RENOVATION OF PONDS

Sooner or later, many ponds become contaminated with undesirable species such as crappie or green sunfish. Alternately, ponds may go so far out of balance that only stunted bream populations remain. In this situation ponds may have to be drained and dried and a new stocking program established. When draining is not possible or too costly, an acceptable alternative may be to kill all fish present with rotenone, a natural compound which kills fish by interfering with their respiration. This practice is known as renovation. When the fish population and previous history of a pond are unknown, as when an old pond has recently been purchased, one of the simplest and most reliable management approaches is to renovate and restock.

Since treatment is most effective during warm weather and recommended schedules call for fall stocking of bream, August or early September is the best time to renovate ponds in Louisiana. This should allow for sufficient detoxification before restocking bream in the fall, even if repeat treatments are needed.

Determining Pond Volume

The first step in effectively poisoning the existing fish population is to determine the volume of water to be treated. Rotenone and other chemicals are applied based on the "acre-feet" of water present in a pond. To determine the acre-feet, multiply the surface area of the pond by the average depth.

If the average depth is not known, take readings at 10- to 20-foot intervals across the length and the width of the pond. The average depth will equal the total of all the depth readings added together divided by the number of readings taken. (see Figure 22)

The surface area of a circular pond can be determined by multiplying the circumference (in feet) times itself and then dividing the result by 547,390. For rectangular ponds, multiply the length times the width (both in feet) and divide the result by 43,560. For triangular ponds, multiply the length times the width (both in feet) and divide the result by 87,120. (see Figure 23)

Application Rates and Procedures

Although published recommendations may vary, a rate of 1 gallon of liquid rotenone or 10 pounds of 5% powdered rotenone per acre-foot of water is usually sufficient for eradication of bream. If bullheads, green sunfish, gar or bowfin (choupique or grinnel) are present, two to three times this amount may be required for effective control. Repeat treatments may be required for green sunfish problems. For good results, apply rotenone when water temperatures are higher than 70 degrees F. Renovation using rotenone is usually unsuccessful at lower temperatures.

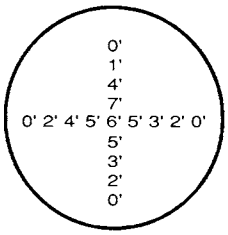
Liquid rotenone should be mixed with water at a 1:5 ratio; powdered rotenone should be mixed with water to a milky consistency, then diluted at the same 1:5 ratio. For large ponds, you can pour the rotenone solution into the prop wash of a boat while slowly crisscrossing the pond. Smaller ponds may be treated from the shore by spraying the solution along the upwind bank.

It is essential to treat all areas and depths of the pond, especially shallow, vegetated areas. Deep areas may have to be specially treated using weighted hoses or downspout pipes to ensure coverage. Avoid stirring up too much mud, however, since this will reduce the effectiveness of the treatment. When ponds can be only partially drained, remaining pools and puddles can be treated with rotenone.

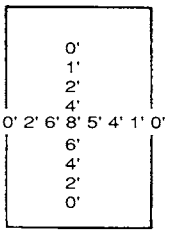
Restrictions

A pesticide applicator's card is required to purchase and apply rotenone. Additionally, the FDA has not approved fish killed with rotenone for consumption by humans or animals. Although rotenone-treated water is safe for livestock, 10 to 14 days are usually required for rotenone to break down or detoxify. During this period, no water should be released into streams or other public waters. After 10 to 12 days, several goldfish or small bluegill can be placed in a minnow bucket in the pond. If these fish survive for one or two days, it is generally safe to begin restocking the pond.

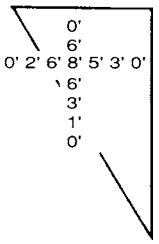
Figure 22. Determining Average Depth



Number of Readings
Total of Readings
Average Depth



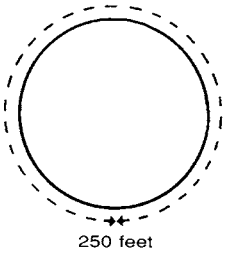
17
49
17 / 49
2.9 feet



16
45
16 / 45
2.8 feet

13
39
13 / 39
3 feet

Figure 23. Determining Surface Area and Acre-feet

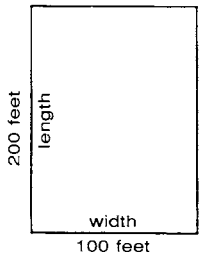


Example 1.

$$\frac{\text{shoreline length} \times \text{shoreline length} \times \text{average depth}}{547{,}390}$$

$$\frac{250' \times 250' \times 2.9'}{547{,}390}$$

0.33 acre-feet

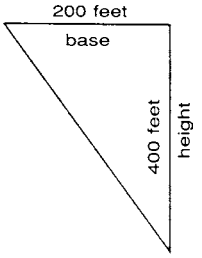


Example 2.

$$\frac{\text{length} \times \text{length} \times \text{average depth}}{43{,}560}$$

$$\frac{200' \times 100' \times 2.8'}{547{,}390}$$

1.3 acre-feet



Example 3.

$$\frac{(\text{base} \times \text{average height}) \times \text{depth}}{87{,}120}$$

$$\frac{200 \times 400' \times 3'}{87{,}120}$$

2.8 acre-feet