tested were not as productive of midges as the sheet materials and in addition, were much more difficult to handle in the pond.

Unfortunately, no samples were taken for comparison of normal midge production and midge production from the block and sheet materials. It appears, however, that midges produced by adding materials to a pond for increased midge attachment area, is production above and beyond the normal midge production and would subsequently increase fish production.

SUMMARY

1. Midges constituted the greatest percentage of food volume in largemouth bass fingerlings ranging from 20 to 55 millimeters in length.
2. Highest midge production was obtained from ponds having a dominant blue-green algae bloom.
3. The sheet materials oriented at a 45-degree slant in the pond produced the most midges and total periphyton.
4. Highest midge production was obtained from the 1/8-inch masonite boards placed at the 45-degree slant.
5. The use of building blocks as attachment area to increase the midge crop did not appear to be either practical or productive.

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PARASITE EPIDEMICS AFFECTING CHANNEL CATFISH

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ABSTRACT

The prevalence of parasitic epidemics is dependant, to a large extent, upon the density of the host population. Through the application of recent research, up to 2,400 pounds of channel catfish can be produced per acre of water, thus placing their commercial culture on a basis comparable to production of other farm animals. Since fish are confined to a limited environment in ponds without flowing water, they are surrounded by their own metabolic wastes throughout the production period. Such an environment is ideal for the propagation and development of parasitic populations.

The great majority of epidemics are caused by external protozoan and helminth parasites that are transferred by contact and have simple life cycles. The species causing epidemics in channel catfish production ponds in Alabama are presented in Table I.

These epidemics can be controlled in ponds with the application of low concentrations of certain chemicals. These treatments are

economically feasible in high production ponds operated as a commercial enterprise. Ponds on the Agricultural Experiment Station, ranging in size from 1 to 22 acres, have been treated with the chemicals suggested in Table I. However, certain precautions must be taken when these chemicals are applied. When 10 ppm or more of formalin is used, low oxygen is likely to develop two to three days after treatment. The oxygen shortage may become sufficiently acute to kill fish, if the pond water had a heavy growth of plankton at the time of treatment. Consequently, if the formalin treatment is used in ponds, the oxygen should be checked in the early morning, afternoon and evening for at least three days following treatment. If the oxygen in the top three feet drops below three ppm at noon or evening, pumps should be started to aerate the water throughout the night or if available, fresh water should be run into the pond.

The use of potassium permanganate for parasite control in ponds has no deleterious effect upon the oxygen concentration. In ponds with a heavy plankton growth, however, the permanganate is rapidly decomposed and is less effective than in clean water.

TABLE 1. SPECIES, SITE OF INFECTION, AND MOST EFFECTIVE CONTROL METHOD OF PARASITES CAUSING EPIDEMICS IN CHANNEL CATFISH

Species	Name of Disease	Site Infection	Control in Ponds by
Ichthyophthirus multifiliis	Ichthyophthiriasis or white spot disease	Skin and gills	Malachite green—0.1 ppm.
Scyphidia macropodia	None	Gills	Formalin 10-15 ppm
Costia necatrix	Costiasis	Skin and gills	Formalin 10-15 ppm
Chilodon cyprini	Chilodoniasis	Skin and gills	Formalin 10-15 ppm
Trichodina spp.	Trichodiniasis	Skin and gills	Formalin 10-15 ppm Potassium permanganate 3 ppm
Trichophyra ictaluri	None	Gills	Formalin 10-15 ppm
Cleidodiscus pricei	Dactylogyriasis	Gills	Formalin 10-15 ppm
Gyrodactylus spp.	Gyrodactyliasis	Body	Formalin 10-15 ppm Potassium permanganate 3 ppm

AN EVALUATION OF FISHERY MANAGEMENT TECHNIQUES UTILIZING WINTER DRAWDOWNS [1]

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Presented at the Seventeenth Annual Conference
Southeastern Association of Game and Fish Commissioners
Hot Springs, Arkansas, October, 1963

ABSTRACT

Data is presented on 15 small impoundments ranging from two acres to 500 acres in size where different fishery management techniques

[1] This work was undertaken with Federal Aid to Fish Restoration Funds under Dingell-Johnson Project F-11-R, Pond Management Evaluations.