

# TECHNICAL NOTES

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

STATE OFFICE STILLWATER, OKLAHOMA 74074

## PLANT SCIENCE TECHNICAL REFERENCES - FOR IN SERVICE USE ONLY

BIOLOGY - OK-14

September 30, 1974

Re: Fish Parasites

Parasites of one kind or another occur in most fishes in Oklahoma. The yellow grub and the black grub are two common ones that are rather inconspicuous until the skin is removed from the fish. Many other parasites that cannot be seen with the naked eye also occur in fishes used for food. The grubs are harmless to humans but all fish flesh should be well cooked. Infestations usually occur in late summer when water levels are low and growth of fish is suppressed by low oxygen and shortage of food.

These parasites require three separate hosts to complete their life cycle, one of which is the snail. The snail may be controlled by the application of 2 to 5 PPM (52 pounds to 13, pounds) of copper sulphate per acre feet. This should be applied in the shallow portions of the pond. Annual treatment will be necessary to keep the snails under control.

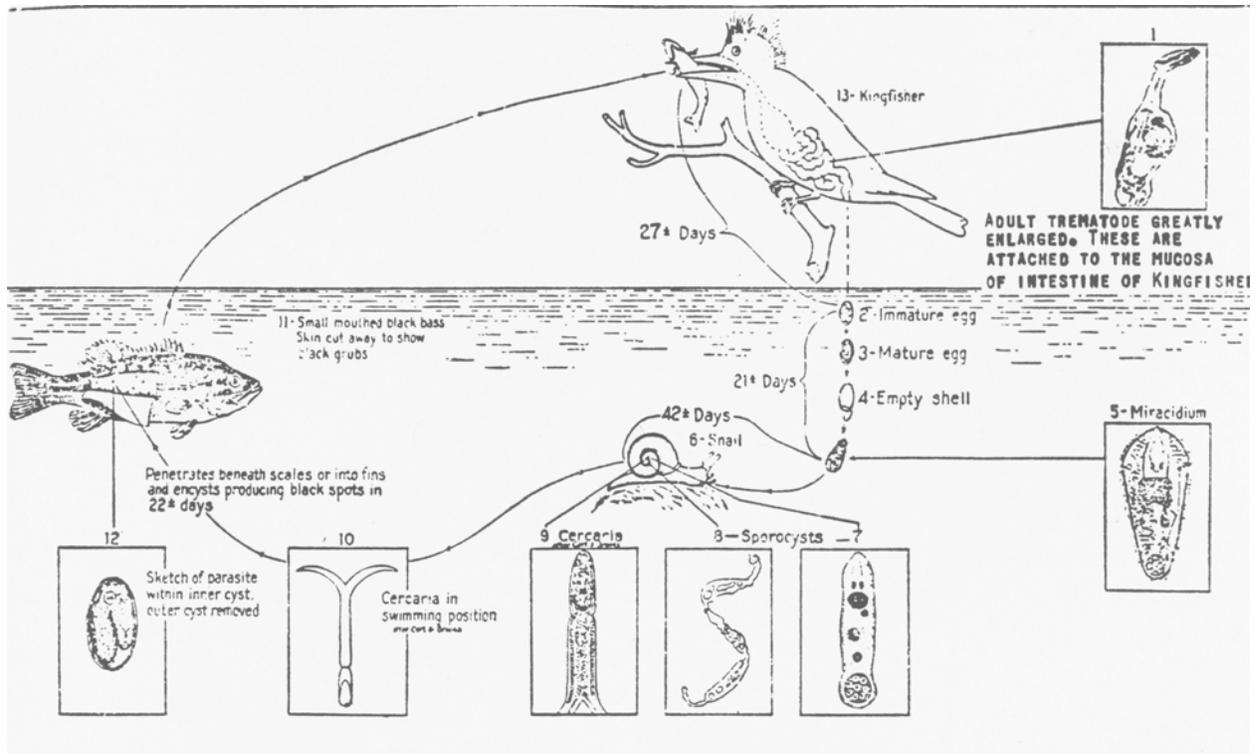


Figure 14. Life cycle chart of a "black grub," *Uvulifer ambloplitis*. (After Hunter and Hunter, 1934; courtesy of the New York State Conservation Department.)

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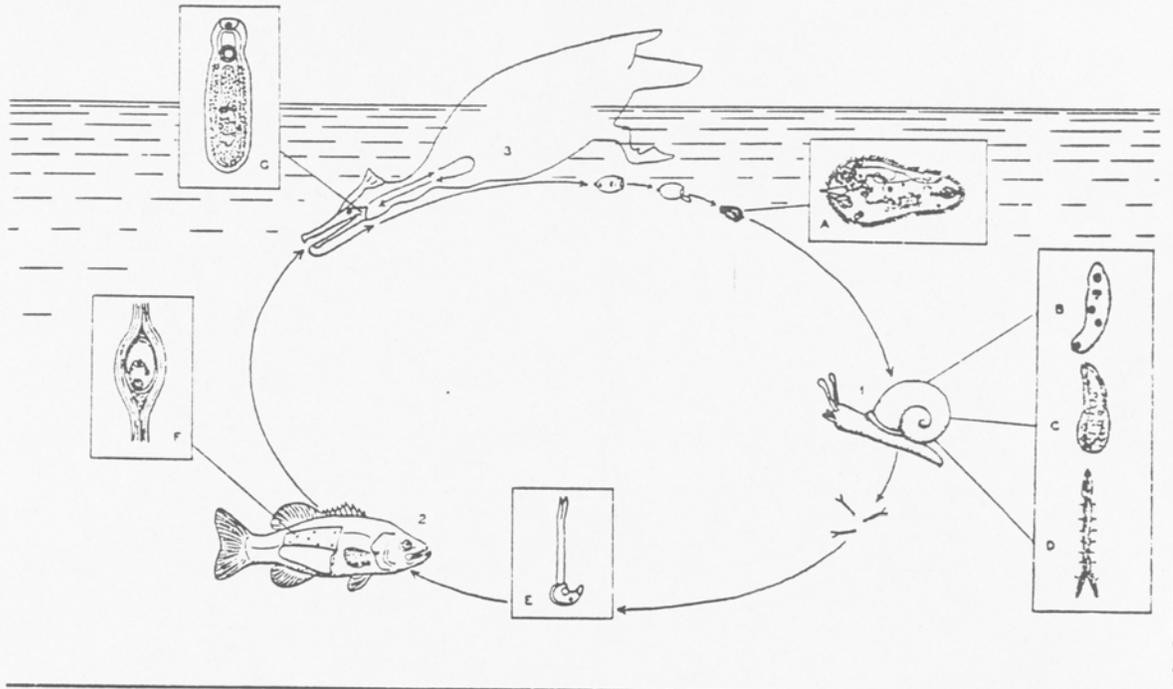


FIGURE 15. LIFE CYCLE OF THE "YELLOW GRUB," *CLINOSTOMUM MARGINATUM*. A—FREE-SWIMMING MIRACIDIUM WHICH HATCHES FROM EGG IN WATER; B—SPORO CYST; C—REDIA; D—CERCARIA. ALL ARE LARVAL STAGES OCCURRING WITHIN A SNAIL, THE FIRST INTERMEDIATE HOST (NUMBER 1). E—FREE-SWIMMING CERCARIA WHICH ESCAPES FROM SNAIL AND PENETRATES FLESH OF FISH, THE SECOND INTERMEDIATE HOST (NUMBER 2); F—METACERCARIA ENCYSTED IN FLESH OF FISH; G—ADULT FLUKE IN MOUTH AND GULLET OF FISH-EATING BIRD, THE FINAL HOST (NUMBER 3). (MODIFIED FROM HUNTER AND HUNTER, 1934, BY M. C. MEYER, 1954; COURTESY OF THE MAIN DEPARTMENT OF INLAND FISHERIES AND GAME.

*Hampson Burns*  
Hampson Burns  
State Conservationist