BASS AND BLUEGILL PRODUCTION FOR FARM PONDS

ARNO C. FULLER, U. S. Fish and Wildlife Service, Atlanta, Georgia

Proc. Annu. Conf. Southeast. Assoc. Game & Fish Comm. 5:266-268

The farm pond program began to influence our hatchery operations during 1941. At that time the majority of our requests was for fish to stock old lakes, old ponds and streams. In percentage of total demand, requests during 1941 for largemouth bass were comparatively heavy. The demand and need for bluegill sunfish was very light. Compared to present demand there was a relatively heavy demand for such species as smallmouth bass, redear sunfish, rock bass, crappie, green sunfish, etc.

Hatchery production was set up to meet as nearly as possible the demands for fish. Consequently, production of warm-water species in Region 4 during 1941 was as follows:

Lagemouth Bass	3,633,000
Bluegill Sunfish	4,396,000
Smallmouth Bass	516,000
Crappie	91,000
Catfish	48,000
Rock Bass	63,000
Miscellaneous	418,000
Total	9,165,000

Total applications received in the entire United States during 1941 was 11,695. Total hatchery facilities available in 1941 were utilized in securing the production mentioned above.

During the years following 1941 there has been a relatively steady increase in the demand for fish to stock farm ponds. In the past year or so the number of requests received has lessened slightly; but the average size of the ponds stocked has increased, thus resulting in an ever increasing number of fish required. As the needs and demands for fish to stock new ponds increased, requests for fish to stock old lakes and streams declined to some extent. The present demand for bluegills is many times greater than the demand for this species in 1941. The demand for miscellaneous species, such as rock bass, crappie, smallmouth bass, etc., is less than formerly. Production of fish during the past year gives some idea as to the demand as evidenced by the applications received. Production in Region 4 during 1950 was as follows:

Largemouth Bass	3,642,000
Bluegill Sunfish	25,693,000
Smallmouth Bass	418,000
Miscellaneous	455,000
Total	30,208,000

Total applications received in the entire United States during 1950 was 52,182.

As indicated by the total production figures given for 1941 and 1950, the number of fish produced has increased appreciably. This increase was accomplished without an increase in hatchery pond space. Also, there was no appreciable

increase in labor or materials used with the exception of pond fertilizer. Fertilizers were scarce during the war years, but since the end of the war, greater amounts of fertilizer have been used. In order to meet the increasing demand for pond fish, particularly bluegills, it was necessary that production of miscellaneous species, such as catfish, crappie, smallmouth bass, etc., be drastically reduced or eliminated. This was done and allowed the hatcheries to concentrate on propagating large-mouth bass and bluegill sunfish.

Attention is called to the fact that comparison of production figures has been given in numbers of fish produced rather than in pounds of fish produced. There are two reasons for this method of comparison. First, we stock farm ponds with a certain number of fish per acre rather than a given poundage of fish. Second, our production in pounds has changed relatively little. Our goal has been to produce the maximum number of young bass and bluegills of a minimum size that would be suitable for proper seeding of farm ponds.

During 1941 many of the bass and bluegills produced were two inches or longer. Now the majority of fish produced are approximately one inch in length. Bass and bluegills one inch in length weigh about one and one-half ounces per hundred, while the two inch fish weigh four to six ounces per hundred. A reasonable production from a one acre pond in 1941 was approximately 10,000 bass of two inches to three inches in length. A comparable bluegill production was about 40,000 fish per acre averaging about two inches in length. Production of bass today should be 30,000 to 40,000 per acre. Bluegill production should be approximately 120,000 per acre. It should be borne in mind that this increase in production means a reduction in the size of the individual fish.

In order to secure the increase in numbers of fish produced, our production methods have changed somewhat as follows:

In bass culture we formerly used ponds designated as brood bass ponds and, in addition, ponds called rearing ponds. Adult bass were placed in the brood ponds during early spring and allowed to spawn. When the resulting fry were about one-half inch in length, they were transferred from the brood or spawning ponds to the rearing ponds. We usually placed approximately 15,000 young bass in each acre of rearing pond. The rearing ponds were fertilized, and the bass fry were allowed to stay in these ponds from 50 to 60 days. By the end of this period food became scarce in the rearing ponds, and it was necessary to distribute the young bass.

Today we are following much the same program with our bass brood ponds. However, we are now using what we term "holding ponds" for the young bass. These holding ponds are in reality the same as rearing ponds except that we definitely plan to move the young bass much sooner and at a much smaller size than formerly. The ponds are fertilized and stocked with from 40,000 to 60,000 bass fry per acre. The real purpose of the ponds is to allow the young bass to be safely held for a sufficient time to permit distribution. Relatively little consideration is given to securing any appreciable growth. The main consideration is to hold the fish in good condition until they can be distributed to the applicants. Another important value of the holding ponds is that our distribution can be set up on definite delivery dates well in advance. Planning for distribution can be done at the time the holding ponds are stocked, which is approximately three weeks before the fish will be ready.

Experience has shown that where a proper fertilization program has been carried out we can hold 40,000 to 60,000 young bass per acre for a period of up to

approximately 28 days with relatively little loss. If the fish are not moved within this period, loss quickly builds up. As long as the food supply lasts, the young bass grown rapidly. After being in the holding ponds for 15 days they usually weigh about one ounce per hundred.

In the propagation of bluegills we use only the brood or spawning ponds. No effort is made to transfer the bluegill fry to rearing or holding ponds. In order to increase production in numbers the major change which we made was to increase the number of adult fish used per acre for stocking the bluegill ponds. Formerly, when 30 adults per acre were used, we could expect a production of approximately 40,000 young per acre. With a stocking rate of approximately 100 adults per acre we can expect a production of approximately 120,000 young per acre. As previously indicated, the young bluegills are much smaller when greater numbers are produced.

From the foregoing, hatchery operations undoubtedly appear very simple. Unfortunately just the opposite is true. We are making every effort to secure the maximum from each hatchery pond available and, where efforts are made to secure maximum production in any operation, complications will naturally arise.

Generally our ponds are used early in the spring to produce a crop of bass, and as soon as the bass are harvested, the ponds are then used to produce a crop of bluegills. Early spring fertilizing is done in the hope of producing a plentiful supply of food for the young fish. Since the time available is so short, we use both inorganic and organic fertilizers for our early fertilization programs. If weather conditions are adverse, a heavy growth of rooted plants or filamentous algae develops. These plants must be properly treated in order to release the food value which they tie up. Treatment usually consists of applying sodium arsenite or copper sulfate. Such treatments must be carefully and skillfully done if good results are to be obtained. Otherwise total failure may result.

Attention is called to the previous production figures where it was stated that bass production should be 30,000 to 40,000 per acre and bluegill production should be approximately 120,000 per acre. These figures represent production that should result under normal hatchery operations where ponds are average. They are above our present production per acre averages for the Region. Our present average production is lower than it should be due chiefly to those relatively few ponds which are total failures or nearly so and due to improper handling of problems which arise during the season. Production ranges from nothing to as high as 350,000 young bluegills per acre for a total weight of approximately 700 pounds per acre. Bass production ranges from nothing to approximately 75,000 weighing 100 pounds per acre. We believe these top production figures can enventually be made average production figures and such is our goal. If and when this is achieved, pond space released from production of bass and bluegills can then be utilized for producing such other species as may be desired.