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BEGGAR-TICKS CAUSE MORTALITY AMONG
FINGERLING COHO SALMON

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Bidens sp. achenes (beggar-ticks or stick-tights) were reported by Reimers and Bond (1966) to have lodged in the snouts of fingerling chinook salmon (Oncorhynchus tshawytscha) 51 and 54 mm long from the Oregon shore of the Columbia River, and of two redbreast shiners (Richardsonius balteatus) about 4 cm long from the Willamette River at Peoria, Oregon. Because the size and shape of the floating seeds might attract young fish, they suggested that the "presence of Bidens on the banks of hatchery or farm ponds might lead to loss of the most aggressive feeders among young fish." Two instances of mortality among hatchery fish in Michigan from ingested Bidens cernuus achenes support their suggestion.

Mr. John G. Hnath, Fisheries Research Parasitologist with the Fish Disease Unit, investigated a mortality among coho salmon (Oncorhynchus kisutch) at the Michigan Conservation Department's Platte River Trout Rearing Station at Honor, Michigan, on December 9, 1965. There had been a daily mortality of from 15 to 20 fish among 75,000 fish held in the uppermost of a series of raceways. The fish in this raceway had recently been graded to 90 mm with the larger fish (up to 127 mm) occupying the lower two raceways. Mortality among the larger fish was normal.

Mr. Hnath found that all the dying and dead fish had a mass of fungus resembling a cotton plug which completely filled the posterior

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region of the oral cavity. Fish so affected were unable to eat and could breathe only with great difficulty. Upon dissection, plant seeds with needle-sharp prongs were found firmly imbedded in the gill arches and tissue of the oral cavity. The seeds were identified by Dr. Edward G. Voss, Curator of Vascular Plants, University of Michigan Herbarium, as stick-tights (beggar-ticks) of Bidens cernuus, an aquatic plant on the banks of Brundage Creek which supplies the rearing station with water.

All fish in the raceway were dipped for 90 seconds in oxalate crystals of malachite green, zinc free, at 1:15,000, and the mortality rate dropped to normal until the fish were planted early in 1966. Probably the reason this problem did not arise again following treatment was the onset of winter and seeds were no longer carried by the water.

The problem reoccurred at the Platte River Station in the same raceway early in April, 1966, among fingerling coho salmon 51 to 76 mm long. Mortality averaged 150 fish per day among 90,000 fish. A greater mortality might have developed but the condition was recognized early by Mr. Lyle Newton, Fish Culturist at the station, and the ponds were treated with malachite green. He also installed additional screens at the head of the raceway to catch or deflect the beggar-ticks and mortality has been normal ever since.

Either brook, brown, or rainbow trout have been reared at this station for many years, but this is the first time that the beggar-ticks have been found in fish. Perhaps the coho are more aggressive feeders than trout.

Literature cited

Reimers, Paul E., and Carl E. Bond. 1966. Occurrence of the Bidens (sp.) achene in the snout of chinook salmon and redbside shiners. *Progressive Fish-Culturist*, 28(1): 62.

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