardfishes

9501	Largescale lizardfish	Saurida brasiliensis
9502	Smallscale lizardfish	Saurida caribbaea
9503	Shortjaw lizardfish	Saurida normani
9504	Inshore lizardfish	Synodus foetens
9505	Sand diver	Synodus intermedius
9506	Offshore lizardfish	Synodus poeyi
9507	Red lizardfish	Synodus synodus
9508	Snakefish	Trachinocephalus myops

32 - Cyprinidae - minnows and carps

3201	Golden shiner	Notemigonus crysoleucas
3202	Ironcolor shiner	Notropis chalybaeus
3203	Pugnose minnow	Notropis emilae
3204	Taillight shiner	Notropis maculatus
3205	Coastal shiner	Notropis petersoni

20 - Catostomidae - suckers

2001	River carpsucker	Carpiodes carpio
2002	Quillback	Carpiodes cyprinus
2003	Highfin carpsucker	Carpiodes velifer
2004	Longnose sucker	Catostomus catostomus
2005	Bridge lip sucker	Castostomus columbianus
2006	White sucker	Catostomus commersoni
2007	Bluehead sucker	Catostomus discobolus
2008	Webug sucker	Catostomus fecundus
2009	Flannelmouth sucker	Catostomus latipinnis
2010	Lost River sucker	Catostomus luxatus
2011	Largescale sucker	Catostomus macrocheilus
2012	Modoc sucker	Catostomus microps
2013	Klamath smallscale sucker	Catostomus rimiculus
2014	Klamath largescale sucker	Catostomus snyderi
2015	Warner sucker	Catostomus warnerensis
2016	Shortnose sucker	Chasmistes brevirostris
2017	Cui-ui	Chasmistes cujus
2018	June sucker	Chasmistes liorus
2019	Blue sucker	Cycleptus elongatus
2020	Creek chubsucker	Erimyzon oblongus
2021	Lake chubsucker	Erimyzon sucetta
2022	Sharpfin chubsucker	Erimyzon tenuis
2023	Alabama hog sucker	Hypentelium etowanum
2024	Northern hog sucker	Hypentelium nigricans
2025	Roanoke hog sucker	Hypentelium roanokense
2026	Smallmouth buffalo	Ictiobus bubalus
2027	Bigmouth buffalo	Ictiobus cyprinellus
2028	Black Buffalo	Ictiobus niger
2029	Harelip sucker	Lagochila lacera
2030	Spotted sucker	Minytrema melanops
2031	Silver redhorse	Moxostoma anisurum
2032	Bigeye jumprock	Moxostoma ariommum
2033	Blackfin sucker	Moxostoma atripinne
2034	River redhorse	Moxostoma carinatum
2035	Black jumprock	Moxostoma cervinum
2036	Gray redhorse	Moxostoma congestum
2037	Black redhorse	Moxostoma duquesnei
2038	Golden redhorse	Moxostoma erythrurum
2039	Rustyside sucker	Moxostoma hamiltoni
2040	Copper redhorse	Moxostoma hubbsi
2041	Greater jumprock	Moxostoma lachneri
2042	Shorthead redhorse	Moxostoma macrolepidotum
2043	Suckermouth redhorse	Moxostoma pappillosum
2044	Blacktail redhorse	Moxostoma poecilurum
2045	Torrent sucker	Moxostoma rhothoecum
2046	Smallfin redhorse	Moxostoma robustum
2047	Striped jumprock	Moxostoma rupiscartes
2048	Greater redhorse	Moxostoma valenciennesi
2049	Humpback sucker	Xyrauchen texanus

50 - Ictaluridae - freshwater catfishes

5001	Snail bullhead	Ictalurus brunneus
5002	White catfish	Ictalurus catus
5003	Blue catfish	Ictalurus furcatus
5004	Headwater catfish	Ictalurus lupus
5005	Black bullhead	Ictalurus melas
5006	Yellow bullhead	Ictalurus natalis
5007	Brown bullhead	Ictalurus nebulosus
5008	Flat bullhead	Ictalurus platycephalus
5009	Yaqui catfish	Ictalurus pricei
5010	Channel catfish	Ictalurus punctatus
5011	Spotted bullhead	Ictalurus serracanthus
5012	Ozark madtom	Noturus albater
5013	Smoky madtom	Noturus baileyi
5014	Elegant madtom	Noturus elegans
5015	Slender madtom	Noturus exilis
5016	Checkered madtom	Noturus flavater
5017	Yellowfin madtom	Noturus flavipinnis
5018	Stonecat	Noturus flavus
5019	Black madtom	Noturus funebris
5020	Carolina madtom	Noturus furiosus
5021	Orangefin madtom	Noturus gilberti
5022	Tadpole madtom	Noturus gyrinus
5023	Least madtom	Noturus hildebrandi
5024	Margined madtom	Noturus insignis
5025	Ouachita madtom	Noturus lachneri
5026	Speckled madtom	Noturus leptacanthus
5027	Brindled madtom	Noturus miurus
5028	Frecklebelly madtom	Noturus munitus
5029	Freckled madtom	Noturus nocturnus
5030	Brown madtom	Noturus phaeus
5031	Neosho madtom	Noturus placidus
5032	Northern madtom	Noturus stigmosus
5033	Scioto madtom	Noturus trautmani
5034	Flathead catfish	Pylodictis olivaris

26 - Clariidae - airbreathing catfishes

2061	Walking catfish	Clarias batrachus

08 - Ariidae - sea catfishes

0801	Sea catfish	Arius felis
0802	Gafftopsail catfish	Bagre marinus

57 - Loricariidae - armored catfishes

5701		Hypostomus sp. (I)

06 - Aphredoderidae - pirate perches

0601	Pirate perch	Aphredoderus sayanus

12 - Batrachoididae - toadfishes

1201	Gulf toadfish	Opsanus beta
1202	Leopard toadfish	Opsanus pardus
1203	Oyster toadfish	Opsanus tau
1204	Atlantic midshipman	Porichthys porosissimus

46 - Gobiesocidae - clingfishes

4601	Emerald clingfish	Acyrtops beryllina
4062	Stippled clingfish	Gobiesox punctulatus
4603	Skilletfish	Gobiesox strumosus

05 - Antennariidae - frogfishes

0501	Longlure frogfish	Antennarius multiocellatus
0502	Ocellated frogfish	Antennarius ocellatus
0503	Dwarf frogfish	Antennarius pauciradiatus
0504	Singlespot frogfish	Antennarius radiosus
0505	Splitlure frogfish	Antennarius scaber
0506	Sargassumfish	Histrio histrio

65 - Ogcocephalidae - batfishes

6501	Pancake batfish	Halieutichthys aculeatus
6052	Shortnose batfish	Ogcocephalus nasutus
6503	Roughback batfish	Ogcocephalus parvus
6504	Polka-dot batfish	Ogcocephalus radiatus
6505	Longnose batfish	Ogcocephalus vespertilio
6506	Tricorn batfish	Zalieutes mcgintyi

67 - Ophidiidae - cusk-eels and brotulas

6701	Bearded brotula	Brotula barbata
6702	Gold brotula	Gunterichthys longipenis
6703	Fawn cusk-eel	Lepophidium cervinum
6704	Blackedge cusk-eel	Lepophidium graellsi
6705	Mottled cusk-eel	Lepophidium jeannae
6706	Key brotula	Ogilbia cayorum
6707	Reef-cave brotula	Oligopus claudei
6708	Longnose cusk-eel	Ophidion beani
6709	Blotched cusk-eel	Ophidion grayi
6710	Bank cusk-eel	Ophidion holbrooki

6711	Mooneye cusk-eek	Ophidion selenops
6712	Crested cusk-eel	Ophidion welshi
6713	Sleeper cusk-eel	Otophidium dormitator
6714	Polka-dot cusk-eel	Otophidium omostigmum
6715	Dusky cusk-eel	Parophidion schmidti
6716	Redfin brotula	Petrotyx sanguineus
6717	Striped cusk-eel	Rissola marginata
6718	Black brotula	Stygnobrotula latebricola

43 - Exocoetidae - flyingfishes and halfbeaks

4301	Hardhead halfbeak	Chriodorus atherinoides
4302	Clearwing flyingfish	Cypselurus comatus
4303	Margined flyingfish	Cypselurus cyanopterus
4304	Bandwing flyingfish	Cypselurus exsiliens
4305	Spotfin flyingfish	Cypselurus furcatus
4306	Atlantic flyingfish	Cypselurus heterurus
4307	Flying halfbeak	Euleptorhamphus velox
4308	Oceanic two-wing flyingfish	Exocoetus obtusirostris
4309	Tropical two-wing flyingfish	Exocoetus volitans
4310	Balao	Hemiramphus balao
4311	Ballyhoo	Hemiramphus brasiliensis
4312	Fourwing flyingfish	Hirundichthys affinis
4313	Blackwing flyingfish	Hirundichthys rondeleti
4314	Halfbeak	Hyporhamphus unifasciatus
4315	Smallwing flyingfish	Oxyporhamphus micropterus
4316	Sailfin flyingfish	Parexocoetus brachypterus
4317	Bluntnose flyingfish	Prognichthys gibbifrons

13 - Belonidae - needlefishes

1301	Flat needlefish	Ablennes hians
1302	Keeltail needlefish	Platybelone argalus
1303	Atlantic needlefish	Strongylura marina
1304	Redfin needlefish	Strongylura notata
1305	Timucu	Strongylura timucu
1306	Agujon	Tylosurus acus
1307	Houndfish	Tylosurus crocodilus

33 - Cyprinodontidae - killifishes

3301	Diamond killifish	Adinia xenica
3302	White River killifish	Crenichthys baileyi
3303	Railroad Valley killifish	Crenichthys nevadae
3304	Lake Eustis minnow	Cyprinodon hubbsi
3305	Sheepshead minnow	Cyprinodon variegatus
3306	Pahrump killifish	Empetrichthys latos
3307	Ash Meadows killifish	Empetrichthys merriami
3308	Goldspotted killifish	Floridichthys carpio
3309	Whiteline topminnow	Fundulus albolineatus
3310	Northern studfish	Fundulus catenatus

3311	Golden topminnow	Fundulus chrysotus
3312	Banded topminnow	Fundulus cingulatus
3313	Marsh killifish	Fundulus confluentus
3314	Banded killifish	Fundulus diphanus
3315	Gulf killifish	Fundulus grandis
3316	Mummichog	Fundulus heteroclitus
3317	Saltmarsh topminnow	Fundulus jenkinsi
3318	Lined topminnow	Fundulus lineolatus
3319	Spotfin killifish	Fundulus luciae
3320	Striped killifish	Fundulus majalis
3321	Blackstripe topminnow	Fundulus notatus
3322	Starhead topminnow	Fundulus notti
3323	Blackspotted topminnow	Fundulus olivaceus
3324	Bayou killifish	Fundulus pulvereus
3325	Speckled killifish	Fundulus rathbuni
3326	Plains topminnow	Fundulus sciadicus
3327	Seminole killifish	Fundulus seminolis
3328	Longnose killifish	Fundulus similis
3329	Southern studfish	Fundulus stellifer
3330	Waccamaw killifish	Fundulus waccamensis
3331	Flagfish	Jordanella floridae
3332	Pygmy killifish	Leptolucania ommata
3333	Bluefin killifish	Lucania goodei
3334	Rainwater killifish	Lucania parva
3335	Rivulus	Rivulus marmoratus

74 - Poeciliidae - livebearers

7401	Pike killifish	Belonesox belizanus
7402	Mosquitofish	Gambusia affinis
7403	Largespring gambusia	Gambusia geiseri
7404	Clear Creek gambusia	Gambusia heterochir
7405	Mangrove gambusia	Gambusia rhizophorae
7406	Blotched gambusia	Gambusia senilis
7407	Least killifish	Heterandria formosa
7408	Amazon molly	Poecilia formosa
7409	Sailfin molly	Poecilia latipinna
7410	Shortfin molly	Poecilia mexicana
7411	Guppy	Poecilia reticulata
7412	Green swordtail	Xiphophorus helleri
7413	Southern platyfish	Xiphophorus maculatus
7414	Variable platyfish	Xiphophorus variatus

09 - Atherinidae - silversides

0901	Reef silverside	Allanetta harringtonensis
0902	Hardhead silverside	Atherinomorus stipes
0903	Brook silverside	Labidesthes sicculus
0904	Rough silverside	Membras martinica
0905	Mississippi silverside	Menidia audens

0906	Tidewater silverside	Menidia beryllina
0907	Key silverside	Menidia conchorum
0908	Waccamaw silverside	Menidia extensa
0909	Atlantic silverside	Menidia menidia

49 - Holocentridae - squirrelfishes

4901	Spinycheek soldierfish	Corniger spinosus
4902	Squirrelfish	Holocentrus ascensionis
4093	Deepwater squirrelfish	Holocentrus bullisi
4904	Reef squirrelfish	Holocentrus coruscus
4905	Longjaw squirrelfish	Holocentrus marianus
4906	Longspine squirrelfish	Holocentrus rufus
4907	Dusky squirrelfish	Holocentrus vexillarius
4908	Blackbar soldierfish	Myripristis jacobus
4909	Bigeye soldierfish	Ostichthys trachypomus
4910	Cardinal soldierfish	Plectrypops retrospinis

10 - Aulostomidae - trumpetfishes

1001	Trumpetfish	Aulostomus maculatus

44 - Fistulariidae - cornetfishes

4401	Bluespotted cornetfish	Fistularia tabacaria
4402	Red cornetfish	Fistularia villosa

94 - Syngnathidae - pipefishes and seahorses

9401	Whitenose pipefish	Corythoichthys albirostris
9402	Crested pipefish	Corythoichthys brachycephalus
9403	Deepwater pipefish	Corythoichthys profundus
9404	Lined seahorse	Hippocampus erectus
9405	Offshore seahorse	Hippocampus obtusus
9406	Longsnout seahorse	Hippocampus reidi
9407	Dwarf seahorse	Hippocampus zosterae
9408	Fringed pipefish	Micrognathus crinigerus
9409	Insular pipefish	Micrognathus crinitus
9410	Banded pipefish	Micrognathus vittatus
9411	Opossum pipefish	Oostethus lineatus
9412	Pugnose pipefish	Syngnathus dunckeri
9413	Shortfin pipefish	Syngnathus elucens
9414	Dusky pipefish	Syngnathus floridae
9415	Northern pipefish	Syngnathus fuscus
9416	Dwarf pipefish	Syngnathus hildebrandi
9417	Chain pipefish	Syngnathus louisianae
9418	Sargassum pipefish	Syngnathus pelagicus
9419	Gulf pipefish	Syngnathus scovelli
9420	Bull pipefish	Syngnathus springeri

22 - Centropomidae - snooks

2201	Swordspine snook	Centropomus ensiferus
2202	Fat snook	Centropomus parallelus
2203	Tarpon snook	Centropomus pectinatus
2204	Snook	Centropomus undecimalis

88 - Serranidae - sea basses

8801	Mutton hamlet	Alphestes afer
8802	Crimson bass	Anthias asperilinguis
8803	Southern sea bass	Centropristis melana
8804	Bank sea bass	Centropristis ocyurus
8805	Rock sea bass	Centropristis philadelphica
8806	Black sea bass	Centropristis striata
8807	Coney	Cephalopholis fulva
8808	Marbled grouper	Dermatolepis inermis
8809	Dwarf sand perch	Diplectrum bivittatum
8810	Sand perch	Diplectrum formosum
8811	Rock hind	Epinephelus adscensionis
8812	Speckled hind	Epinephelus drummondhayi
8813	Yellowedge grouper	Epinephelus flavolimbatus
8814	Red hind	Epinephelus guttatus
8815	Jewfish	Epinephelus itajara
8816	Red grouper	Epinephelus morio
8817	Misty grouper	Epinephelus mystacinus
8818	Warsaw grouper	Epinephelus nigritus
8819	Snowy grouper	Epinephelus niveatus
8820	Nassau grouper	Epinephelus striatus
8821	Spanish flag	Gonioplectrus hispanus
8822	Longtail bass	Hemanthias leptus
8823	Red barbier	Hermanthias vivanus
8824	Yellowbelly hamlet	Hypoplectrus aberrans
8825	Yellowtail hamlet	Hypoplectrus chlorurus
8826	Blue hamlet	Hypoplectrus gemma
8827	Shy hamlet	Hypoplectrus guttavarius
8828	Indigo hamlet	Hypoplectrus indigo
8829	Black hamlet	Hypoplectrus nigricans
8830	Barred hamlet	Hypoplectrus puella
8831	Butter hamlet	Hypoplectrus unicolor
8832	Wrasse bass	Liopropoma eukrines
8833	Cave bass	Liopropoma mowbrayi
8834	Peppermint bass	Liopropoma rubre
8835	Black grouper	Mycteroperca bonaci
8836	Yellowmouth grouper	Mycteroperca interstitialis
8837	Gag	Mycteroperca microlepis
8838	Scamp	Mycteroperca phenax
8839	Tiger grouper	Mycteroperca tigris
8840	Yellowfin grouper	Mycteroperca venenosa

8841	Roughtongue bass	Ocyanthias martinicensis
8842	Creole-fish	Paranthias furcifer
8843	Graysby	Petrometopon cruentatum
8844	Yellowtail bass	Pikea mexicana
8845	Streamer bass	Pronotogrammus aureorubens
8846	School bass	Schultzea beta
8847	Pygmy sea bass	Serraniculus pumilio
8848	Orangeback bass	Serranus annularis
8849	Blackear bass	Serranus atrobranchus
8850	Lantern bass	Serranus baldwini
8851	Snow bass	Serranus chionaraia
8852	Saddle bass	Serranus notospilus
8853	Tattler	Serranus phoebe
8854	Belted sandfish	Serranus subligarius
8855	Tobaccofish	Serranus tabacarius
8856	Harlequin bass	Serranus tigrinus
8857	Chalk bass	Serranus tortugarum

48 - Grammistidae - soapfishes

4801	Reef bass	Pseudogrammus gregoryi
4802	Freckled soapfish	Rypticus bistrispinus
4803	Whitespotted soapfish	Rypticus maculatus
4804	Greater soapfish	Rypticus saponaceus
4805	Spotted soapfish	Rypticus subbifrenatus

21 - Centrarchidae - sunfishes

2101	Mud sunfish	Acantharchus pomotis
2102	Roanoke bass	Ambloplites cavifrons
2103	Rock bass	Ambloplites rupestris
2104	Flier	Centrarchus macropterus
2105	Everglades pygmy sunfish	Elassoma evergladei
2106	Okefenokee pygmy sunfish	Elassoma okefenokee
2107	Banded pygmy sunfish	Elassoma zonatum
2108	Blackbanded sunfish	Enneacanthus chaetodon
2109	Bluespotted sunfish	Enneacanthus gloriosus
2110	Banded sunfish	Enneacanthus obesus
2111	Redbreast sunfish	Lepomis auritus
2112	Green sunfish	Lepomis cyanellus
2113	Pumpkinseed	Lepomis gibbosus
2114	Warmouth	Lepomis gulosus
2115	Orangespotted sunfish	Lepomis humilis
2116	Bluegill	Lepomis macrochirus
2117	Dollar sunfish	Lepomis marginatus
2118	Longear sunfish	Lepomis megalotis
2119	Redear sunfish	Lepomis microlophus
2120	Spotted sunfish	Lepomis punctatus

2121	Bantam sunfish	Lepomis symmetricus
2122	Redeye bass	Micropterus coosae
2123	Smallmouth bass	Micropterus dolomieui
2124	Suwannee bass	Micropterus notius
2125	Spotted bass	Micropterus punctulatus
2126	Largemouth bass	Micropterus salmoides
2127	White crappie	Pomoxis annularis
2128	Black crappie	Pomoxis nigromaculatus

72 - Percidae - perches

7201	Swamp darter	Etheostoma fusiforme

72 - Priacanthidae - bigeyes

7901	Bulleye	Cookeolus boops
7902	Bigeye	Priacanthus arenatus
7903	Glasseye snapper	Priacanthus cruentatus
7904	Short bigeye	Pristigenys alta

07 - Apogonidae - cardinalfishes

0701	Bigtooth cardinalfish	Apogon affinis
0702	Bridle cardinalfish	Apogon aurolineatus
0703	Barred cardinalfish	Apogon binotatus
0704	Whitestar cardinalfish	Apogon lachneri
0705	Flamefish	Apogon maculatus
0706	Mimic cardinalfish	Apogon phenax
0707	Broadsaddle cardinalfish	Apogon pillionatus
0708	Pale cardinalfish	Apogon planifrons
0709	Twospot cardinalfish	Apogon pseudomaculatus
0710	Sawcheek cardinalfish	Apogon quadrisquamatus
0711	Belted cardinalfish	Apogon townsendi
0712	Bronze cardinalfish	Astrapogon alutus
0713	Blackfin cardinalfish	Astrapogon puncticulatus
0714	Conchfish	Astrapogon stellatus
0715	Freckled cardinalfish	Phaeoptyx conklini
0716	Dusky cardinalfish	Phaeoptyx pigmentaria
0717	Sponge cardinalfish	Phaeoptyx xenus
0718	Blackmouth cardinalfish	Synagrops bella

16 - Branchiostegidae - tilefishes

1601	Blackline tilefish	Caulolatilus cyanops
1602	Tilefish	Lopholatilus chamaeleonticeps
1603	Sand tilefish	Malacanthus plumieri

78- Pomatomidae - bluefishes

7801	Bluefish	Pomatomus saltatrix

81 - Rachycentridae - cobias

8101	Cobia	Rachycentron canadum

37 - Echeneidae - remoras

3701	Sharksucker	Echeneis naucrates
3702	Whitefin sharksucker	Echeneis neucratoides
3703	Slender suckerfish	Phtheirichthys lineatus
3704	Whalesucker	Remora australis
3705	Spearfish remora	Remora brachyptera
3706	Marlinsucker	Remora osteochir
3707	Remora	Remora remora
3708	White suckerfish	Remorina albescens

18 - Carangidae - jacks and pompanos

1801	African pompano	Alectis crinitus
1802	Yellow jack	Caranx bartholomaei
1803	Blue runner	Caranx crysos
1804	Crevalle jack	Caranx hippos
1805	Horse-eye jack	Caranx latus
1806	Black jack	Caranx lugubris
1807	Bar jack	Caranx ruber
1808	Atlantic bumper	Chloroscombrus chrysurus
1809	Mackerel scad	Decapterus macarellus
1810	Round scad	Decapterus punctatus
1811	Redtail scad	Decapterus tabl
1812	Rainbow runner	Elagatis bipinnulata
1813	Bluntnose jack	Hemicaranx amblyrhynchus
1814	Pilotfish	Naucrates ductor
1815	Leatherjacket	Oligoplites saurus
1816	Bigeye scad	Selar crumenophthalmus
1817	Lookdown	Selene vomer
1818	Greater amberjack	Seriola dumerili
1819	Lesser amberjack	Seriola fasciata
1820	Almaco jack	Seriola rivoliana
1821	Banded rudderfish	Seriola zonata
1822	Florida pompano	Trachinotus carolinus
1823	Permit	Trachinotus falcatus
1824	Palometa	Trachinotus goodei
1825	Rough scad	Trachurus lathami
1826	Cottonmouth jack	Uraspis secunda
1827	Atlantic moonfish	Vomer setapinnis

30 - Coryphaenidae - dolphins

3001	Pompano dolphin	Coryphaena equisetis
3002	Dolphin	Coryphaena hippurus

58 - Lutjanidae - snappers

5801	Black snapper	Apsilus dentatus
5802	Queen snapper	Etelis oculatus
5803	Mutton snapper	Lutjanus analis
5804	Schoolmaster	Lutjanus apodus
5805	Blackfin snapper	Lutjanus buccanella
5806	Red snapper	Lutjanus campechanus
5807	Cubera snapper	Lutjanus cyanopterus
5808	Gray snapper	Lutjanus griseus
5809	Dog snapper	Lutjanus jocu
5810	Mahogany snapper	Lutjanus mahogoni
5811	Lane snapper	Lutjanus synagris
5812	Silk snapper	Lutjanus vivanus
5813	Yellowtail snapper	Ocyurus chrysurus
5814	Wenchman	Pristipomoides aquilonaris
5815	Vermilion snapper	Rhomboplites aurorubens

56 - Lobotidae - tripletails

5601	Tripletail	Lobotes surinamensis

45 - Gerreidae - mojarras

4501	Irish pompano	Diapterus olisthostomus
4502	Striped mojarra	Diapterus plumieri
4503	Spotfin mojarra	Eucinostomus argenteus
4504	Silver jenny	Eucinostomus gula
4505	Bigeye mojarra	Eucinostomus havana
4506	Mottled mojarra	Eucinostomus lefroyi
4507	Flagfin mojarra	Eucinostomus melanopterus
4508	Slender mojarra	Eucinostomus pseudogula
4509	Yellowfin mojarra	Gerres cinereus

77 - Pomadasyidae - grunts

7701	Black margate	Anisotremus surinamensis
7702	Porkfish	Anisotremus virginicus
7703	Barred grunt	Conodon nobilis
7704	Margate	Haemulon album
7705	Tomtate	Haemulon aurolineatum
7706	Black grunt	Haemulon bonariense
7707	Caesar grunt	Haemulon carbonarium
7708	Smallmouth grunt	Haemulon chrysargyreum
7709	French grunt	Haemulon flavolineatum
7710	Spanish grunt	Haemulon macrostomum
7711	Cottonwick	Haemulon melanurum
7712	Sailors choice	Haemulon parrai
7713	White grunt	Haemulon plumieri
7714	Bluestriped grunt	Haemulon sciurus
7715	Striped grunt	Haemulon striatum
7716	Pigfish	Orthopristis chrysoptera
7717	Burro grunt	Pomadasys crocro

90 - Sparidae - porgies

9001	Sheepshead	Archosargus probatocephalus
9002	Sea bream	Archosargus rhomboidalis
9003	Grass porgy	Calamus arctifrons
9004	Jolthead porgy	Calamus bajonado
9005	Saucereye porgy	Calamus calamus
9006	Whitebone porgy	Calamus leucosteus
9007	Knobbed porgy	Calamus nodosus
9008	Sheepshead porgy	Calamus penna
9009	Littlehead porgy	Calamus proridens
9010	Silver porgy	Diplodus argenteus
9011	Spottail pinfish	Diplodus holbrooki
9012	Pinfish	Lagodon rhomboides
9013	Red porgy	Pagrus sedecim
9014	Longspine porgy	Stenotomus caprinus
9015	Scup	Stenotomus chrysops

85 - Sciaenidae - drums

8501	Freshwater drum	Aplodinotus grunniens
8502	Blue croaker	Bairdiella batabana
8503	Silver perch	Bairdiella chrysura
8504	Striped croaker	Bairdiella sanctaeluciae
8505	Sand seatrout	Cynoscion arenarius
8506	Spotted seatrout	Cynoscion nebulosus
8707	Silver seatrout	Cynoscion nothus
8508	Weakfish	Cynoscion regalis
8509	High-hat	Equetus acuminatus
8510	Jackknife-fish	Equetus lanceolatus
8511	Spotted drum	Equetus punctatus
8512	Cubbyu	Equetus umbrosus
8513	Banded drum	Larimus fasciatus
8514	Spot	Leiostomus xanthurus
8515	Southern kingfish	Menticirrhus americanus
8516	Minkfish	Menticirrhus focaliger
8517	Gulf kingfish	Menticirrhus littoralis
8518	Northern kingfish	Menticirrhus saxatilis
8519	Atlantic croaker	Micropogon undulatus
8520	Reef croaker	Odontoscion dentex
8521	Black drum	Pogonias cromis
8522	Red drum	Sciaenops ocellata
8523	Star drum	Stellifer lanceolatus
8524	Sand drum	Umbrina coroides

62 - Mullidae - goatfishes

6201	Yellow goatfish	Mulloidchthys martinicus
6202	Red goatfish	Mullus auratus
6203	Spotted goatfish	Pseudupeneus maculatus
6204	Dwarf goatfish	Upeneus parvus

71 - Pempheridae - sweepers

7101	Glassy sweeper	Pempheris schomburgki

52 - Kyphosidae - sea chubs

5201	Yellow chub	Kyphosus incisor
5202	Bermuda chub	Kyphosus sectatrix

41 - Ephippidae - spadefishes

4101	Atlantic spadefish	Chaetodipterus faber

23 - Chaetodontidae - butterflyfishes

2301	Cherubfish	Centropyge argi
2302	Bank butterflyfish	Chaetodon aya
2303	Foureye butterflyfish	Chaetodon capistratus
2304	Spotfin butterflyfish	Chaetodon ocellatus
2305	Reef butterflyfish	Chaetodon sedentarius
2306	Banded butterflyfish	Chaetodon striatus
2307	Blue angelfish	Holacanthus bermudensis
2308	Queen angelfish	Holacanthus ciliaris
2309	Rock beauty	Holacanthus tricolor
2310	Gray angelfish	Pomacanthus arcuatus
2311	French angelfish	Pomacanthus paru
2312	Longsnout butterflyfish	Prognathodes aculeatus

24 - Cichlidae - cichlids

2401	Black acara	Cichilasoma bimaculatum
2402	Oscar	Astronotus ocellatus
2403	Rio Grande perch	Cichlasoma cyanoguttatum
2404	Convict cichlid	Cichlasoma nigrofasciatum
2405	Banded cichlid	Cichlasoma severum
2407	Blackchin mouthbrooder	Tilapia melanotheron
2408	Jack dempsey	Cichlasoma octofasciatum
2409	Firemouth	Cichlasoma meeki
2410	No common name	Tilapia mariae
2411	No common name	Tilapia aurea
2412	Mozambique mouthbrooder	Tilapia mossambica

76 - Pomacentridae - damselfishes

7601	Sergeant major	Abudefduf saxatilis
7602	Night sergeant	Abudefduf taurus
7603	Blue chromis	Chromis cyaneus
7604	Yellowtail reeffish	Chromis enchrysurus
7605	Sunshinefish	Chromis insolatus

7606	Brown chromis	Chromis multilineatus
7607	Purple reeffish	Chromis scotti
7608	Yellowtail damselfish	Microspathodon chrysurus
7609	Dusky damselfish	Pomacentrus fuscus
7610	Beaugregory	Pomacentrus leucostictus
7611	Bicolor damselfish	Pomacentrus partitus
7612	Threespot damselfish	Pomacentrus planifrons
7613	Cocoa damselfish	Pomacentrus variabilis

25 - Cirrhitidae - hawkfishes

2501	Redspotted hawkfish	Amblycirrhitus pinos

53 - Labridae - wrasses

5301	Spotfin hogfish	Bodianus pulchellus
5302	Spanish hogfish	Bodianus rufus
5303	Creole wrasse	Clepticus parrai
5304	Red hogfish	Decodon puellaris
5305	Dwarf wrasse	Doratonotus megalepis
5306	Greenband wrasse	Halichoeres bathyphilus
5307	Slippery dick	Halichoeres bivittatus
5308	Painted wrasse	Halichoeres caudalis
5309	Yellowcheek wrasse	Halichoeres cyanocephalus
5310	Yellowhead wrasse	Halichoeres garnoti
5311	Clown wrasse	Halichoeres maculipinna
5312	Rainbow wrasse	Halichoeres pictus
5313	Blackear wrasse	Halichoeres poeyi
5314	Puddingwife	Halichoeres radiatus
5315	Rosy razorfish	Hemipteronotus martinicensis
5316	Pearly razorfish	Hemipteronotus novacula
5317	Green razorfish	Hemipteronotus splendens
5318	Hogfish	Lachnolaimus maximus
5319	Tautog	Tautoga onitis
5320	Cunner	Tautogolabrus adspersus
5321	Bluehead	Thalassoma bifasciatum

84 - Scaridae - parrotfishes

8401	Bluelip parrotfish	Cryptotomus roseus
8402	Emerald parrotfish	Nicholsina usta
8403	Midnight parrotfish	Scarus coelestinus
8404	Blue parrotfish	Scarus coeruleus
8405	Striped parrotfish	Scarus croicensis
8406	Rainbow parrotfish	Scarus guacamaia
8407	Princess parrotfish	Scarus taeniopterus
8708	Queen parrotfish	Scarus vetula
8409	Greenblotch parrotfish	Sparisoma atomarium
8410	Redband parrotfish	Sparisoma aurofrenatum
8411	Redtail parrotfish	Sparisoma chrysopterum
8412	Bucktooth parrotfish	Sparisoma radians
8413	Redfin parrotfish	Sparisoma rubripinne
8414	Stoplight parrotfish	Sparisoma viride

61 - Mugilidae - mullets

6101	Mountain mullet	Agonostomus monticola
6102	Striped mullet	Mugil cephalus
6103	White mullet	Mugil curema
6104	Redeye mullet	Mugil gaimardianus
6105	Liza	Mugil liza
6106	Fantail mullet	Mugil trichodon

91 - Sphyraenidae - barracudas

9101	Great barracuda	Sphyraena barracuda
9102	Guaguanche	Sphyraena guachancho
9103	Southern sennet	Sphyraena picudilla

75 - Polynemidae - threadfins

7501	Atlantic threadfin	Polydactylus octonemus
7502	Littlescale threadfin	Polydactylus oligodon
7503	Barbu	Polydactylus virginicus

68 - Opistognathidae - jawfishes

6801	Swordtail jawfish	Lonchopisthus lindneri
6802	Yellowhead jawfish	Opistognathus aurifrons
6803	Phantom jawfish	Opistognathus cuvieri
6804	Banded jawfish	Opistognathus fasciatus
6805	Moustache jawfish	Opistognathus lonchurus
6806	Spotfin jawfish	Opistognathus macrognathus
6807	Mottled jawfish	Opistognathus maxillosus
6808	Dusky jawfish	Opistognathus whitehursti

34 - Dactyloscopidae - sand stargazers

3401	Bigeye stargazer	Dactyloscopus crossotus
3402	Sand stargazer	Dactyloscopus tridigitatus
3403	Arrow stargazer	Gillellus greyae
3404	Saddle stargazer	Gillellus rubrocinctus
3405	Warteye stargazer	Gillellus uranidea

98 - Uranoscopidae - stargazers

9801	Northern stargazer	Astroscopus guttatus
9802	Southern stargazer	Astroscopus y-graecum
9803	Freckled stargazer	Gnathagnus egregius
9804	Lancer stargazer	Kathetostoma albigutta

27 - Clinidae - clinids

2701	Roughhead blenny	Acanthemblemaria aspera
2702	Spinyhead blenny	Acanthemblemaria spinosa
2703	Yellowface pikeblenny	Chaenopsis limbaughi
2704	Bluethroat pikeblenny	Chaenopsis ocellata

2705	Banner blenny	Emblemaria atlantica
2706	Blackhead blenny	Emblemaria bahamensis
2707	Midnight blenny	Emblemaria bottomei
2708	Glass blenny	Emblemaria diaphana
2709	Sailfin blenny	Emblemaria pandionis
2710	Pirate blenny	Emblemaria piratula
2711	Lofty triplefin	Enneanectes altivelis
2712	Roughhead triplefin	Enneanectes boehlkei
2713	Redeye triplefin	Enneanectes pectoralis
2714	Wrasse blenny	Hemiemblemaria simulus
2715	Puffcheek blenny	Labrisomus bucciferus
2716	Palehead blenny	Labrisomus gobio
2717	Mimic blenny	Labrisomus guppyi
2718	Longfin blenny	Labrisomus haitiensis
2719	Downy blenny	Labrisomus kalisherae
2720	Spotcheek blenny	Labrisomus nigricinctus
2721	Hairy blenny	Labrisomus nuchipinnis
2722	Goldline blenny	Malacoctenus aurolineatus
2723	Rosy blenny	Malacoctenus macropus
2724	Saddled blenny	Malacoctenus triangulatus
2725	Coral blenny	Paraclinus cingulatus
2726	Banded blenny	Paraclinus fasciatus
2727	Horned blenny	Paraclinus grandicomis
2728	Bald blenny	Paraclinus infrons
2729	Marbled blenny	Paraclinus marmoratus
2730	Blackfin blenny	Paraclinus nigripinnis
2731	Checkered blenny	Starksia ocellata
2732	Blackbelly blenny	Stathmonotus hemphilli
2733	Eelgrass blenny	Stathmonotus stahli

14 - Blenniidae - combtooth blennies

1401	Molly miller	Blennius cristatus
1402	Seaweed blenny	Blennius marmoreus
1403	Highfin blenny	Blennius nicholsi
1404	Striped blenny	Chasmodes bosquianus
1405	Florida blenny	Chasmodes saburrae
1406	Pearl blenny	Entomacrodus nigricans
1407	Oyster blenny	Hypleurochilus aequipinnis
1408	Barred blenny	Hypleurochilus bermudensis
1409	Crested blenny	Hypleurochilus geminatus
1410	Orangespotted blenny	Hypleurochilus springeri
1411	Feather blenny	Hypsoblennius hentzi
1412	Freckled blenny	Hypsoblennius ionthas
1413	Redlip blenny	Ophioblennius atlanticus

17 Callionymidae - dragonets

1701	Spotfin dragonet	Callionymus agassizi
1702	Lancer dragonet	Callionymus bairdi
1703	Spotted dragonet	Callionymus pauciradiatus

38 - Eleotridae - sleepers

3801	Fat sleeper	Dormitator maculatus
3802	Spotted sleeper	Eleotris picta
3803	Spinycheek sleeper	Eleotris pisonis
3804	Emerald sleeper	Erotelis smaragdus
3805	Bigmouth sleeper	Gobiomorus dormitor

47 - Gobiidae - gobies

4701	River goby	Awaous tajasica
4702	Bearded goby	Farbulifer ceuthoecus
4703	Notchtongue goby	Bathygobius curacao
4704	Island frillfin	Bathygobius mystacium
4705	Frillfin goby	Bathygobius soporator
4706	White-eye goby	Bollmannia boqueronensis
4707	Ragged goby	Bollmannia communis
4708	Barfin goby	Coryphopterus alloides
4709	Colon goby	Coryphopterus dicrus
4710	Pallid goby	Coryphopterus eidolon
4711	Bridler goby	Coryphopterus glaucofraenum
4712	Glass goby	Coryphopterus hyalinus
4713	Peppermint goby	Coryphopterus lipernes
4714	Masked goby	Coryphopterus personatus
4715	Spotted goby	Coryphopterus punctipectophorus
4716	Bartail goby	Coryphopterus thrix
4717	Sponge goby	Evermannichthys spongicola
4718	Lyre goby	Evorthodus lyricus
4719	Goldspot goby	Gnatholepis thompsoni
4720	Violet goby	Gobioides broussonneti
4721	Darter goby	Gobionellus boleosoma
4722	Slim goby	Gobionellus gracillimus
4723	Sharptail goby	Gobionellus hastatus
4724	Highfin goby	Gobionellus oceanicus
4725	Dash goby	Gobionellus saepepallens
4726	Freshwater goby	Gobionellus shufeldti
4727	Emerald goby	Gobionellus smaragdus
4728	Spotfin goby	Gobionellus stigmalophius
4729	Marked goby	Gobionellus stigmaticus
4731	Naked goby	Gobiosoma bosci
4732	Seaboard goby	Gobiosoma ginsburgi
4733	Rockcut goby	Gobiosoma grosvenori
4734	yellowline goby	Gobiosoma horsti
4735	Twoscale goby	Gobiosoma longipala
4736	Tiger goby	Gobiosoma macrodon
4737	Neon goby	Gobiosoma oceanops
4738	Code goby	Gobiosoma robustum
4739	Yellowprow goby	Gobiosoma xanthiprora
4740	Paleback goby	Gobulus myersi

4741	Blue goby	Lophogobius cyprinoides
4742	Crested goby	Lophogobius cyprinoides
4743	Island goby	Lythrypnus nesiotes
4744	Convict goby	Lythrypnus phorellus
4745	Bluegold goby	Lythrypnus spilus
4746	Seminole goby	Microgobius carri
4747	Clown goby	Microgobius gulosus
4748	Banner goby	Microgobius microlepis
4749	Green goby	Microgobius thalassinus
4750	Orangespotted goby	Nes longus
4751	Rusty goby	Quisquilius hipoliti
4752	Tusked goby	Risor ruber

01 - Acanthuridae - surgeonfishes

0101	Ocean surgeon	Acanthurus bahianus
0102	Doctorfish	Acanthurus chirurgus
0103	Blue tang	Acanthurus coeruleus
0104	Gulf surgeonfish	Acanthurus randalli

86 - Scombridae - mackerels and tunas

8601	Wahoo	Acanthocybium solanderi
8602	Bullet mackerel	Auxis rochei
8603	Frigate mackerel	Auxis thazard
8604	Little tunny	Euthynnus alletteratus
8605	Skipjack tuna	Euthynnus pelamis
8606	Striped bonito	Sarda orientalis
8607	Atlantic bonito	Sarda sarda
8608	Chub mackerel	Scomber japonicus
8609	Atlantic mackerel	Scomber scombrus
8610	King mackerel	Scomberomorus cavalla
8611	Spanish mackerel	Scomberomorus maculatus
8612	Cero	Scomberomorus regalis
8613	Albacore	Thunnus alalunga
8614	Yellowfin tuna	Thunnus albacares
8615	Blackfin tuna	Thunnus atlanticus
8616	Bigeye tuna	Thunnus obesus
8617	Bluefin tuna	Thunnus thynnus

99 - Xiphiidae - swordfishes

9901	Swordfish	Xiphias gladius

51 - Istiophoridae - billfishes

5101	Sailfish	Istiophorus platypterus
5102	Blue marlin	Makaira nigricans
5103	White marlin	Tetrapturus albidus
5104	Longbill spearfish	Tetrapturus pfluegeri

93 - Stromateidae - butterfishes

9301	Silver-rag	Ariomma bondi
9302	Brown driftfish	Ariomma melanum
9303	Spotted driftfish	Ariomma regulus
9304	Black ruff	Centrolophus niger
9305	Bigeye cigarfish	Cubiceps athenae
9306	Black driftfish	Hyperoglyphe bythites
9307	Barrelfish	Hyperoglyphe perciformis
9308	Man-of-war fish	Nomeus gronovii
9309	Harvestfish	Peprilus alepidotus
9310	Gulf butterfish	Peprilus burti
9312	Freckled driftfish	Psenes cyanophrys
9313	Silver driftfish	Psenes maculatus
9314	Bigeye squaretail	Tetragonurus atlanticus

87 - Scorpaenidae - scorpionfishes

8701	Blackbelly risefish	Helicolenus dactylopterus
8702	Spinycheek scorpionfish	Neomerinthe hemingwayi
8703	Longsnout scorpionfish	Pontinus castor
8704	Longspine scorpionfish	Pontinus longispinis
8705	Spinythroad scorpionfish	Pontinus nematophthalmus
8706	Highfin scorpionfish	Pontinus rathbuni
8707	Longfin scorpionfish	Scorpaena agassizi
8708	Coral scorpionfish	Scorpaena albifimbria
8709	Goosehead scorpionfish	Scorpaena bergi
8710	Shortfin scorpionfish	Scorpaena brachyptera
8711	Barbfish	Scorpaena brasiliensis
8712	Smoothhead scorpionfish	Scorpaena calcarata
8713	Hunchback scorpionfish	Scorpaena dispar
8714	Dwarf scorpionfish	Scorpaena elachys
8715	Plumed scorpionfish	Scorpaena grandicornis
8716	Mushroom scorpionfish	Scorpaena inermis
8717	Spotted scorpionfish	Scorpaena plumieri
8718	Reef scorpionfish	Scorpaenodes caribbaeus
8719	Deepreef scorpionfish	Scorpaenodes tredecimspinosus
8720	Redfish or ocean perce	Sebastes marinus
8721	Deepwater redfish	Sebastes mentella
8722	Atlantic thornyhead	Trachyscorpia cristulata

97 - Triglidae - searobins

9701	Shortfin searobin	Bellator brachychir
9702	Streamer searobin	Bellator egretta
9703	Horned searobin	Bellator militaris
9704	Flathead searobin	Peristedion brevirostre
9705	Slender searobin	Peristedion gracile
9706	Armored searobin	Peristedion miniatum
9707	Rimspine searobin	Peristedion thompsoni
9708	Spiny searobin	Prionotus alatus
9709	Northern searobin	Prionotus carolinus
9710	Striped searobin	Prionotus evolans

9711	Barred searobin	Prionotus martis
9712	Bandtail searobin	Prionotus ophryas
9713	Mexican searobin	Prionotus paralatus
9714	Bluespotted searobin	Prionotus roseus
9715	Blackfin searobin	Prionotus rubio
9716	Blackwing searobin	Prionotus salmonicolor
9717	Leopard searobin	Prionotus scitulus
9718	Shortwing searobin	Prionotus stearnsi
9719	Bighead searobin	Prionotus tribulus

15 - Bothidae - lefteye flounders

1501	Three-eye flounder	Ancylopsetta dilecta
1502	Ocellated flounder	Anchlopsetta quadrocellata
1503	Peacock flounder	Bothus ocellatus
1505	Pelican flounder	Chascanopsetta lugubris
1506	Gulf Stream flounder	Citharichthys arctifrons
1507	Sand whiff	Citharichthys arenaceus
1508	Horned whiff	Citharichthys cornutus
1509	Spotted whiff	Citharichthys macrops
1510	Bay whiff	Citharichthys spilopterus
1511	Mexican flounder	Cyclopsetta chittendeni
1512	Spotfin flounder	Cyclopsetta chittendeni
1513	Spiny flounder	Engyophrys senta
1514	Fringed flounder	Etropus crossotus
1515	Smallmouth flounder	Etropus microstomus
1516	Gray flounder	Etropus rimosus
1517	Shrimp flounder	Gastropsetta frontalis
1518	Slim flounder	Monolene antillarum
1519	Deepwater flounder	Monolene sessilicauda
1520	Gulf flounder	Paralichthys albigutta
1521	Summer flounder	Paralichthys dentatus
1522	Southern flounder	Paralichthys lethostigma
1523	Fourspot flounder	Paralichthys oblongus
1524	Broad flounder	Paralichthys squamilentus
1525	Windowpane	Scophthalmus aquosus
1526	Shoal flounder	Syacium gunteri
1527	Channel flounder	Syacium micrurum
1528	Dusky flounder	Syacium papillosum
1529	Sash flounder	Trichopsetta ventralis

73 - Pleuronectidae - righteye flounders

7301	Witch flounder	Glyptocephalus cynoglossus
7302	American plaice	Hippoglossoides platessoides
7303	Yellowtail flounder	Limanda ferruginea
7304	Smooth flounder	Liopsetta putnami
7305	Winter flounder	Pseudopleuronectes americanus

89 - Soleidae - soles

8901	Lined sole	Achirus lineatus
8902	Naked sole	Gymnachirus melas
8903	Fringed sole	Gymnachirus texae
8904	Scrawled sole	Trinectes inscriptus
8905	Hogchoker	Trinectes maculatus

31 - Cynoglossidae - tonguefishes

3101	Caribbean tonguefish	Symphurus arawak
3102	Offshore tonguefish	Symphurus civitatus
3103	Spottedfin tonguefish	Symphurus diomedianus
3104	Largescale tonguefish	Symphurus minor
3105	Pygmy tonguefish	Symphurus parvus
3106	Longtail tonguefish	Symphurus pelicanus
3107	Deepwater tonguefish	Symphurus piger
3108	Blackcheek tonguefish	Sympharus plagiusa
3109	Northern tonguefish	Symphurus pusillus
3110	Spottail tonguefish	Symphurus urospilus

11 - Balistidae - triggerfishes and filefishes

1101	Dotterel filefish	Aluterus heudeloti
1102	Unicorn filefish	Aluterus monoceros
1103	Orange filefish	Aluterus schoepfi
1104	Scrawled filefish	Aluterus scriptus
1105	Gray triggerfish	Balistes capriscus
1106	Queen triggerfish	Balistes vetula
1107	Whitespotted filefish	Cantherhines macrocerus
1108	Orangespotted filefish	Cantherhines pullus
1109	Rough triggerfish	Canthidermis maculatus
1110	Ocean triggerfish	Canthidermis sufflamen
1111	Black durgon	Melichthys niger
1112	Fringed filefish	Monacanthus ciliatus
1113	Planehead filefish	Monacanthus hispidus
1114	Pygmy filefish	Monacanthus setifer
1115	Slender filefish	Monacanthus tuckeri
1116	Sargassum triggerfish	Xanthichthys ringens

70 - Ostraciidae - boxfishes

7001	Spotted trunkfish	Lactophrys bicaudalis
7002	Honeycomb cowfish	Lactophrys polygonia
7003	Scrawled cowfish	Lactophrys quadricornis
7004	Trunkfish	Lactophrys trigonus
7005	Smooth trunkfish	Lactophrys triqueter

96 - Tetraodontidae - puffers

9601	Sharpnose puffer	Canthigaster rostrata
9602	Smooth puffer	Lagocephalus laevigatus
9603	Oceanic puffer	Lagocephalus lagocephalus
9604	Marbled puffer	Sphoeroides dorsalis
9605	Northern puffer	Sphoeroides maculatus
9606	Southern puffer	Sphoeroides nephelus
9607	Blunthead puffer	Sphoeroides pachygaster
9608	Least puffer	Sphoeroides parvus
9609	Bandtail puffer	Sphoeroides spengleri
9610	Checkered puffer	Sphoeroides testudineus

36 - Diodontidae - porcupinefishes

3601	Bridler burrfish	Chilomycterus antennatus
3602	Web burrfish	Chilomycterus antillarum
3603	Spotted burrfish	Chilomycterus atinga
3604	Striped burrfish	Chilomycterus schoepfi
3605	Ballonfish	Diodon holocanthus
3606	Porcupinefish	Diodon hystrix

VIII. APPENDICES

APPENDIX B
Input Codes for Sportfishing Data

Input Code	Item
	Interview Number
xxxxx	Any five numbers
	Date
xxxxxx	(MMDDYY) i.e.: 010679 for Jan. 6, 1979
Code	Day of Week
1	Weekend
2	Weekday
3	Holiday
Code	Species Preference
0000	None
xxxx	for all species use species code (Appendix A)
Code	Area Fished
01	Area 1
02	Area 2
03	Area 3
04	Area 4
05	Area 5
06	Area 6
07	Area 7 = Areas 5 + 6
08	Area 8 = 1 + 2
09	Area 9 = 1 + 3
10	Area 10 4 + 5
11	Area 11 = 2 + 3
12	Area 12 = 1 + 2 + 3
13	Area 13 + 3 + 4
14	Area 14 = 1 + 4
15	Area 15 = 2 + 4
16	Area 16 = 1 + 2 + 4
17	Area 17 = 3 + 5
18	Area 18 = 3 + 4 + 5
19	All other areas

Code	Location of Interview
01	Area 1 by boat
02	Area 2 by boat
03	Area 3 by boat
04	Flamingo Ramp
05	Everglades City
06	Public Ramp on U.S. 1

Code	Interviewer Identification
01	H. Pablo
02	E. Thue
03	C. L. Spadaro
05	J. Heath
06	G. Owens
09	Ranger, unspecified

Code	Party Composition
01	Skilled Recreation
02	Food
03	Family
04	Novice
05	Other

Code	Point of Origin of Fishing Trip
01	Flamingo
02	Florida Keys
03	Everglades City
04	Naples
05	Fort Myers
06	Fort Lauderdale
07	Homestead
08	Miami
09	West Palm Beach
10	Tampa/St. Petersburg
11	Florida
12	Out of State

Code	Fisherman Residence
1	South Florida
2	Florida
3	Local
4	Other

Input code	Catch Species
xxxx	Species of fish caught, four digit code from Appendix A

	Catch No. Kept
xxx	Number of fish caught, three numbers, i.e.: 006 for 6 fish kept

	Catch No. Released
xxx	Number of fish released

Species Repeats

Species repeats (cols: 39-78) consist of four blocks, each block containing three fields (Catch Species, Catch No. Kept, and Catch No. Released).

Continuation Records

Up to four species can be entered on one line. If more than four species are to be recorded, up to 16 more species can be coded on successive lines. However, to continue on a second line, code only the following:

1. Interview number (Cols: 1-5)
2. Date (Cols: 6-11)
3. Species repeats start in column 39
4. All other columns are left blank.

Note: Only 4 continuation records per interview are allowed.

Comments

The interviewer is provided 63 spaces for a comment. Use alphanumeric characters. Remember spaces between letters count.

Enter:

1. Interview number (Cols: 1-5)
2. Date (Cols: 6-11)
3. Comment (Cols. 12-74)

APPENDIX C

Input Coding for Commercial Fishing Data

The code for Area Fished, Species Preference and Species repeats is the same as sport fishing data in Appendix B and the Species Codes in Appendix A.

Input Code	Item
	Permit Number
xxxxx	5 digit no. issued to fishermen the first two digits denote the year
	Date
xxxxxx	(YYMMDD) i.e., 790106 for Jan. 6, 1979

Code	Permit Identification
1	Net
2	Trap
3	Guide
4	Hook and Line

Code	Gear Used
1	Net
2	Trap
3	Hook and Line

Input Code	Net Sets
xx	Two digits for the no. of "strikes" or sets reported by the net fishermen

Code	Trap Type
4	Stone crab
5	Blue Crab

Input Code	Traps Pulled
xxxx	Four digits for the no. of traps pulled or fished, reported by the trap fishermen

Nights Fished

xx Two digits for the no. of nights fished reported by trap fishermen

Continuation Records

1. Permit number
2. Permit ID
3. Date
4. Species repeats

APPENDIX D. Example of Weekly Sport Fishing Report

WEEKEND FISHING REPORT
EVERGLADES NATIONAL PARK
08-09 April 1978

About 1,270 boaters were in the park this weekend.

Beautiful weather and new moon high tides brought a large number of fishermen to Flamingo.

Fishermen that caught red drum averaged 4-1/2 fish each. Large reds were caught on the flats in Florida Bay, the largest weighed 12 lbs.

Fishermen that caught sea trout averaged 7 trout each. Several Metropolitan tournament citation trout (4 lbs) were caught in Western Florida Bay.

Tarpon and jewfish are showing up in both Whitewater and Florida Bay.

FLAMINGO SPORT FISH CATCH
456 FISHERMEN CAUGHT 2908 FISH

Species	Total	% of Total	Size Range (mm)[a]
Barracuda	0		
Blue Crab	34		
Catfish	508	17.5	
Cobia	1		
Drum, Black	20		352 - 731 F.L.[b]
Drum, Red	107		
Grouper	45	1.5	
Jack, Common	172	6.0	
Jewfish	5		
Ladyfish	442	15.2	
Mackerel, Spanish	1		
Permit	0		
Pompano	0		
Seatrout	470	16.2	286 - 531 S.L.[c]
Shark	21		
Sheepshead	26		
Snapper, Gray	848	29.2	184 - 354 F.L.
Snook	4		520 - 730 F.L.
Tarpon	6		
Miscellaneous	175	6.0	

[a]25.4 mm = 1 inch
[b]F.L. = Fork Length
[c]S.L. = Standard Length

APPENDIX E. Example of Quarterly Sportfishing Report

Everglades National Park Sportfishing Report

Fall 1977

There were 162,330 fish caught by 22,810 fishermen in 8,696 boats during the fall quarter. Only 5% of the fishermen did not catch any fish. Each fishing party fished an average of five hours and caught 20 fish.

Fishermen's residences were as follows: 78% south Florida (Dade, Monroe, and Collier Counties, excepting local); 9% out of state; 8% local (Florida City, Homestead, or Everglades City-Chokoloskee); 5% Florida (other than south Florida or local).

The relative fishing skills and experience of the fishermen varied considerably:

36% Skilled fishermen
37% Family groups
19% Novices
8% Sustenance fishermen

Fishermen interviewed stated their preference for particular fishes as follows:

58% had no preference
20% preferred red drum
6% preferred spotted seatrout
5% preferred snook
5% preferred gray snapper

The total number of the most popular fish caught and the estimated total catch by the four types of fishermen are shown in Table 1. The catch rates of spotted seatrout, gray snapper, red drum, and snook by skilled fishermen for the past six falls are shown in Table 2.

Table 1. Number of fish caught in Everglades National Park, October-December, 1977.

Types of Fishermen	Total Fish	Gray Snapper	(%)[a]	Spotted Seatrout	(%)	Red Drum	(%)	Snook	(%)
Skilled	63,295	17,824	(28)	8,872	(14)	7,734	(12)	222	(1)
Food	18,061	7,818	(78)	2,178	(12)	717	(4)	4	
Family	47,607	14,875	(31)	5,553	(12)	2,614	(5)	89	(1)
Novice	33,367	11,241	(34)	2,940	(9)	663	(20)	11	
Totals	162,330	51,758	(32)	19,543	(12)	11.728	(7)	326	(1)

[a]Indicates the percentage of the total catch that the indicated species represents for each type of fishermen.

Table 2. Catch rates (c/e) of selected sport fish by skilled recreational fishermen in Everglades National Park in the fall (October-December), 1973-1977.

Year	Spotted Seatrout		Gray Snapper		Red Drum		Snook	
	c/e[a]	n[b]	c/e	n	c/e	n	c/e	n
1973	.512 ± .10	135	.981 ± .18	130	.269 ± 06	129	.072 ± 01	43
1974	.436 ± .08	237	.644 ± .14	170	.244 ± .05	171	.089 ± .01	73
1975	.373 ± .07	172	.641 ± .12	236	.348 ± .06	174	.091 ± .04	53
1976	.441 ± .10	166	.803 ± .14	201	.256 ± .05	178	.105 ± .03	28
1977	.555 ± .12	161	1.056 ± .28	170	.380 ± .06	205	.080 ± .02	28

[a]Mean number of fish caught per man-hour of fishing ± 95% confidence limits.

[b]Number of interviews used calculating catch rate.

APPENDIX F. Example of Quarterly Commercial Fishing Report

Everglades National Park
Quarterly Commercial Fishing Report
Fall, 1977

For the fall quarter, October through December, 1977, 101 fishermen and 29 stone crabbers reported fishing in the park waters (Table 1). These fishermen reported catches of:

Species	Pounds
Striped mullet	132,257
White mullet	52,841
Spotted seatrout	8,110
Pompano	4,261
Gray snapper	2,716
Sheepshead	2,047
Common jack	1,561
Tarpon	1,408
Miscellaneous	8,963
Fin fish total	214,164
Stone crab (claws)	30,627
Total reported harvest	244,791

The stone crabbers fished a total of 308,108 trap nights, with an average catch rate of one tenth of a pound per night.

There were 82 ranger contacts with fishermen; only 27 of these reported, therefore reported catches represent 33% of the estimated harvest. There were 16 ranger contacts with stone crabbers; only six reported, representing 37.5% of the estimated harvest.

There were 361 days of fishing reported by 49 net fishermen, 271 days by 41 professional guides, and 146 days by 11 hook and line fishermen for a total of 778 total fishing days. Most of the reported activity was in the Ten Thousand Island area (47%), and in central and western Florida Bay (30%).

Comparison of the professional guide catch rates over the last six years is found in Table 2.

The total estimated harvest in pounds of fish and crab claws in the park, based on the number of fishermen reporting who were contacted by the rangers, was 650,954 pounds of fish and 81,672 pounds of stone crab claws.

Table 1. Everglades National Park commercial and guide fishermen reporting 1977 fall quarter. October-December 1977.

Name	Permit	I.D.*	# of days reporting Fishing Oct-Dec	Months report No Fishing
Snapper, Herbert Z.	77013	1	6	
Permit, Peter W.	77015	1	19	
Shark, Lester J.	77016	3	2	
Fisher, Capt. Strike	77033	3	2	
(List all Fishermen Reporting)				
Snooker, Kenneth C.	77063	3	9	
Trout, George D.	77064	1	2	

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*1 = Net
2 = Trap
3 = Guide

Table 2. Professional guide party catch rates (C/E) for Everglades National Park, fall (October-December).

Species	Year	C/E*	Mean Weight of Fish landed (lbs)	Sample Size**
Red Drum	1972	.38 ± .30	1.5	23
	1973	.62 ± .12	2.6	80
	1974	.48 ± .16	2.5	24
	1975	.31 ± .28	1.8	14
	1976	.89 ± 1.12	1.8	3
	1977	.11 ± .02	2.4	97
Gray Snapper	1972	.76 ± 20	0.8	32
	1973	.91 ± .18	1.2	68
	1974	.64 ± .46	0.8	9
	1975	.57 ± .22	0.9	13
	1976	1.48 ± .40	1.4	22
	1977	.33 ± .27	1.1	88
Spotted Seatrout	1972	.93 ± .42	1.3	43
	1973	.60 ± .24	1.1	58
	1974	.71 ± .54	1.0	19
	1975	.57 ± .38	1.1	22
	1976	1.08 ± .46	1.0	16
	1977	.23 ± .05	1.1	96
Snook	1972	.26 ± .08	2.2	29
	1973	.18 ± .04	3.2	31
	1974	.17 ± .06	2.8	19
	1975	.25 ± .10	4.3	8
	1976	.13 ± .08	3.2	6
	1977	.16 ± .04	5.8	25

*Number of fish caught per man/hour of fishing ± 95% confidence limit

**Number of parties reporting catch and fishing effort data.

APPENDIX G. Example of Quarterly Fishery Status Report

FISHERY STATUS REPORT

Everglades National Park

Fall (October-December) 1977

A fisheries monitoring program has been in progress in Everglades National Park since 1958. Its purpose is to estimate total harvest and the abundance of stocks in the park fishery. Catch and fishing effort data were collected by personal interviews with sportfishermen, and by catch reports submitted by commercial fishermen who fish under no-fee permits in park waters. The most popular sport fish and the most abundant commercial species were chosen for catch rate comparisons to monitor their population levels. The present data acquisition program began in 1972. It provides precise estimates of fishing effort and harvest for both sport and commercial park fisheries. This report is a brief summary of the findings for the fall quarter, 1977.

Reported Activity

During the quarter, October through December, 1977, 41 professional guides, 60 commercial fishermen, and 29 stone crabbers, reported catches, and 1,161 sport fishermen were interviewed. The commercial fishermen reported catching 214,164 pounds of fin fish and 30,627 pounds of stone crab claws. The interviewed sport fishermen caught 23,373 assorted fin fish and logged 15,348 man-hours of fishing. Professional guides reported a total of 5,935 man-hours of client fishing, commercial fishermen reported 507 days of activity and stone crabbers reported 308,108 trap nights of fishing effort in the park this quarter. This represents about 13% of the total sportfishing activity and 35% of the commercial activity.

Description of Fishing Activity

Most of the sportfishermen in the park were south Florida residents (86%). Most sportfishermen (58%) did not try to catch any particular kind of fish. Red drum were the most popular fish, sought by 20% of the sportsmen. The next three species preferred were seatrout (6%), gray snapper (5%) and snook (5%). Over half of the commercial fishermen fished the Gulf Coast from Everglades City, 36% of the commercial fishing reported was in Florida Bay.

White and stripped mullet comprised 86% of the total weight of fish caught by all commercial fishermen.

Relative Abundance

Catch rate is a function of the number of fish caught and the time or effort expended. The number of fish caught for each man-hour of fishing is used as an

index of the abundance of the fish. The average catch rates of the sampled fishermen for the major species in the park fishery are reported in Table 1.

Estimated Total Harvest

The catches of the interviewed sportfishermen and the reported catches of the commercial fishermen are only samples of the total park harvest. To estimate the total harvest we need to know what portion of the total fishing activity is represented in our samples. Total sportfishing activity in the park is measured by daily counts of boat trailers at the Flamingo ramp, which were related to total boating activity by aerial surveys. Catch rates calculated from interviews are multiplied by the total number of fishing boats in the park to yield estimates of total recreational harvest. Ranger observations of fishing activity are checked against fisherman reported activity to estimate what proportion of the commercial fishermen are reporting their activity. The reported catch is adjusted by the percentage of ranger observations that are unreported to estimate total commercial harvest. The total estimated fishery harvest from the park for the 1977 fall quarter is shown in Table 2.

Recent Trends

Overall sport fish catch rates for the fall quarter of 1977 (Table 1) were higher than the preceding Fall quarters for the years 1972-1976. Catch rates dropped after 1972, but have remained stable with no dramatic changes noted for any species since that time. The abundance of both white and striped mullet in the Fall has been poor for the past three years (1975-77) when compared with the previous three (1972-1974). The seatrout catch rate by commercial line fishermen showed an increase over the Fall of 1976, yet it is well below the peak in the Fall of 1975. The stone crab catch rate increased and is the highest for years 1973-1977, yet the average catch was less than a tenth of a pound of claws per trap night.

Table 1. Catch rates of sport and commercial fishermen in Everglades National Park, fall quarter (October-December), 1977

Fishing Category	Species	C/E*	Sample Size**
Sportfishermen			
	Red drum	0.28 ± .04	380
	Spotted seatrout	0.45 ± .06	419
	Gray snapper	0.87 ± .12	560
	Snook	0.07 ± .02	44
Professional guides			
	Red drum	0.11 ± .12	97
	Spotted seatrout	0.23 ± .04	96
	Gray snapper	1.33 ± .28	88
	Snook	.16 ± .04	25
Commercial net			
	White mullet	287.01 ± 42.12	83
	striped mullet	70.72 ± 12.2	115
Commercial hook and line			
	Spotted seatrout	5.34 ± 1.00	112
Trap fishermen			
	lbs. stone crab claws	0.09	253

*Number of fish caught per man-hour of fishing, net set, or trap night, ± 95% confidence limits (B_1)

**Number of parties either interviewed or reporting

Table 2. Total estimated fishery harvest by recreational and commercial fishermen from Everglades National Park, October-December, 1977.

	Number of Fish		
Species	Recreational	Commercial[1]	Total
Red drum	11,728	4,597	16,325
Spotted seatrout	19,543	9,454	28,997
Gray snapper	51,758	7,409	59,167
Snook	326	193	519
White mullet	0	15,387	15,387
Striped mullet	0	118,339	118,339
Other finfish	78,975	20,779	99,754
Total finfish	162,330	176,158	338,488
Stone crabs	0	81,672[2]	81,672[2]
Total harvest	162,330	257,830	420,160

[1]Includes guided parties

[2]Pounds of claws

APPENDIX H. Example of Annual Sportfishing Report

Annual Sportfishing Report

Everglades National Park

July 1975 - June 1976

There were 579,658 fish caught by 110,280 fishermen in 40,395 boats during the year July 1975-June 1976. Only 6% of the fishermen did not catch any fish. Each fishing party fished an average of five hours and caught 16 fish.

Fishermen's residences were as follows: 78% south Florida (Dade, Monroe, and Collier Counties, excepting local); 7% out of state; 11% local (Florida City, Homestead, or Everglades City-Chokoloskee); 4% Florida (other than south Florida or local).

The relative fishing skills and experience of the fishermen varied considerably:

40% Skilled fishermen
34% Family groups
23% Novices
3% Sustenance fishermen

Fishermen interviewed stated their preference for particular fishes as follows:

63% had no preference
10% preferred red drum
8% preferred spotted seatrout
6% preferred gray snapper
6% preferred snook

The total number of the most popular fish caught and the estimated total catch by the four types of fishermen are shown in Table 1. The catch rates of spotted seatrout, gray snapper, red drum, and snook by skilled fishermen for the past four years are shown in Table 2.

Table 1. Number of fish caught in Everglades National Park
July 1975 -June 1976

Types of Fishermen	Total Fish	Gray Snapper	(%)	Spotted Seatrout	(%)	Red Drum	(%)	Snook	(%)
Skilled	259,776	78,139	(30*)	43,076	(17)	24,713	(9)	2,597	(1)
Food	32,155	13,696	(43)	3,400	(11)	1,926	(6)	8	
Family	162,067	58,897	(36)	17,943	(11)	4,714	(3)	236	(0.1)
Novice	125,660	39,274	(31)	13,138	(10)	2,923	(2)	93	(0.0)
Totals	597,658	190,006	(33)	77,557	(13)	34,276	(6)	2,934	(0.5)

*Indicates the percentage of the total catch the indicated species represents for each type of fishermen.

Table 2. Catch Rates (c/e) of Selected Sport Fish by Skilled Recreational Fishermen in Everglades National Park.

July - June, 1973-1976

Year	Spotted Seatrout		Gray Snapper		Red Drum		Snook	
	c/e[a]	n[b]	c/e	n	c/e	n	c/e	n
1973	.65 ± .06	516	.53 ± 04	489	.36 ± 04	382	.20 ± .02	25
1974	.54 ± .06	662	.85 ± .10	482	.26 ± .04	640	.08 ± .00	30
1975	.48 ± .04	1016	.71 ± .06	912	.27 ± .04	664	.10 ± .01	29
1976	.49 ± .06	614	.76 ± .08	716	.34 ± .04	505	.10 ± .02	17

*c/e Mean number of fish caught per man-hour of fishing ± 95% confidence limits.

**Number of interviews used in calculating catch rate.

APPENDIX I. Example of Annual Commercial Fishing Report

Everglades National Park

Professional Guide and Commercial Fishing

Annual Catch Report

July 1976 - June 1977

For the year July 1, 1976 through June 1977, 114 fishermen and 54 stone crabbers reported fishing in the park waters (Table 1). These fishermen reported catches of:

Species	Pounds
White mullet	213,103
Stripped mullet	80,155
Spotted seatrout	37,600
Gray snapper	8,221
Tarpon	7,035
Spanish mackerel	6,869
Red drum	5,428
Crevalle jack	4,636
Snook	4,322
Miscellaneous fin fish	23,735
Fin fish Total	391,104
Stone crab claws	53,569
Total reported harvest	444,673

The stone crabbers fished a total of 308,108 trap nights, with an average catch rate of one tenth of a pound per night.

There were 136 ranger contacts with fishermen; only 78 of these reported, therefore reported catches represent 57% of the estimated harvest. There were 34 Ranger contacts with stone crabbers; only 17 reported, representing 50% of the estimated harvest.

There were 907 days of fishing reported by 78 net fishermen, 1,262 days by 79 professional guides, and 583 days by 20 hook and line fishermen for a total of 2,757 fishing days. Most of the reported activity was in the Ten Thousand Island area (47%), and in central and western Florida Bay (35%).

Comparison of the professional guide catch rates over the last six years is found in Table 2.

The total estimated harvest of fish and crab claws in the park, based on the number of fishermen reporting who were contacted by the rangers, was 686,147 pounds of fish and 107,138 pounds of stone crab claws.

Table 1. Professional fishing guides and commercial fishermen operating in Everglades National Park in 1977

Name Address	Permit Type Permit No. Phone No.	Days Reported in 1977	Months Not Fishing in Park	No. of Contacts by Fishery Survey
Allfish, James P. O. Box 927 Islamorada, FL 33036	guide 77-627 764-5153	13	Mar, May	5
Allright, Richmond P. O. Box 799 Marathon, FL 33050	hook & line 77-604 643-7575	0	Mar	5
	(List all Fishermen Reporting)			
Zee, Herb P. O. Box 588 Tavernier, FL 33070	guide 77-614 852-1234	2	Mar, Nov.	5

Table 2. Professional guide party catch rates (C/E) for Everglades National Park, July 1976-June 1977

Species	Year	C/E*	Mean Weight of Fish Landed (lbs)	Sample Size**
Red drum	1972	.37 ± .10	3.3	66
	1973	.07 ± .06	1.8	174
	1974	.47 ± .06	2.7	306
	1975	.40 ± .06	2.8	176
	1976	.39 ± .12	3.0	72
	1977	.29 ± .04	2.6	291
Gray snapper	1972	.72 ± .20	0.7	46
	1973	.67 ± .10	0.9	140
	1974	.71 ± .10	1.1	227
	1975	.62 ± .08	1.0	169
	1976	.59 ± .08	0.9	120
	1977	.67 ± .14	0.8	368
Spotted seatrout	1972	.10 ± .14	0.9	161
	1973	.13 ± .04	1.1	342
	1974	.86 ± .12	1.1	363
	1975	.70 ± .10	1.1	269
	1976	.69 ± .24	1.2	165
	1977	.52 ± .08	1.2	547
Snook	1972	32 ± .12	5.0	73
	1973	.01 ± .01	3.2	180
	1974	.20 ± .02	6.3	261
	1975	.15 ± .04	4.3	55
	1976	.25 ± .04	4.3	132
	1977	.08 ± .02	5.0	267

*Number of fish caught per man/hour of fishing ± 95% confidence limit B.

**Number of parties reporting catch and fishing effort data.

APPENDIX J. Example of Annual Fishery Status Report

FISHERY STATUS REPORT

EVERGLADES NATIONAL PARK

July, 1976 - June, 1977

A fisheries monitoring program has been in progress at Everglades since 1958. Its two-fold purpose is to estimate total fishery harvest from park waters and the abundance of fishery stocks in the park. Catch and fishing effort data were collected by personal interviews with sportfishermen and by catch reports submitted by commercial fishermen who fish under no-fee permits in the park. The most popular sportfish and the most abundant commercial species were chosen for catch rate comparisons to monitor their population levels. The present data acquisition program began in 1972. It provides precise estimates of fishing effort and harvest for both sport and commercial park fisheries. This report is a brief summary of the findings for the year from July, 1976 through June, 1977.

Fishing Activity

Through June, 1977, 374 commercial fishing permits were issued to 288 people: guides - 99, net - 143, line - 80, trap - 57. During the 12 months from July 1976 through June 1977, 171 commercial fishermen and professional guides reported their catches; and over 10,500 sportfishermen were interviewed.

Commercial net and line fishermen reported catches totaling over 390,000 pounds from 2,757 days of fishing, including 1,262 days fished by professional guide parties. In addition, 37 trappers reported a total catch of 53,569 pounds of stone crab claws. The interviewed sportfishermen caught about 90,000 pounds of fish, 500 pounds of blue crabs, and logged over 56,000 man-hours of fishing.

These reports and interviews represented about 57% of the commercial and guide fishing activity; 50% of the stone crab harvest; and 11% of the total sportfishing activity. They were used to estimate the total fishery harvest and relative abundance of fishery stocks.

Relative Abundance of Fishery Stocks

Catch rate is a function of the number of fish caught and the time or effort expended. The number of fish caught for each man-hour of fishing is used as an index of the abundance of the fish. The 1977 catch rates for the major species in the park fishery and how they relate to previous years are reported here:

Catch Rates* for

Everglades National Park Fisheries

Species	1977 Catch Rate	High	Year	Low	Year	1977 Rank in Last 5 Years
Red drum						
Guides	.29	.47	1974	.07	1973	4
Sportfishermen	.22	.26	1976	.22	1974	4
Spotted seatrout						
Guides	.52	.86	1974	.13	1973	4
Sportfishermen	.42	.46	1973	.37	1976	2.5
Commercial Line	5.03	5.13	1976	2.33	1973	2
Gray snapper						
Guides	.67	.71	1973	.59	1976	2.5
Sportfishermen	.70	.70	1974 & 1977	.51	1973	1.5
Snook						
Guides	.08	.25	1976	.01	1973	4
Sportfishermen	.09	.15	1973	.08	1974 & 1976	2.5
All Species combined						
Guides	.24	1.30	1974	.08		4
Sportfishermen	1.07	1.07	1977	.89		1
Commercial Line	3.22	3.24	1976	1.04		2
Net	94.77	238.10	1973	94.77		5
Trap (Stone Crab)	.09	.11	1972	.03		3

*Number of fish (lbs. of stone crab claws) per man-hour of fishing (trap night)

ESTIMATED TOTAL HARVEST

The catches of the interviewed sportfishermen and the reported catches of the commercial fishermen were only samples of the total park harvest. To estimate the total harvest it was necessary to know what portion of the total fishing activity was represented in the samples. Total sportfishing activity in the park was measured by making daily counts of boat trailers at the Flamingo ramp, which were related to total boating activity by aerial surveys of boats in the park. Catch rates calculated from interviews with sportfishermen were multiplied by the total number of sportfishing boats in the park to get estimates of total recreational harvest. Ranger observations of commercial fishing activity were checked against fisherman reported activity to estimate the proportion of the commercial fishermen that reported their activity. The reported catch was adjusted by the percentage of Ranger observations that were unreported to estimate total commercial harvest. The total estimated fishery harvest from the park for 1977 (July 1976-June 1977) is shown below:

	NUMBER OF FISH		
Species	Recreational	Commercial[1]	Total
Red drum	23,420	3,570	26,990
Spotted seatrout	74,500	54,840	129,340
Gray snapper	158,710	17,100	175,810
Snook	2,500	1,500	4,000
White mullet	0	386,970	385,970
Striped mullet	0	84,800	84,800
Pompano	70	12,950	13,020
Other finfish	243,240	22,720	265,906
Total finfish	502,440	584,450	1,086,890
Stone Crabs[2]	0	107,150	107,150

[1]Includes guided parties
[2]Pounds of Claws

RECENT TRENDS

Total fishery harvest from the park is a function of the availability of fish and the fishing effort expended to catch them. Total harvest in 1977 was 45% below average for the previous three years and the number of sportfishermen was 21% below average. Gray snapper, red drum, and striped mullet harvests all continued a three year decline in 1977 falling 18%, 32% and 74% below the 1974-76 average, respectively. Spotted seatrout and white mullet catches were both down for the second consecutive year, and while the 1977 snook catch was up nearly 20% from 1976, it was still 30% under the 1974-76 average.

Estimated total fishery harvest from Everglades National Park 1974-1977, reporting periods July-June.

Number of Fish

Species	1974	1975	1976	3 yr avg.	1977	1977 Change From 3 yr.
Gray snapper	226,500	214,400	193,400	214,400	175,800	-18%
Spotted seatrout	152,400	186,100	107,600	148,700	129,300	-13%
Red drum	43,100	40,100	35,400	39,500	27,000	-32%
Snook	7,600	6,000	3,400	5,700	4,000	-30%
White mullet	695,100	1,436,500	647,300	926,300	387,000	-58%
Striped mullet	517,400	344,300	125,100	328,900	84,800	-74%
All others	263,900	260,900	289,400	304,400	279,000	- 8%
Total	1,906,000	2,488,300	1,401,600	1,967,000	1,086,900	-45%
Number of Sportfishermen in the park	124,900	117,300	110,300	117,500	92,500	-21%

Even though harvests were significantly down in 1977, the availability of fish was not below normal for all species. Of the six major species in the park fishery, only spotted seatrout and mullet (both white and black) catch rates were significantly higher than average in 1977. The 1977 rates continued two to four year trends for all six major species. The stone crab catch rate apparently bottomed out in 1975-76 and stabilized at less than one-tenth of a pound of claws per trap night in 1976-77.

Summary

There were 17,800 fewer sportfishermen in the park in the 1977 reporting period (July 1976 - June 1977) than in 1976, and 21% fewer than the average for the last three years. Net fishing activity in 1977 was also 38% lower than it has been for the past three years. This reduced fishing activity and the extremely cold, stormy winter of 1976-77 were reflected by another decrease in fishery harvest in the park. Total harvest in 1977 was 470,000 pounds less than 1976, and 45% less than the average for the past three years. This was primarily due to reduced white and striped mullet catches. Catch rates for the major sportfishes showed that only spotted seatrout stocks were below normal, continuing a three year decline. Fishery harvest severely depleted stone crab stocks again 1976-77.

Catch rates[a] of selected game fish by weekend sportfishermen in Everglades National Park

FY	Gray Snapper	Spotted Seatrout	Red Drum	Snook
1958	0.84 +[b]	0.31 -	0.04 -	0.013 -
1960	0.35 -	0.43 +	0.05 -	0.003 -
1961	0.22 -	0.38 0	0.06 -	0.013 -
1962	0.38 -	0.69 +	0.17 0	0.084 +
1963	0.33 -	0.38 0	0.13 -	0.041 0
1964	0.55 0	0.29 -	0.15 -	0.046 0
1965	0.44 0	0.30 -	0.06 -	0.023 -
1966	0.41 0	0.41 +	0.04 -	0.016 -
1967	0.28 -	0.34 0	0.12 -	0.009 -
1968	---	---	---	---
1969	0.36 -	0.22 -	0.06 -	0.012 -
1970-72	---	---	---	---
1973	0.38 -	0.38 -	0.21 +	0.133 +
1974	0.52 +	0.29 -	0.19 0	0.066 +
1975	0.50 +	0.32 -	0.17 0	0.073 +
1976	0.51 +	0.29 -	0.19 0	0.066 +
Mean[c]	0.43 ± .04	0.36 ± .02	0.18 ± .01	0.043 ± .003
1977 +	0.54 +	0.32 -	0.18 0	0.081 +
1978	0.62 +	0.32 -	0.20 +	0.059 +

[a]Number of fish caught per man-hour of boating (B_2)

[b] + 14 yr. mean; - 14 yr mean; 0 = 14 yr mean

[c]14 year mean ± 95% confidence limits.

Age structures of selected sportfish catches
landed at Flamingo, Florida
1976 and 1977*

PERCENT FREQUENCY

	Gray Snapper		Spotted Seatrout		Red Drum		Snook	
Age	1976	1977	1976	1977	1976	1977	1976	1977
0	0.6	1.7	0.4	0.1	2.4	2.4	0	0
I	25.6	25.6	13.0	10.8	28.7	25.2	0	0
II	43.5	48.3	27.8	28.3	38.4	39.5	0	1.0
III	23.0	76.9	34.9	36.4	22.4	23.5	3.0	6.1
IV	6.3	5.9	18.9	19.4	6.4	7.8	27.3	28.3
V	0.4	1.0	1.8	2.1	1.6	1.3	29.6	33.3
VI	0.6	0.6	0.9	0.8	0.1	0.3	26.5	28.3
VII	0	0	2.3	2.1	0	0	13.6	3.0
No. of fish	1,055	1,334	1,031	1,127	628	706	132	99

*July - June, 1975-76 and 1976-77.