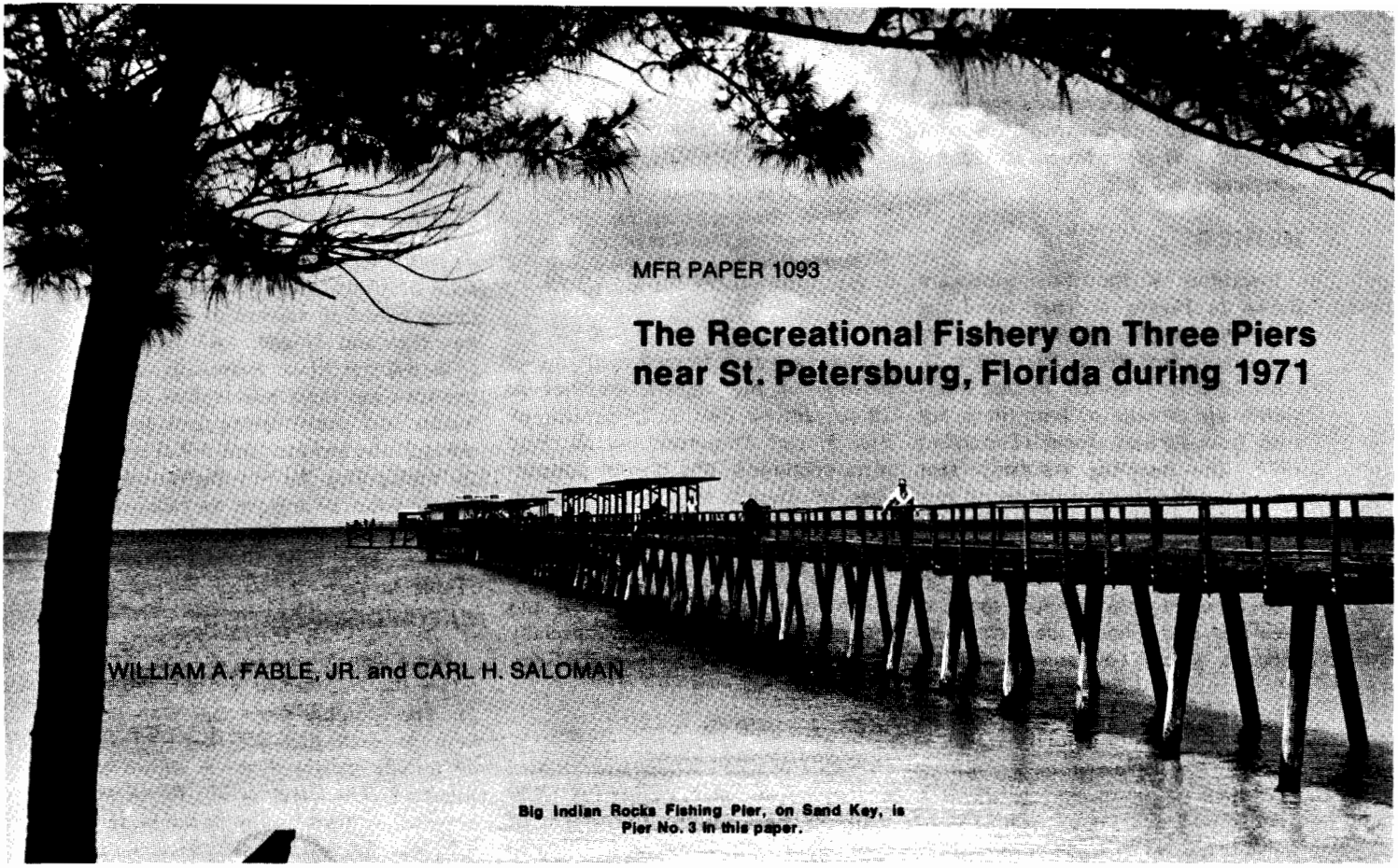

MFR PAPER 1093

The Recreational Fishery on Three Piers near St. Petersburg, Florida during 1971

WILLIAM A. FABLE, JR. and CARL H. SALOMAN

Big Indian Rocks Fishing Pier, on Sand Key, is Pier No. 3 in this paper.

ABSTRACT—Over 4,800 anglers were interviewed on three coastal fishing piers near St. Petersburg, Fla., between January and December 1971. Information includes characteristics of the anglers, attendance estimates, species and numbers of fishes caught, catch per man per hour, and expenditures for admission tickets and bait. We estimated that almost 122,000 angler visits were made to these piers in 1971, and over 420,000 fishes were landed. More than 50 species of fishes were taken, with silver perch, Bairdiella chrysura; *Spanish mackerel,* Scomberomorus maculatus; *and the catfishes,* Arius felis *and* Bagre marinus, *predominating.*

INTRODUCTION

In 1969, the most recent year for which published data are available, the 118,000 saltwater commercial fishermen on the U.S. mainland landed 3.4 billion pounds of fishes (U.S. Department Commerce, 1972). The following year, the 9,392,000 saltwater recreational fishermen in the same area landed an estimated 1.6 billion pounds of fishes (Deuel, 1973). Landings by the recreational anglers were equivalent to almost half of the previous year's commercial landings and confirm the need for increased recreational fishery research.

Expenditures by anglers make up an important part of the economy in many regions. In Florida, Ellis, Rosen, and Moffett (1958) estimated a $260 million expenditure on recreational fishing in 1955.

One popular method of fishing on Florida's gulf beaches is pier fishing. Generally the piers are either privately owned or operated by local authorities. Food, bait, and tackle are usually available at each pier and an admission fee is charged on all but publicly-owned piers.

Ellis, et al. (1958) surveyed the Florida recreational fishery and presented information on recreational fishing from piers. They interviewed 12 pier operators from a state total of 23 in 1955, and estimated that almost 570,000 fisherman-days were spent on paid piers in Florida that year. Nearly 3 million participants in saltwater pier fishing in Florida were estimated in 1970 (Florida Department Natural Resources, 1971).

Our report covers various aspects of the recreational fishery on three piers on Florida's gulf coast near St. Petersburg in 1971. Included is information on the characteristics of the anglers,

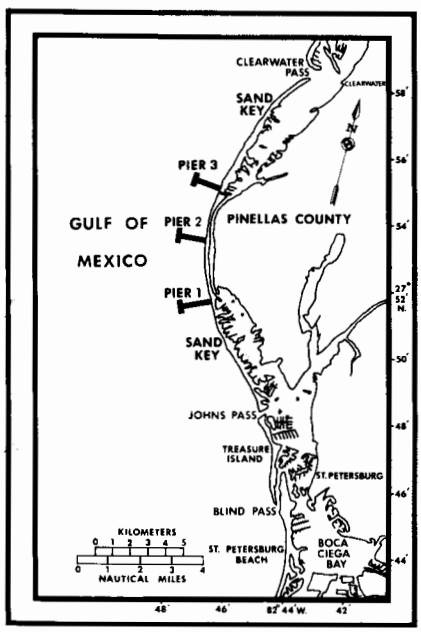

Figure 1.—Locations of the three fishing piers.

attendance estimates, species and numbers of fishes caught, catch per man per hour, and expenditures for admission tickets and bait.

METHODS

Locations of the three piers are shown in Figure 1. They are Long Pier (Pier 1), Pier Kahiki (Pier 2), and Big Indian Rocks Pier (Pier 3). Each pier was visited by an interviewer an average of four times per week from January through December 1971. The sampling was such that visits to each pier occurred on 56 percent of the weekend days and on 53 percent of the weekdays during the year. Interviews were made during an 8-hour period with 2 hours spent at each pier and 2 hours spent traveling between piers. The survey periods were begun at different times so that interviews occurred during all hours of the day and night (Table 1).

All anglers departing the pier during the 2-hour period of observation were counted and as many as possible were interviewed. The fishermen were asked: how long they fished, how many and what species they caught, how much and what bait they used, where they were from, which admission ticket they had, and what fishes, if any, they released. The sex and age of each angler were also noted.

The number of anglers leaving per hour was used to estimate the number of angler visits to the three piers. Monthly estimates of angler visits were made for each pier for two time strata: 0800-1959 hours (day); and 2000-0759 hours (night). The day and night estimates were made by multiplying the average number of anglers leaving per daylight or nighttime hour by the total number of hours within the time stratum during the month. Yearly totals consisted of summations of the monthly estimates.

CHARACTERISTICS OF THE ANGLERS

Males made up 82 percent of the anglers on the piers. The percentages of anglers by estimated ages were as follows: less than 20 years old, 18 percent; from 20 to 29, 12 percent; from 30 to 39, 7 percent; from 40 to 49, 10 percent; from 50 to 59, 9 percent; and 60 and over, 44 percent.

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Nonresident fishermen made up 40 percent of the anglers on Pier 1; 29 percent on Pier 2; 25 percent on Pier 3; and 31 percent on all three piers combined. The highest percentages of tourists occurred in March and April and again in December, while the lowest were recorded in May and September (Fig. 2). Most of the tourists were from the mid- and upper-central United States, especially Ohio, New York, Illinois, and Michigan.

ANGLER VISITS

A total of 5,850 anglers was counted as they left the piers during the 1,170 hours of observation; 83 percent of them were interviewed. An estimated 121,801 angler visits were made to the three piers in 1971; 34,885 at Pier 1; 27,909 at Pier 2; and 59,007 at Pier 3 (Table 2). These estimates were higher than the 24,760 anglers (average) that Ellis, et al. (1958) reported on the 12 piers they studied in 1955. The highest projected angler attendance on each of the three piers was in June, with lowest attendance occurring in the late winter and late summer (Fig. 3).

FISHES CAUGHT

The interviewed anglers caught a total of 16,803 fishes (Table 2). Each angler fished an average of 4.05 hours per trip and landed 3.47 fishes or 0.86 fish per hour. Seasonally, catch per man per hour was highest in the winter and early spring and lowest through the summer and fall (Fig. 4). By multiplying 3.47 by the estimated total number of anglers, we calculated that over 420,000 fishes were caught on the three piers during the year (Table 2).

CATCH COMPOSITION

More than 50 species of fishes were taken by interviewed anglers (Table 3). The monthly catch per man per hour at each pier for the 10 most commonly caught fishes is shown in Figure 5. The silver perch, *Bairdiella chrysura*, known locally as the butterfish, was the most common catch. It was abundant in winter months, but was unreported in summer.

Spanish mackerel, *Scomberomorus maculatus*, was the second most abundant fish caught from the piers. The greatest catch per man per hour was recorded in May, during the species' northward spring migration. Few were

Table 1.—Survey periods on the three piers during 1971. The numbers represent hours, for example, 24-8 represents 2400 to 0800 hours.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	—	24-8	—	7-15	7-15	—	5-13	16-24	3-11	—	14-22	—
2	—	8-16	—	8-16	5-13	—	4-12	24-8	4-12	—	13-21	2-10
3	—	—	—	—	4-12	13-21	3-11	—	—	—	12-20	3-11
4	—	18-2	7-15	3-11	—	12-20	—	7-15	—	—	—	4-12
5	—	21-5	14-22	—	—	—	—	9-17	—	—	—	5-13
6	—	—	16-24	—	—	—	—	—	—	19-3	—	6-14
7	8-16	—	16-24	4-12	14-22	—	—	—	—	18-2	—	—
8	—	14-22	14-22	12-20	16-24	4-12	14-22	—	—	17-1	—	—
9	16-24	—	13-21	13-21	19-3	3-11	15-23	—	23-7	16-24	—	—
10	—	24-8	11-19	—	20-4	2-10	16-24	15-23	22-6	—	19-3	7-15
11	—	7-15	—	—	21-5	—	18-2	16-24	21-5	—	18-2	8-16
12	7-15	—	—	—	22-6	14-22	19-3	17-1	20-4	—	17-1	9-17
13	20-4	16-24	—	—	—	12-20	17-1	—	18-2	2-10	16-24	10-18
14	—	13-21	—	24-8	—	10-18	14-22	—	16-24	3-11	15-23	11-19
15	6-14	—	—	1-9	—	—	—	4-12	14-22	4-12	13-21	12-20
16	12-20	—	5-13	2-10	—	—	—	5-13	—	6-14	11-19	—
17	16-24	19-3	4-12	3-11	—	—	—	10-18	—	7-15	10-18	—
18	23-7	—	3-11	5-13	—	15-23	10-18	12-20	—	8-16	—	—
19	—	—	—	7-15	8-16	16-24	11-19	—	5-13	9-17	—	—
20	—	4-12	10-18	8-16	3-11	18-2	12-20	—	4-12	10-18	—	—
21	9-17	9-17	17-1	—	4-12	19-3	—	—	—	—	3-11	13-21
22	3-11	—	19-3	—	5-13	20-4	—	14-22	—	—	4-12	14-22
23	—	—	—	—	6-14	21-5	—	16-24	—	—	5-13	15-23
24	22-6	15-23	—	16-24	7-15	—	8-16	18-2	7-15	—	—	—
25	16-24	17-1	—	15-23	8-16	—	—	20-4	8-16	—	—	—
26	—	19-3	4-12	14-22	9-17	—	—	—	12-20	—	—	—
27	10-18	—	6-14	13-21	—	—	—	—	13-21	11-19	—	7-15
28	—	6-14	—	—	—	—	3-11	—	11-19	12-20	—	8-16
29	—	—	—	—	—	10-8	2-10	—	10-18	13-21	—	9-17
30	5-13	—	5-13	—	10-18	—	1-9	5-13	—	14-22	12-20	—
31	—	—	6-14	—	—	—	5-13	6-14	—	15-23	—	—

taken in other months. Thus, there was no evidence of a return migration along the beaches in the fall.

The catfishes, *Arius felis* (sea catfish) and *Bagre marinus* (gafftopsail) were the third most abundant fishes

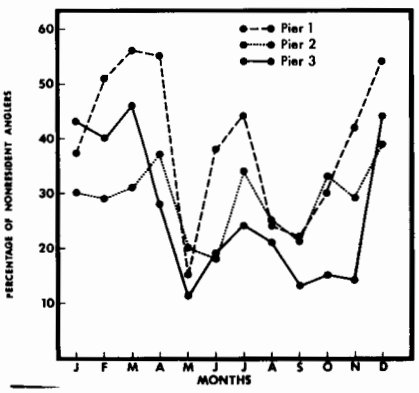

Figure 2.—Monthly percentages of nonresident anglers on each pier.

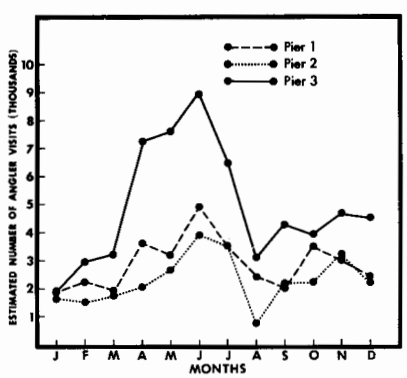

Figure 3.—Estimated numbers of monthly angler visits to each pier.

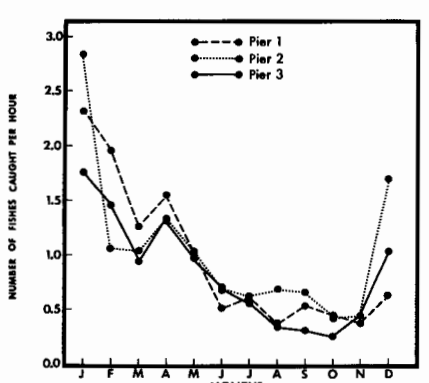

Figure 4.—Estimated average number of fishes caught per man per hour on each pier.

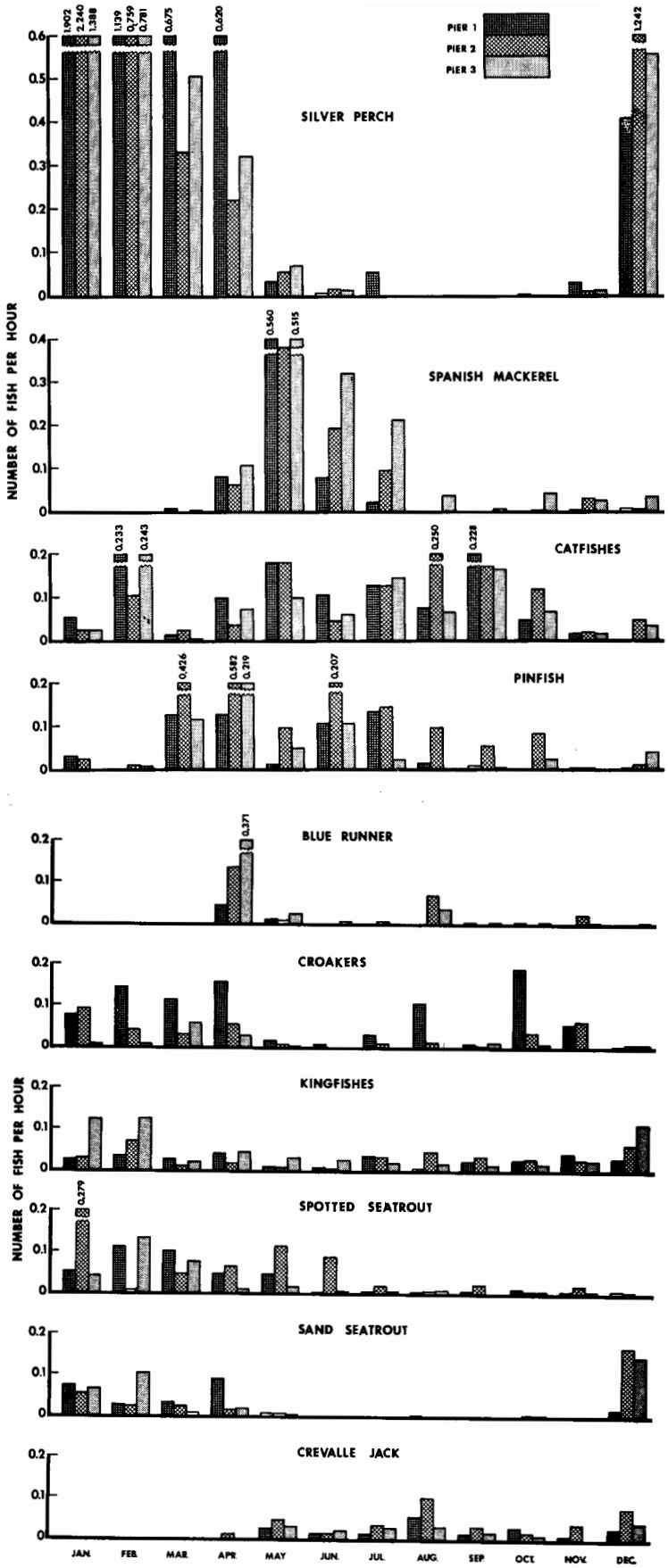

Figure 5.—Monthly catch per man per hour at each pier for the 10 most commonly caught fishes.

caught and were taken throughout the year.

A total of 54 percent of all fishes taken on the piers were released. Most of the released fishes were undesirable as food fishes, but some (Spanish mackerel, *Scomberomorus maculatus;* spotted seatrout, *Cynoscion nebulosus*; gulf flounder, *Paralichthys albigutta*; red drum, *Sciaenops ocellata*; striped mullet, *Mugil cephalus;* snook, *Centropomus undecimalis;* Florida pompano, *Trachinotus carolinus;* and bluefish, *Pomatomus saltatrix*) were released because they were not of legal size.

Table 2.—The observed and estimated numbers of anglers and fishes taken on the three piers.

	No. anglers observed leaving			No. anglers interviewed			Estimated total angler visits			Fishes caught by interviewed anglers			Estimated total fishes caught		
Piers	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Months															
Jan	76	61	74	70	50	67	1,886	1,684	1,894	598	590	390	16,106	19,871	11,061
Feb	92	70	140	81	59	124	2,288	1,464	2,949	514	257	524	14,529	6,383	12,474
Mar	125	82	149	115	72	131	1,937	1,794	3,232	530	278	398	8,930	6,925	9,825
Apr.	188	117	358	170	103	275	3,600	2,068	7,230	981	647	1,647	20,772	12,987	43,308
May	154	115	373	124	92	232	3,200	2,676	7,594	547	431	1,105	14,112	12,524	36,147
Jun	206	167	387	182	113	269	4,944	3,969	8,970	358	287	832	9,740	10,081	27,717
Jul	160	169	326	152	145	259	3,509	3,524	6,515	333	323	622	7,685	7,859	15,636
Aug	106	37	125	79	36	82	2,418	784	3,107	114	119	111	3,482	2,595	4,194
Sep	94	104	206	86	102	179	2,039	2,205	4,308	272	294	222	6,443	6,350	5,342
Oct	171	108	201	165	95	162	3,562	2,239	3,960	293	163	184	6,340	3,851	4,514
Nov	132	149	230	122	129	177	3,060	3,230	4,690	194	257	338	4,865	6,428	8,958
Dec	155	139	304	138	129	271	2,442	2,272	4,558	259	846	945	4,591	14,904	15,907
Total	1,659	1,318	2,873	1,484	1,125	2,228	34,885	27,909	59,007	4,993	4,492	7,318	117,595	110,758	195,083

Table 3.—Number of fishes taken and catch per man per hour on each pier.

	Pier 1		Pier 2		Pier 3		Total	
Name	Number caught	Catch per man per hour	Number caught	Catch per man per hour	Number caught	Catch per man per hour	Number caught	Catch per man per hour
Bairdiella chrysura (silver perch)	1,703	0.294	1,500	0.321	1,815	0.199	5,018	0.256
Scomberomorus maculatus (Spanish mackerel)	433	0.075	347	0.074	1,427	0.157	2,207	0.113
Arius felis and *Bagre marinus* (catfishes)	567	0.098	420	0.090	754	0.083	1,741	0.089
Lagodon rhomboides (pinfish)	303	0.052	690	0.148	580	0.064	1,573	0.080
Caranx crysos (blue runner)	35	<0.01	94	0.020	506	0.056	635	0.032
Micropogon undulatus and *Leiostomus xanthurus* (croakers)	427	0.074	125	0.027	81	0.009	633	0.032
Menticirrhus spp. (kingfishes)	138	0.024	133	0.028	361	0.040	632	0.032
Cynoscion nebulosus (spotted seatrout)	159	0.027	224	0.048	134	0.015	517	0.026
Cynoscion arenarius (sand seatrout)	106	0.018	116	0.025	218	0.024	440	0.022
Caranx hippos (jack crevalle)	86	0.015	147	0.031	157	0.017	390	0.020
Pogonias cromis (black drum)	135	0.023	86	0.018	160	0.018	381	0.019
Haemulon spp. (grunts)	135	0.023	42	<0.01	193	0.021	370	0.019
Paralichthys albigutta (gulf flounder)	69	0.012	114	0.024	179	0.020	362	0.018
Sciaenops ocellata (red drum)	104	0.018	108	0.023	41	<0.01	253	0.013
Archosargus probatocephalus (sheepshead)	126	0.022	43	<0.01	63	<0.01	232	0.012
Chaetodipterus faber (Atlantic spadefish)	71	0.012	33	<0.01	128	0.014	232	0.012
Elops saurus (ladyfish)	80	0.014	63	0.013	83	<0.01	226	0.012
Centropristis spp. (seabasses)	79	0.014	43	<0.01	61	<0.01	183	<0.01
Squaliformes (sharks)	49	<0.01	49	0.010	74	<0.01	172	<0.01
Dasyatidae (stingrays)	59	0.010	35	<0.01	52	<0.01	146	<0.01
Echeneis naucrates (sharksucker)	17	<0.01	11	<0.01	63	<0.01	91	<0.01
Opsanus spp. (toadfishes)	40	<0.01	24	<0.01	11	<0.01	75	<0.01
Prionotus spp. (searobins)	20	<0.01	4	<0.01	16	<0.01	40	<0.01
Sphoeroides nephelus (southern puffer)	14	<0.01	11	<0.01	9	<0.01	34	<0.01
Anguilliformes and Ophidiidae (eels)	3	<0.01	6	<0.01	21	<0.01	30	<0.01
Chloroscombrus chrysurus (Atlantic bumper)	0	0	0	0	23	<0.01	23	<0.01
Mugil cephalus (striped mullet)	4	<0.01	0	0	16	<0.01	20	<0.01
Synodus foetens (inshore lizardfish)	0	0	2	<0.01	16	<0.01	18	<0.01
Centropomus undecimalis (snook)	4	<0.01	3	<0.01	9	<0.01	16	<0.01
Oligoplites saurus (leatherjacket)	0	0	2	<0.01	13	<0.01	15	<0.01
Decapterus sp. (scad)	0	0	0	0	14	<0.01	14	<0.01
Rachycentron canadum (cobia)	3	<0.01	2	<0.01	9	<0.01	14	<0.01
Trachinotus carolinus (Florida pompano)	2	<0.01	1	<0.01	8	<0.01	11	<0.01
Scomberomorus cavalla (king mackerel)	1	<0.01	2	<0.01	5	<0.01	8	<0.01
Epinephelus spp. and *Mycteroperca* spp. (groupers)	7	<0.01	0	0	0	0	7	<0.01
Selene vomer (lookdown)	2	<0.01	1	<0.01	3	<0.01	6	<0.01
Orthopristis chrysoptera (pigfish)	5	<0.01	1	<0.01	0	0	6	<0.01
Holocentridae (squirrelfishes)	1	<0.01	3	<0.01	1	<0.01	5	<0.01
Pomatomus saltatrix (bluefish)	1	<0.01	1	<0.01	2	<0.01	4	<0.01
Lutjanus griseus (gray snapper)	2	<0.01	2	<0.01	0	0	4	<0.01
Equetus spp. (cubbyus)	1	<0.01	0	0	2	<0.01	3	<0.01
Megalops atlantica (tarpon)	0	0	0	0	3	<0.01	3	<0.01
Lactophrys quadricornis (scrawled cowfish)	1	<0.01	0	0	1	<0.01	2	<0.01
Trichiurus lepturus (Atlantic cutlassfish)	0	0	1	<0.01	1	<0.01	2	<0.01
Epinephelus itajara (jewfish)	0	0	0	0	2	<0.01	2	<0.01
Strongylura spp. (needlefishes)	0	0	2	<0.01	0	0	2	<0.01
Calamus spp. (porgies)	0	0	0	0	2	<0.01	2	<0.01
Rhinobatos lentiginosus (Atlantic guitarfish)	1	<0.01	0	0	0	0	1	<0.01
Lachnolaimus maximus (hogfish)	0	0	1	<0.01	0	0	1	<0.01
Astroscopus y-graecum (southern stargazer)	0	0	0	0	1	<0.01	1	<0.01
Yearly total	4,993	0.863	4,492	0.962	7,318	0.803	16,803	0.858

EXPENDITURES

Admissions

Several types of admission tickets were available on the piers, including daily, weekly, monthly, 6-month, and yearly tickets. Of all interviewed anglers, 65 percent held daily tickets, 23 percent held yearly tickets, 4 percent held 6-month tickets, and the remaining 8 percent held monthly, weekly, and other tickets, including free passes.

Determination of the exact amount spent on ticket purchases was not possible because anglers with other than daily tickets could have been interviewed more than once while using the same ticket. Thus, daily ticket purchases provided the most reliable estimate of money spent for pier admission. On all three piers, the daily ticket price was $1.25 for adults, while the ticket price for children under 12 years was $0.50 on Piers 1 and 2 and $0.25 on Pier 3. Estimating that 5 percent of all anglers were less than 12 years old, we calculated that the anglers that held daily tickets (65 percent of the total number of fishermen) paid $95,500 on all three piers in 1971, ($27,500 at Pier 1, $22,000 at Pier 2, and $46,000 at Pier 3). The total admissions fee would be substantially larger if other tickets were included.

Bait

Bait used by the anglers and bought at the piers included live and frozen shrimp, frozen squid, live and frozen minnows (sardines and anchovies), live pinfish, cut fish, and dead crabs. Other baits and artificial lures were also used but were generally caught or purchased elsewhere. Live shrimp was the most popular bait, except during May, when live minnows were used for Spanish mackerel.

Expenditures on bait used by the interviewed anglers were estimated at $2,200, based on the total amount of bait used and its cost. An average of $0.46 was spent on bait per angler visit. This value, when expanded to 122,000 angler visits on the three piers, amounted to over $55,000 for bait alone in 1971.

SUMMARY

Forty-four percent of the anglers were 60 years old, or over, and 82 percent were males. Nonresidents made up 31 percent of the fishermen on the piers, and were most numerous in March, April, and December. An estimated 121,801 angler visits were made to the piers in 1971. Highest projected attendance was in June, while the lowest was in the late winter and late summer. Each angler fished an average of 4.05 hours per trip and landed 3.47 fishes, or 0.86 fish per hour. The seasonal catch per man per hour was greatest in the winter and early spring. An estimated total of over 420,000 fishes was caught from the piers in 1971. Fifty-four percent of the fishes caught were released.

Silver perch, *Bairdiella chrysura;* Spanish mackerel, *Scomberomorus maculatus*; and the catfishes, *Arius felis* (sea catfish); and *Bagre marinus* (gafftopsail) were the most commonly caught of more than 50 species of fishes. Almost two-thirds of the anglers held daily admission tickets which cost $1.25 for adults. An estimated $95,500 was spent on these tickets alone in 1971. Live shrimp was the most popular bait used. The average cost for bait per angler visit was $0.46. The estimated total spent for bait on the three piers was over $55,000.

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