

LAKE APOPKA HAUL SEINE CATCH - 1966

In September, 1966 the Game and Fresh Water Fish Commission authorized an expenditure of \$2500 to be matched with an equal amount from the Orange County Conservation Fund to finance a haul seine survey of Lake Apopka.

Nassau Oil and Fertilizer Company of Fernandina Beach, Florida had indicated a desire to purchase gizzard shad in 20 ton lots only, provided that fish other than shad did not constitute over 10% of the catch. The price to be paid was .01 pound. Nassau was also interested in catching rough fish at no cost to the Game and Fresh Water Fish Commission provided its equipment (salt water variety) and methods (purse seine) could be modified to catch fish in fresh water. In the final analysis the Game and Fresh Water Fish Commission decided to outline the initial survey with the following objectives:

1. To establish the efficiency of a 1600 yard haul seine in various bottom types in Lake Apopka.
2. To determine the poundage of gizzard shad that could be harvested using a 1600 yard net.
3. To determine composition of the fish population and feasibility of using a fish pump to remove rough fish from the net.

The Game and Fresh Water Fish Commission agreed to undertake this program with the understanding that this was an investigation-- not a rough fish control project. The Commission was attempting to provide specific answers to objectives previously mentioned.

Twenty-five seine hauls were made beginning October 5, 1966 and terminating November 11, 1966. The seine used was owned by the Game and Fresh Water Fish Commission, was 1600 yards in length and would fish to a depth

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of 17 feet. There was some criticism of using such a deep net in a lake this shallow (average depth less than 6 ft.). Although more work was involved from the fishermen's standpoint to fish this net, a shallower net would not have increased the catch. Results of the hauls are given in Table I.

DISCUSSION OF TABLE I

Mudfish represented the least amount of fish taken by the net. This was to be expected, based on previous seining experience in Lake Griffin in 1965-66.

Lake Apopka has few bluegills of a size large enough to be taken in the seine in the open water. Only bluegills 8 ounces or larger will remain in the net. All hauls were made in open water without cover and if larger bluegills are present, they may be in the grass along the shore. Three one-acre block net samples in Lake Apopka in April - May of 1966 yielded 408 bluegills weighing 13.8 pounds. Of these fish, 326 were between 3 and 4 inches in size.

Black crappie were fairly abundant but of small size.

Gizzard shad comprised the greatest proportion of the weight of all species taken with the net. Shad kills are quite frequent throughout the lake during the hot summer months and are not present in excessive numbers. The average daily catch amounted to 3,321 pounds. Because of natural kills of this species associated with the deteriorating water quality in Lake Apopka, this fish may be expected to be further reduced in numbers if the present trend of pollution continues. They are among the first fish to die when adverse factors alter water quality.

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On October 25 the largest single catch of gar ever removed by any method and recorded by the Game and Fresh Water Fish Commission was taken with the net in Lake Apopka, and amounted to 13,963 pounds. Most of these fish by weight and numbers were of the long nose variety. The average daily catch of gar amounted to 2,363 pounds. This is an average of 5,684 pounds of shad and gar removed per day. Percentage wise, gar made up 41% of the average daily catch of rough fish. Gar fish are thriving in Lake Apopka because the environment is so well suited to their needs. They can exist in warm, shallow, mud bottom lakes with a minimum oxygen supply that would eliminate game fish. In this case it is a matter of the "survival of the fittest" and the gar is most fitted to this environment. This is not only true in Lake Apopka but other lakes downstream in the chain are experiencing the same trend.

COST OF PROJECT

The approximate cost of the Lake Apopka haul seine program was as follows:

1. 25 Hauls at \$75 each	\$1875.00
2. 142,099 lb. rough fish at .01 lb.	1412.00
3. Repair, maintenance of seine	1268.00
4. Supervision	500.00
5. Hauling fish to dump	216.00
6. Installing fish conveyer	141.00
7. Lumber for fish conveyer	10.00
8. Garden hose	<u>7.00</u>
TOTAL	\$5438.00
Sale of 36,700 lb. shad at .01 lb.	<u>-367.00</u>
Actual cost	5071.00

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Using 1600 yards of haul seine, an average of 5,684 pounds of rough fish (gar and shad) was removed daily from Lake Apopka. Nassau Oil and Fertilizer is interested in purchasing shad only in 20 ton lots and where they constitute 90% of the catch (shad composed 59% of the catch of 3,321 pounds per day).

A fish pump could not be used to remove rough fish from the pocket because of the quantity of game fish caught (3,222 pounds in 25 hauls). Because of their large size, gar fish would not go through the pump.

The water quality of Lake Apopka has deteriorated to such an extent that tremendous schools of shad are no longer present. They are the most sensitive and easily killed fish and are the first to die in a lake when water conditions are altered. Shad are the principal rough fish that convert algae and/or plankton directly into fish flesh. Nutrient control or removal indirectly by removing shad was one basis for this recently completed survey: Shad are not present in sufficient numbers to remove them for effective nutrient control.

Salt water purse seines could not be fished in Lake Apopka because of the shallow depth and turbidity. Fish must be observed visually before striking with a purse seine.

RECOMMENDATIONS

The end result of continued water pollution in Lake Apopka is eutrophication a condition characterized by partial depletion or absence of oxygen in the deeper waters during warm weather, rich plankton, rich nutrient supply and an abundance of rough fish - in this case, gar. It is useless to consider any form of rough fish control at this time and let the water quality remain as is. Active steps should be undertaken first to eliminate pollution and improve water conditions. Once it has been established that Lake Apopka has an environment that will support an adequate, population of game fish, then the Game and Fresh Water Fish Commission should reconsider the means at its disposal to restore the lake to a balanced fish population.

TABLE I

LAKE APOPKA HAUL SEINE CATCH - OCTOBER AND NOVEMBER 1966.
ALL FIGURES ARE POUNDS OF FISH

OCT.	BASS	CRAPPIE	BLUE GILL	SHELL CRACKER	CAT FISH	GAR	SHAD	MUDFISH	PREDATORY TURTLES	NON PREDATORY TURTLES
5	24	6	0	1	5	1,359	1,300	0	15	6
6	110	8	1	95	28	1,153	95	0	50	18
7	9	5	0	550	71	2,943	941	0	20	0
8	40	4	2	75	15	532	545	0	18	0
10	20	1	0	11	7	632	3,226	0	9	0
11	45	4	0	20	23	1,513	1,370	0	0	0
12	90	3	0	150	17	1,715	8,514	0	112	0
13	50	18	0	4	25	510	796	0	6	0
14	75	8	0	95	91	1,924	1,835	0	76	0
15	20	2	0	17	45	1,531	911	0	90	0
17	45	5	0	6	23	2,677	4,693	0	27	0
18	10	4	1	8	7	825	4,575	0	28	0
19	65	4	0	175	23	580	573	0	102	2
20	25	3	0	14	23	1,928	7,111	0	0	0
21	45	6	2	270	94	806	3,954	0	19	0
24	55	45	0	8	86	224	518	0	0	0
25	4	2	0	14	13	13,963	1,802	0	0	0
28	30	8	0	10	23	1,318	717	0	12	0
29	12	8	0	45	68	662	2,542	0	25	0
31	76	15	2	160	41	1,188	3,855	0	8	0
NOV.										
5	120	45	0	25	15	3,378	2,537	5	0	0
7	5	26	0	8	126	5,799	4,463	0	0	0
9	30	18	0	5	90	1,430	13,474	0	0	0
10	10	25	0	45	65	6,848	8,210	0	0	0
11	45	40	0	30	100	3,638	4,460	0	0	0
TOTAL	1,060	313	8	1,841	1,124	59,076	83,018	5	617	26