

INSTITUTE FOR FISHERIES RESEARCH  
MICHIGAN DEPARTMENT OF CONSERVATION

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THE USE OF AMYTAL SODIUM AND SECONAL SODIUM IN TRANSPORTATION OF TROUT

*Balance of copies to JGR*

By

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*60 copies  
R.C.*

Tests made in California in 1953, using several barbituates (Amytal Sodium and Seconal Sodium) proved to be successful in the safe transportation of twice the normal number of legal-sized trout per gallon of water and two and one-half times the normal number of fingerling trout. Although we believe these studies to be valid and dependable, we also consider it advisable to make preliminary tests with the equipment we normally use in Michigan before using the drugs on a large scale.

Our tests should be of about five hours duration with both fingerlings and legal-sized fish of each of the three species of trout (brook, brown, and rainbow). Each test should include two groups of fish from the same lot, one for a heavy load in drugged water and one for a normal load in untreated water. It would be desirable to complete these tests at an early date, but because of the active stocking program at the Grayling hatchery, transporting trucks suitable for controlled tests are seldom available. However, the tests will be made as the opportunity affords. Because it may require many months to make all the tests suggested, each test will be reported as it is completed. The following report is of the first test made at the Grayling hatchery.

TEST #1. Seconal Sodium and Legal-sized Rainbow Trout

On May 25, 1954, a transporting truck was available at Grayling for tests with barbituates in transporting trout. The truck had two separate units of

two tanks each with a recirculating pump. Water from one unit did not mix with water from the other unit.

The studies made in California recommended Seconal Sodium for legal-sized trout and Amytal Sodium for fingerlings, with water temperature not to exceed 50° F. For the initial test (on May 25), we decided to use legal-sized rainbow trout and Seconal Sodium at the recommended rate of 1/4 grain per gallon of water. Water temperature at 9:00 a.m. was 50° F., the upper limit recommended by California studies. Since our water temperatures in summer range well over 50° F., we could employ barbituates to greater advantage in Michigan if the drugs could be used without resorting to the use of ice for cooling. For this reason, we decided to run the first test under existing temperature conditions (i.e., without using ice for cooling).

Dimensions of tanks: 40" x 28" with 18" of water; 87.2 gallons of water per tank.

Drug: Seconal Sodium, 1/4 grain per gallon; 21.75 grains (\$0.18 per tank).

Fish: Legal-sized rainbow trout, 7" to 10".

Control tanks: 100 pounds of fish in each (normal load).

Test tanks: 200 pounds of fish in each (double normal load).

The test was started at 9:00 a.m. and continued until 2:15 p.m., a total of 5 hours and 15 minutes. Temperatures during the test were as follows:

9:00 a.m. - 50°	12:25 p.m. - 57°
10:00 a.m. - 52°	1:15 p.m. - 58°
10:30 a.m. - 53°	2:15 p.m. - 62°
11:45 a.m. - 56°	

The truck was kept at the hatchery during the tests, except for one trip of 20 minutes at 10:00 a.m. and one trip of 60 minutes at 1:15 p.m.

Excess foaming was noted during the first hour in the tanks containing the drug, and this foaming increased in quantity during the test.

At 11:45 a.m., some of the drugged fish appeared very weak; but when several were returned to drug-free water in the raceway, they revived in less than 30 minutes.

At 1:15 p.m., after 4 hours and 15 minutes in the drugged water, several dead fish were noted in one of the two tanks, so all the fish were removed from this tank and put into a live crate in the raceway. One hour later the test was terminated and all the drugged fish in the second tank were put into another live crate. The control fish were all in good condition so they were released into a raceway.

After two hours in the live crates, all dead fish were collected and weighed. Of the 200 pounds of fish held 4 hours and 15 minutes in drugged water, 16 pounds (8%) died. Of those held for 5 hours and 15 minutes, 33 pounds (16.5%) died.

We may conclude from this test that double the normal load of legal-sized rainbow trout cannot be safely carried in water containing 1/4 grain of Seconal Sodium per gallon of water at temperatures increasing from 50° F. to 62° F. If possible, the next test will include the same size and species of fish, and the same drug, but with temperature held below 50° F., as recommended.

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