

# A SUMMARY OF A FISHERIES SURVEY ON THE ST. JOHNS RIVER

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Proc. Annu. Conf. Southeast. Assoc. Game & Fish Comm. 3:139-141

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The St. Johns River is a very interesting body of water. It flows northward, widening into large lakes at various points, on its trip to the Atlantic Ocean. The largest of these lakes is Lake George. It is here most of the work summarized in this report was conducted.

Hanna and Cabell entitled their book on this river, *The St. Johns, A Parade of Diversities*. If they had dealt with the fish population it could well have been entitled, *The St. Johns, A Parade of Fishes*, for there are many species to be found here, both fresh water and marine. McLane while working on his doctorate found 114 species in this drainage system.

For many years a number of these were taken commercially by various devices. Among the fish which have been sold are the black bass (*Micropterus salmoides*), black crappie (*Pomoxis nigro-maculatus*), bluegill (*Lepomis macrochirus*), shell-cracker (*Lepomis microlophus*), channel catfish (*Ictalurus lacustris*), white catfish (*Ictalurus catus*), speckled bullhead (*Ameriurus nebulosus*), white shad (*Alosa sapidissima*), and to a lesser extent herring (*Pomolobus aestivalis*), gizzard shad (*Dorosoma cepedianum*), and garfish (*Lepisoteus osseus* and *platyrincus*). The latter three to be used as bait. These were harvested with haul seines, pound nets, hoop nets, wire baskets, gill and trammel nets, trotlines and shad nets.

In 1947 the use of all the commercial fishing devices, with the exception of the trotline, was declared illegal due to the sports fishermen's belief that commercial fishing is detrimental to the game fish population.

The same year the Florida Game and Fresh Water Fish Commission authorized surveys on the St. Johns River and Lake Okeechobee which were to determine (1) the effect of various commercial fishing operations on game fish populations, (2) methods of improving sport fishing, (3) potential annual production of fishery resources, and (4) to formulate enforceable regulations for benefitting the commercial and sports fisheries alike.

## METHODS

To obtain this information the aid of the commercial fishermen was solicited. They were asked to provide the haul seines and other types of equipment needed to gather the information in return for the privilege of selling the catfish and other rough fish taken during the operations. They agreed to the plan and in July 1947, preliminary work was begun on the St. Johns River. At this time the project personnel consisted of one man. Since then it has gradually increased until at the present eleven men are employed in gathering the necessary data.

It was thought the project was to be cut to five men the first of July of this year but again the commercial fishermen came to our aid. Seven of the crews operating the haul seines agreed to pay the salary of the biologist supervising their nets if they could fish continuously throughout the year. Before this the crews were

operating on a rotation system which permitted them to fish approximately six months out of the year.

## RESULTS

The information which was been gathered during the course of this survey will be discussed under the various fishing devices which have been checked. During the period from July 1948, to June 1949, the haul seines, which are the most effective means of harvesting the rough fish in this area, removed 1,072,600 pounds of catfish. These were sold for approximately \$0.17 per pound yielding a return of \$182,000 to the people along the St. Johns River where the operations took place. In addition approximately \$5,000 was received from the sale of other rough fish for bait purposes.

During the same period 680,651 pounds of game fish were taken and returned to the water. The mortality rate in returning these to the water is believed to be less than 2 percent the year round. Most of the mortality occurs during the warm months. Since the nets are some times operated in shallow water another detrimental effect is created due to the removal of the parent fish from the nest before the reproductive cycle is completed. Recommendations have been made which will relieve these conditions to some extent, that is, a closed season during the summer months and limiting the seines to water which is over five feet in depth.

The sampling with haul seines was carried on in four areas and the species composition of the catch ran from 6.4 percent game fish in one area up to 45.9 percent in another. The catfish and other food fish varied from 36.1 percent to 53.2 percent.

Wire traps were checked for 1,930 trap days. During this period it was found this equipment takes very few game fish. The catch was composed of 6.4 percent game fish and 93.6 percent catfish. This equipment was not found to be detrimental to the game fish population as most of the game fish can be returned to the water unharmed.

Pound nets were observed for 178 days. Here the catch was found to be composed of 8.5 percent game fish and 86.9 percent catfish. Pound net sets are permanent and since most of the game fish can be returned to the water unharmed they are not considered to be detrimental to the game fish population.

Hoop nets were observed for 2,953 trap days. From these observations it was found this is the least detrimental type of gear. The catch consisted of 1.6 percent game fish and 98.4 percent catfish.

Gill nets, trammel nets and trotlines were checked but the observations are so few they will not be discussed here.

Besides checking the catches of the commercial equipment age and growth studies are being made on the fish caught in the haul seines. These studies are not complete but some indications of the age classes have been found.

The length frequency methods seems to be the most satisfactory although with a little more work it may be that the scale method will prove to be satisfactory for determining the age and growth of the black crappie.

During the period the measurements have been taken it is believed that the crappie in the second and third year groups make up 80 percent of the catch made by the haul seines. About 60 percent of them are believed to be in the

second year group. This indicates a disappearance by natural causes of a large part of the crappie population between the second and third year. It is believed this study will eventually provide the key for determining the extent of harvesting which may be practical.

The majority of the bluegills taken in the haul seines are believed to be one year old fish.

Measurements of the catfish caught in the haul seines are also being taken but this has not been used in age and growth determinations at the present. It has shown that a major portion of the catfish being taken are entirely too small both from a marketable standpoint and the reproduction of the fish. The average weight of the catfish caught in the hauls seines has been found to be approximately one-half pound for the white catfish, 0.6 of a pound for the channel catfish and 1 pound for the speckled bullhead.

Tagging is being carried on to aid the age and growth studies and to determine migration trends.

This survey has not provided the answers to all of the questions that require answers but it has answered some of them. I think most of the answers will be found in the future. The problem then will be to convince the general public we have found the answers.