

Stocking Sportfish in Virginia Ponds

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Prior to 1945, fewer than 250 farm ponds had been constructed in Virginia. Since that time, the construction of small impoundments has increased at a rapid rate. At present, approximately 50,000 farm ponds in Virginia serve as sources of water for livestock, crop irrigation, and fire protection; provide flood and erosion control, and furnish recreational swimming, boating, and fishing. Predictably, the peak times in pond construction occur during drought years—as in 1953, 1954, 1955, and 1977. The majority of these ponds are capable of producing good sportfish populations. With some consideration of proper fisheries management techniques, multi-purpose farm ponds can provide abundant sportfishing opportunities for freshwater anglers in Virginia.

Every pond has its own unique set of physical, chemical, and biological conditions which vary through the seasons and throughout the years. The quality of sportfishing a pond is controlled by many factors, including its location, size, water quality, fertility, and availability of fish food organisms. This natural variation among ponds frustrates many attempts to transfer sportfishing management strategies from one pond to another and inhibits the development of a single management plan with wide applicability. Clearly, each sportfishing pond is a special case that must be managed on an individual basis. Nevertheless, there are certain general principles of size, depth, temperature, stocking, and management which pertain in most ponds.

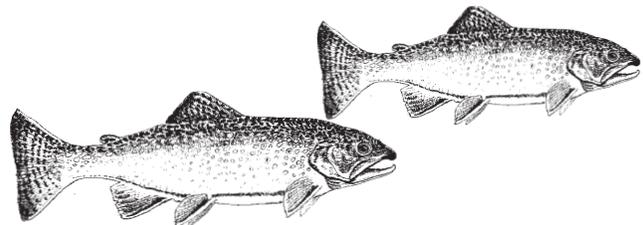
Size and Depth

Ponds ranging in size from 1/4 acre to several acres can be successfully used to provide satisfactory sportfishing. Ponds less than 1/4 acre in size will not provide adequate amounts of natural food or cover to support a healthy sportfish population.

Pond depth depends primarily on the prevailing climatic conditions. In northern states, where freezing weather is common, ponds must be deeper than in the southern states in order to avoid the possibility of winterkill. In Virginia, at least 1/3 of the pond should have a depth of 6 feet or more. Ponds used for crop irrigation, livestock watering, and other high consumption uses, or those with intermittent water sources and high evaporation rates, should be deeper than 6 feet. Although shallow water areas serve as spawning and nursery sites for sportfish, they readily become filled with aquatic weeds. To prevent excessive growth of nuisance water plants, shallow areas should not be less than 2 feet deep.

Water Temperature

Water temperature plays a critical role in determining what kinds of sportfish can survive in a particular pond. In general, freshwater fish can be separated into three groups based on temperature preferences. Coldwater species, which include brown trout, brook trout, and rainbow trout, thrive at high altitudes or in cold climates where the average surface water temperature is below 70 degrees F (21 degrees C) during the warmest months. Warmwater fishes such as largemouth bass, bluegill sunfish, and channel catfish can survive at water temperatures of 90 degrees F (32 degrees C) or higher and are almost never killed by high water temperatures alone. Coolwater fish, which prefer an intermediate temperature range of 70 degrees to 80 degrees F, include



smallmouth bass, rockbass, walleye, northern pike, and pickerel. It is extremely important that the expected range of water temperature be considered before choosing a fish species to be stocked in the pond.

Fish Stocking

It is extremely important that newly constructed or renovated sportfishing ponds be properly stocked because the fish that are originally introduced represent the future sportfish “catch” for many years to come. Two major causes of failure in stocking sportfish ponds are the presence of fish in the pond before the hatchery fish are introduced and the migration of undesirable fish species into the ponds from which they had been eliminated prior to stocking. Stocking fish in waters that already contain fish is largely a useless practice; newly-stocked hatchery fish cannot successfully compete with established populations of wild or exotic fish for food, cover, nesting sites, and other critical needs.

In order to assure the development of a balanced sportfish population, all fish life, including both wild and previously stocked hatchery fish, must first be eliminated from the pond and its connecting waters. Two of the most effective methods for removing nuisance fish are completely draining and drying the pond and the application of fish poisons (Caution: the use of many chemical toxicants is restricted by law). After the undesirable fish have been killed, the hatchery fish should be stocked as soon as possible. The inflowing and outflowing waters also should be screened to prevent invasion of the pond by wild stream fishes. Finally, the sportfish pond owner must continually educate “well-intentioned” anglers that unwarranted, indiscriminate, or “accidental” introduction of any additional fish will only upset the delicate natural balance and result in poor sportfishing.

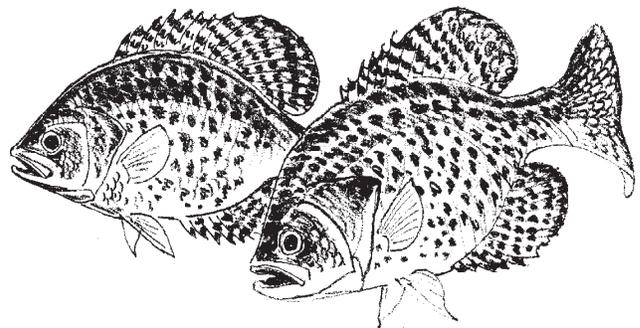
Sportfish ponds must be stocked with only the correct numbers, sizes, and kinds of gamefish. In general, the number of sportfish that a pond can support depends on the amount of available living space and appears to be more directly related to the surface area than to the depth or volume of the pond. Since stocking rates are given as the number of fish per surface acre, the exact size, in surface acres of the pond, should be accurately measured. Stocking fish of the proper size is as important as stocking the correct numbers. Stocking rates are developed for fingerling fish (2 to 4 inches in length). Stocking the correct number of fingerling-sized fish of all species is not only more economical (smaller fish are cheaper to buy than larger ones), but will insure uniform growth and produce better sportfishing faster than stocking a smaller number of adult fish.

Failure to carefully follow the recommended stocking guidelines concerning (1) the removal of existing fish populations, (2) introducing only the correct numbers, sizes, and kinds of sportfish as determined by pond size and water temperature, and (3) obtaining healthy fish free of diseases and parasites will result in unbalanced sportfish populations and ultimately in poor fishing. There are no simple solutions to cure incorrectly stocked sportfish ponds; the standard procedure is to kill all the fish and start over—a costly and time consuming effort.

Stocking Warmwater Ponds

Most sportfish ponds in Virginia can be conveniently identified on the basis of maximum surface water temperatures (see temperature section) as either warmwater or coldwater fish ponds. In warmwater fish ponds, the species recommended for stocking are: largemouth bass (*Micropterus salmoides*), bluegill sunfish (*Lepomis macrochirus*), and channel catfish (*Ictalurus punctatus*). The bass-bluegill combination is particularly attractive, since both of these species are actively sought by anglers. Moreover, a balanced bass-bluegill combination provides an ideal “predator-prey” relationship in which the bluegills convert smaller aquatic life into fish flesh and serve as food for the bass; the largemouth bass, in turn, serve to control excessive numbers of bluegills and prevent overcrowding. This combination can continue to provide excellent sportfishing as long as the balance between the numbers of prey fish (bluegills) and predatory fish (bass) is maintained and neither species is allowed to become overabundant.

With the exception of channel catfish, which do not appear to compete with or disrupt balanced bass-bluegill populations, no other fish species should be present, allowed to migrate into, or be subsequently introduced into warmwater sportfish ponds. Redear sunfish (shell-crackers) are sometimes substituted for 1/3 of the bluegills but are more difficult to catch. Black or white crappies (speckled perch) are not recommended because they

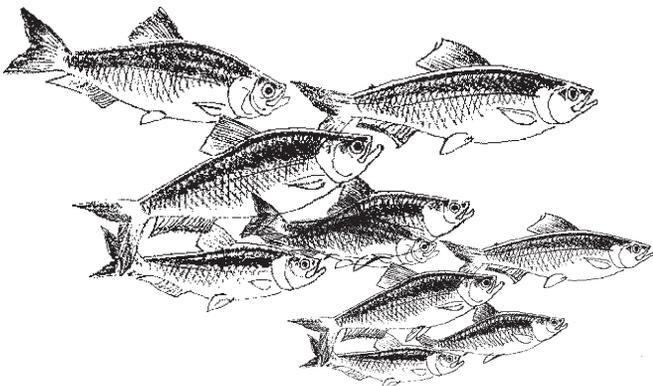


readily overpopulate and outcompete more preferred sportfish, especially in small, less than 20-acre, fish ponds. Stocking carp, minnows, suckers, and particularly other species of sunfishes, in bass-bluegill ponds will sharply reduce sportfish production and rapidly diminish angling success.

The recommended stocking rates for warmwater ponds in Virginia are: 50 largemouth bass fingerlings and 500 bluegill sunfish fingerlings (a ratio of 1:10) per surface acre of water. Channel catfish fingerlings may, if desired, be stocked either in combination with bass-bluegill fingerlings at a rate of 50 per surface acre, or alone at a density of 100 per surface acre. Although channel catfish may occasionally reproduce in ponds with suitable nesting sites (truck tires, 10 gallon cans, muskrat holes), the young seldom survive to catchable sizes because of predation by bass and bluegill. Therefore, channel catfish (6 to 8 inches in size) must be periodically stocked to replace those catfish that are harvested.

Harvesting Fish in Warmwater Ponds

Fish are a crop. Just like farmland, a pond must be carefully managed and cultivated to provide good harvests. After the pond has been properly stocked with fingerling fish, allow one complete summer for growth before fishing. Bass should not be removed from the pond until after the spawning season (May and June) of the second summer. Only bass over 12 inches should be kept. In a newly stocked pond, there is a tendency to fish for bass and neglect the bluegill, but such selective fishing can damage the delicate balance between predator and prey species and result in an overpopulation of small bluegill. For every pound of bass harvested, three to four pounds of bluegill should also be taken. Channel catfish can be harvested whenever they reach a size satisfactory to the angler, keeping in mind that restocking of catfish will be necessary. Most important, the pond should be fished frequently if it is to maintain a good catchable fish population.



Stocking Coldwater Ponds

In coldwater sportfish ponds in Virginia, the species recommended for stocking are rainbow trout (*Salmo gairdneri*) and brook trout (*Salvelinus fontinalis*). Of these two species, the rainbow trout is more widely available from commercial hatcheries and more tolerant of varying water temperature. Also, rainbows exhibit faster growth rates and reach a larger maximum size. As sportfish, rainbows are somewhat harder to catch, but are generally considered to be more spectacular fighters than brookies. On the other hand, brook trout—the only trout native to Virginia’s waters—are considered more colorful fish of slightly better eating quality and may reproduce more readily than rainbows in ponds with marginal conditions. Both species can be successfully reared alone, or together, in the same pond if they are stocked simultaneously and at the same sizes. Brown trout (*Salmo trutta*) are less desirable pond sportfish because they are more territorial, more cannibalistic, more difficult to catch, and often considered to be a slightly poorer food fish than either rainbow or brook trout. Since trout cannot successfully compete with other kinds of fish, no other species of fish, especially minnows, should be present in a trout pond.

Trout ponds can be stocked with either rainbow trout, brook trout, or a combination of these two species at a rate of 500 fingerling fish (4 to 6 inches in length) per acre of pond surface. If catchable-sized trout are desired, the pond may be stocked with a maximum of 100 adult fish (7 to 12 inches in length) per surface acre. Small fish generally have lower survival rates, but are much more economical to purchase and easier to transport than adult trout. Although trout can be stocked at any time throughout the year, stocking during periods of cool weather, as in the fall or spring months, will minimize mortality; stocking survival is lowest during the warm summer months.

It is very important that the prospective trout pond owner recognize that trout are relatively slow-growing, short-lived fish that cannot be “stockpiled” in large numbers or for long periods of time in ponds. Even under optimum conditions, the typical trout pond in Virginia can rarely support more than 100 pounds of trout per surface acre at any one time. Furthermore, natural mortality of stocked trout is characteristically high, averaging at least 50 percent per year in unfished ponds, even though dead fish are seldom seen. A final constraint in rearing trout is that most ponds lack suitable spawning sites and the strong water flow requirements necessary for trout to reproduce. Therefore, as a result of high natural mortalities, short survival times, and negligible natural reproduction, very few trout (typically less than 10

percent of the original numbers stocked) remain in the pond after three years. Trout ponds must be restocked on a “put-and-take” basis to maintain adequate fishing. Large fingerling fish (5 to 6 inches) or adult trout are recommended for restocking in order to reduce the chances of cannibalism by any large trout remaining in the pond from a previous stocking.

Purchasing and Handling Sportfish

Fish often do not survive the stress of being moved from the hatchery to the pond. All sportfish, particularly trout, are very sensitive to sudden changes in water temperature and chemical conditions as well as to rough handling, crowding, and other physical stresses associated with shipping. Therefore, experienced hatchery workers take special precautions to insure that fish stocks arrive and are introduced in good condition.

Fish are easily injured by rough handling and are very susceptible to infection by bacteria and fungi. Any wound, even a mild scrape, could seriously damage the delicate outer-surface film, scales, or skin and become infected. Although injured fish often appear to be in good condition, they may later die from secondary infection. Antibiotics are sometimes added to the shipping water to prevent the infection of skin bruises sustained during transportation. If it is necessary to handle fish directly, rubber gloves should be worn. Obviously, the fish should always be released gently and permitted

to swim off leisurely; never dump, drop, or throw fish into the pond water. Do not stock near the overflow structure.

The best way to insure stocking only healthy sportfish free of disease and parasites is to obtain all fish stocks from a reputable commercial fish hatchery. State and federal government fish hatcheries no longer provide fish for stocking private ponds. Credible commercial fish hatcheries will not only provide healthy fish, but also guarantee live delivery of the proper species of fish in the correct numbers and sizes. This is a particularly valuable service to the prospective fishpond owner because small fingerling fish are very difficult to identify and extremely sensitive; often they do not survive the stress of being handled, crowded, and transported to the pond. Unless one is an expert in fish identification and diseases, stocking wild fish, or even previously stocked hatchery fish from nearby lakes and ponds, is dangerous. A list of commercial sources of sportfish for stocking ponds in Virginia is attached.

Summary

Many fish ponds in Virginia have the potential of producing quality sportfishing. If the proper species are stocked in the proper size and number, and if conscientious management and harvest are practiced, the pond owner will enjoy quality angling for many years.

