less than in control ponds. An application of 4 p.p.m. As_2O_3 to ponds that the previous year had received two applications of 8 p.p.m. As_2O_3 reduced the numbers of bottom organisms an average of 20 percent and reduced bluegill production an average of 26 percent. However, one pond in each of these tests had been drained and refilled only once and left dry for four months, and the other pond had been drained and refillled twice between the 1955 and 1956 tests. In each test the pond drained and refilled two times gave a higher bluegill production than did the ponds that were drained and refilled only once and left dry for four months between the tests.

In a number of lakes and ponds in Alabama that had been recently treated with sodium arsenite to control *Pithophora,* delayed bluegill reproduction as well as poor growth of young bass was observed during the early summer of 1956.

An application of 4 p.p.m. As_2O_3 as sodium arsenite to ponds killed all of the microcrustacae and greatly reduced the population of rotifers. This absence of microcrustacae existed for almost two months in experimental ponds. This absence of food for small fish probably explains, at least in part, the reduced numbers and poor growth observed in numerous ponds which had been treated with sodium arsenite.

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STRIPED BASS FOR ARKANSAS?

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The anticipation and chance of catching a trophy size, 20 to 30 pound fish should be reason enough for Arkansas' effort to establish striped bass (*Roccus saxatilis*) in its public waters. Requiring no special fishing skill, especially during the season when the striped bass are feeding on the schooling gizzard shad, makes them more desirable for a state which caters to the out-of-state and tourist fishermen.

From a biological standpoint, the striped bass might be the answer to a fisheries biologist's dream in the control of the ever present and usually overabundant gizzard and threadfin shad population. The striped bass is very vicious and predaceous (feeding extensively on gizzard shad, threadfin shad, and herring in the Santee-Cooper Reservoir, S. C.) always pursuing, darting in, slashing, and feeding on the schooling shad.

Also the striped bass, if established, would fill in a niche in the large impoundments in Arkansas. There are hundreds and hundreds of acres of open water bare of fish, except the gizzard shad which are numerous. It is thought that this would be a typical habitat of the striped bass, competing with no other predaceous fish in the open water.

Conscious of the need of striped bass in Arkansas, two biologists with the necessary equipment for marginal seining were detailed to the Santee-Cooper Reservoir, South Carolina, in early November, 1956, to secure a stock of fingerling bass. Since marginal seining for the small striped bass was relatively new, little encouragement, but full cooperation, was given by the South Carolina Wildlife Resource Department.

Upon arrival, a small holding pond was rented to hold the fish until a load was secured. After several attempts it was learned that night seining was more successful, and several professional minnow seiners were hired. The shore line

of these reservoirs is very stumpy and without the aid and knowledge of these men who knew where areas could be seined, night seining would have been impossible.

After four nights of seining, over 1,500 2" to 10" striped bass were caught and placed in the holding pond. It was agreed that this was a sufficient number and a call was made for transportation. An atempt was made to obtain air service through the Arkansas Air National Guard to transport the fish back to Arkansas, but it was unsuccessful at the time needed. A fourteen-barrel hatchery truck equipped with an areation device was sent, but in the lapse of three days a fungus infection had killed all the fish in the pond.

When the truck arrived, a renewed effort was made, but the temperature had dropped sharply and the fish had apparently moved to deeper water. Around 350 fingerlings (2"-10") were caught and loaded on the hatchery truck and sent to Arkansas. Out of this number 207 were alive on arrival in Arkansas. One hundred and eighty were placed in a clean pond at the Lake Hamilton Hatchery to be held in an effort to raise them to a more suitable size for stocking, but 27 were stocked in Lake Ouachita.

Still determined to have striped bass in Arkansas, arrangements were made with South Carolina authorities to obtain adults and sub-adults by hook and line. By getting larger fish just before the spawning season which begins in late March or early April, it was thought that two or three years could be saved since female striped bass seldom mature in less than four years.

Several months of preparation preceded the trip, including research reading about chemicals to prevent fungus and proper holding facilities in the boat, truck, and pond.

Each fisheries biologist's station wagon, five in all, was equipped with a 30 gallon barrel and electric agitator powered by the car battery. With an extra battery this rig could be placed in the boats for holding the fish caught by the fishermen until they could be taken to the shore where a hatchery truck was waiting. The hatchery trucks were equipped with six 55 gallon barrels with an oxygen-areation device. These trucks were used in transporting the fish from the lake to the rented holding pond. When a small load was secured, not waiting for large loads, the trucks were used in transporting the fish to Arkansas.

All chemicals were weighed and packaged in correct amounts to be used before leaving.

Acriflavine was agreed upon to be the best combatant of fungus on the trucks after exhaustive reading and some experimenting to be reassured of its concentration which was not toxic to striped bass and other fish. The acriflavine was weighed out in correct amounts which when dissolved in 30 gallons of water would make one part per million solution.

Potassium permanganate was selected for the pond to control fungus. An initial application of 10 parts per million was applied to "burn-out" all spores of fungus and bacteria. Potassium permanganate was weighed out in correct amounts, which when applied to the rented holding pond would make two parts per million. This was used after fish were placed in the pond.

To further insure against fungus, a three percent salt solution was made, and each fish was bathed in the solution before being placed in the pond.

Sixteen men in all, including five fisheries biologists, five truck drivers, one photographer, and five interested sportsmen made the trip. Five station wagons, one passenger car, one one-half-ton truck, two one-ton hatchery trucks, and a two-ton fourteen barrel hatchery truck besides boats, outboard motors, and various other equipment were used in this operation.

The agreement with the South Carolina Wildlife Resource Department was to obtain adult striped bass by hook and line. All the fishermen purchased non-resident fishing licenses and the Santee-Cooper permit. After intensive fishing for one week, using every kind of bait suggested by locals, the fishermen were able to place about eight striped bass in the holding ponds. Realizing the effort was fruitless, permission was obtained to use gill nets. The gill net is a very effective tool when used at night, but between the gill net and Arkansas the mortality rate ran about ninety percent. In spite of every precaution being taken to care for the fish, they still seemed to die from shock. Even after being

in the pond for several days the striped bass which looked in fine shape, when brought in close quarters in the bag of the seine, immediately turned bellies up. There was no apparent injury, no sign of fungus, but they were dead.

On the first load, out of 27 fish that started for Arkansas, only 11 arrived in good enough shape to be released in Lake Ouachita.

With ninety percent mortality by using the gill nets, permission was granted to fish below Pinopolis Dam. Here again the method was hook and line, using white bucktails and spoons with the barb mashed flat or filed off. In less than two hours a six-barrel truck was loaded. This time not only were they transported in one part per million acriflavine, but enough ice was added to the barrels to lower the temperature to approximately 50° F., and the drivers were instructed to keep the temperature below 55° F. by adding ice in transit.

The fourteen-barrel hachery truck was loaded with 33 of the sea-run race caught below the dam and 19 of the lake race which were being held in the holding pond. As before the fish were transported in one part per million acriflavine and iced to bring the temperature to 55° F. or below.

The first load that was caught below the dam was released in Narrows Lake. The other load went to Lake Ouachita. Since Lake Ouachita was receiving both the lake race and the sea-run race, it was decided that load of entire sea-run race be stocked in a different lake in a different watershed. If reproduction is found in Narrows Lake, it will be certain that the sea-run race was responsible.

At the final tally 33 sea-run striped bass were stocked in Narrows Lake and 19 lake race plus 30 sea-run race in Lake Ouachita.

CONCLUSION

Since the hook and line method is too slow and the mortality rate is too high with gill nets, and there is a question as to whether the sea-run race will spawn in fresh water, the only logical method of securing, transporting and stocking striped bass in inland waters is by using fingerling fish.

By the control of fungus and proper handling to the small fish, a sufficient number could be caught by marginal seining at night. Also a time should be selected when the weather is cool enough to transport fish yet not cold enough to make the young striped bass move to deep water.

EXPERIMENTS WITH YELLOW BASS (Morone interrupta) IN TENNESSEE FARM PONDS

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INTRODUCTION

Fish applications, processed during recent years by the Tennessee Game and Fish Commission, indicate that more than eighty percent of the ponds in the West Tennessee District are one acre or less in area; more than fifty percent of the total number do not exceed one-half acre. Practically all of the ponds are dependent on run-off water and are subject to seasonal fluctuations. These fluctuations, which could be of decided advantage for population control in larger waters, often create adverse conditions in many ponds stocked with largemouth bass and bluegill. Since few ponds are constructed with drain pipes, controlled fluctuation for the prevention or the correction of overpopulation is not practical.

Although largemouth bass and bluegill may be expected to provide only limited fishing in many ponds of the area because of the many factors contributing to overpopulation, these two species at the present time are the only fish available to the average pond owner.

The yellow bass, *Morone interrupta,* is frequently taken in natural waters of West Tennessee with both natural and artificial bait. It is game when taken on light tackle and ranks above average as a food fish. In certain Iowa lakes the