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Drill control studies with formulations of Polystream and Sevin for 1963

Dexter S. Haven
Virginia Institute of Marine Science

Michael Castagna
Virginia Institute of Marine Science

et al

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OYSTER DRILL CONTROL STUDIES WITH FORMULATIONS
OF "POLYSTREAM" AND "SEVIN" FOR 1963

Part I. Treatment of planted oyster grounds

by

Haven, Castagna, Whitcomb and Chanley

Virginia Institute of Marine Science
Gloucester Point, Virginia
February 1964



During 1963, the Virginia Institute of Marine Science conducted a series of tests on oyster drill control with formulations of "Polystream", a chlorinated hydrocarbon and "Sevin", an insecticide.

The utility of these two compounds had previously been investigated by the U. S. Fish and Wildlife Service in Long Island Sound, in the laboratory and in field trials on commercial beds. Several of these earlier field studies indicated that the treatment prescribed was effective in drill control. Consequently, application was made to the U. S. Department of Agriculture for an "experimental permit." The permit was granted, laying the groundwork for further experimental field trials supervised by state or federal agencies.

Tests by the Virginia Institute of Marine Science began in April 1963 on land leased by the H. M. Terry Company in Hog Island Bay. Oysters, labor and equipment were donated by the Terrys.

During April each area was planted with 100 bushels of seed oysters. On May 2 one plot was treated with "Polystream" and "Sevin" mixed with sand at proportions recommended by the Milford Laboratory. The other was used as control for comparison. Application was at slack water and distribution of the chemicals over the oysters was even.

Immediately after treatment and at frequent intervals during the summer, both half-acre plantings were examined by divers. In addition, many samples of the "bottom" were taken and numbers of drills counted. In these studies few if any drills were killed by the chemicals and drilling continued on the treated plot at an undiminished rate.

The chemicals did kill many of the bottom living organisms such as worms and mantis shrimp. Up to 85% of these small animals were killed.

In August, a total of 93 bushels of oysters and shells were dredged from the two half-acre plots. Results indicated that the use of "Polystream" and "Sevin" had not increased yields of oysters. On the treated plot only 7 live oysters were recovered out of the 100 bushels of planted seed.

A second series of experiments was conducted also during the summer of 1963. Two 10-foot-square plots in shallow water were each planted with 18 bushels of seed and then surrounded by a copper mesh barrier to prevent oyster drills from moving in or out. The next day 700 live oyster drills were placed on each plot. One of the plots was treated with "Polystream" and "Sevin" mixed with sand. The second plot was not

treated with chemicals. A month later all oysters with attached drills were taken up from the two areas and inspected. None of the drills on the treated plot had been killed.

Experiments will continue. However, present results indicate that under the conditions encountered in Hog Island Bay, and with present methods of application, the "Polystream" and "Sevin" mixture does not control drills in Seaside waters.

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DRILL CONTROL STUDIES WITH "POLYSTREAM"
AND "SEVIN" FOR 1963

Part II. Treatment of shells to increase survival of "set"

by

Haven, Castagna, Whitcomb and Chanley
Virginia Institute of Marine Science

February 1964



Studies by the U. S. Fish and Wildlife Service at Milford, Connecticut indicated that treatment of oyster shells with "Polystream" would increase survival of young oysters which attached to these shells in drill infested areas.

Tests of this treatment were conducted on the Eastern Shore by the Virginia Institute of Marine Science during 1963.

Wire bags were constructed and each was filled with about 1/5 bushel of clean oyster shells. In June half of the "shellbags" were dipped in "Polystream". The remaining bags of shell were untreated.

Immediately after treatment a series of treated and untreated bags was placed in shallow water in Hog Island Bay where oyster drills were abundant; a second series was placed in Machipongo Inlet where drills were scarce.

In October all bags were taken to the laboratory and numbers of oysters which had attached to the shells during the summer were counted. Also counts were made on numbers of small oysters killed by drills.

In the Hog Island Bay series, treatment with "Polystream" did not seem to inhibit drill activity. However, treatment did influence survival of oysters. At the end of the summer shells treated with "Polystream" had about 31% more small oysters growing on them than were on untreated shells.

Bags placed in Machipongo Inlet were not attacked by drills. It was again noted, however, that the treated shells had about 30% more oysters growing on them at the end of the season.

The exact way "Polystream" treatment acts to produce greater survival of spat is not clear, but indications are that it may reduce fouling and allow greater attachment of small oysters. Treatment with "Polystream" may have value in increasing survival in regions where marginal numbers of oysters attach.

Tests will continue in 1964 to determine if the method is economically feasible, and if treatment also actually prevents drilling, in addition to improving setting.

In summary, the use of "Polystream" for treatment of cultch is still in the experimental stage. Its use by commercial growers cannot be recommended because state and federal authorities have not established tolerance standards. Tests on the possible accumulation of the chemical

in oysters, in bottom muds, and in and on associated organisms are now being made. If these prove negative or fall within limits set by the U. S. Pure Food and Drug Administration, then its use at a future date may be permitted.