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ALBERT S. HAZZARD, PH.D.  
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WATERSNAKE FOOD

by

Karl F. Lagler,  
Department of Zoology,  
University of Michigan

The common watersnake (known technically as Natrix s. sipedon to those who are concerned about such things) is the recipient of many uncomplimentary remarks throughout its range in Michigan and wherever else it occurs in the country. Our parents and Sunday school teachers are partly to blame for this, for almost without exception they taught us to loathe and even fear snakes. Then, too, watersnakes are among the more obvious enemies of fish and advertise their presence on fishing waters by basking on exposed objects near the water. No wonder an unlucky angler will attribute poor fishing success to this animal. The present study was undertaken partly to determine if the watersnake merits the infamy and scorn that is heaped upon him.

The method of investigation was primarily to examine the stomachs of several hundred watersnakes collected from Michigan waterways during late spring and summer months. The animals in the stomachs were carefully

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Also special investigator of predation for the Institute for Fisheries Research, Fish Division, Department of Conservation. J. Clark Salyer, II, U. S. Fish and Wildlife Service, is responsible for a part of the data upon which this report is based.

identified. However, a complete answer to the many questions regarding the role of this snake in game fish production is not disclosed by the examinations to date. Reported here is only what has been found thus far in Michigan studies.

The material for analysis came from many sources. Several specimens were collected (and observed) by wading or floating downstream on well-known waters of the state or by tramping around lakes and ponds. The snakes were often stunned with .22 cal. dust shot to make capture more certain. Sometimes the collectors were bitten, but the bite contains no venom. Only the swamp rattler or massasauga <sup>(Sistrurus catenatus)</sup> which occurs in the Lower Peninsula has a poisonous bite. Other specimens were sent in by fish culturists, conservation officers, other Department employees, and by interested collaborators. The snakes were typically placed in embalming fluid (10 per cent formalin) at time of capture and were later opened and studied in Ann Arbor. Their length ranged from less than one foot to more than three feet.

Of more than three hundred individuals handled in the laboratory only about two-thirds had something in their stomachs. Usually this something was a fish and most often it had been swallowed head first. The specimens which contained food group themselves as follows: 64 from fish rearing stations, 18 from lakes and ponds; 9 from non-trout streams, and 106 from trout streams. Since most questions about the animal concern fish hatcheries or trout streams, the proportionate distribution is satisfactory. By and large, however, the study will not be complete until many more specimens have been examined, especially from fishable waters.

More than half (57 per cent) of the watersnakes taken near trout rearing ponds contained the kind of trout being propagated. The remainder did not, and thus had presumably fed in natural waters prior to entering the hatchery grounds. Some of the trout in the stomachs of the 57 per cent may have likewise come from away but the low incidence of trout in specimens from trout streams distant from hatcheries suggests that this number would be negligible. Those snakes which contained trout averaged between five and six fingerlings each. In view of this, the long practise of fish culturists in controlling watersnakes on the premises of their stations is positively justified. If no other factors were involved, the fish culturist might rightly assume that a watersnake killed today insures the presence of additional trout in the rearing raceways at the end of the season.

The trout-water specimens constitute a sampling from some of the most popular streams in the state. Included are: Maple River, Hunt Creek, Platte River, White River, Tobacco River, Pere Marquette River, South Branch Pine River (Iosco County), Pine River (Manistee County), Bear Creek (Manistee County), Boardman River, and Au Sable River. The principal foods of watersnakes in this habitat may be summarized as follows: trout in 6.6 per cent of the specimens; forage fish (minnows, suckers, muddlers, etc.) in 72.6 per cent; lampreys (non-parasitic kinds) in 6.6 per cent; frogs in 7.5 per cent. Other miscellaneous items include ling (lawyer or burbot), earthworms, a dragonfly nymph, a leech, and a snail.

The nine trout eaten average only a little more than one each for the seven snakes in which they were found. Most were fingerlings; only one was legal-sized,  $7 \frac{3}{4}$  inches long, in a snake from the Boardman. The fact that more trout were not found in the food was somewhat of a surprise.

Anglers are often startled by having watersnakes drop from bushes or logs and at times they have seemed very abundant. In common with other fishermen I have also watched them in the water and have seen how swiftly they can swim and how long they can stay submerged. Many are the reports of the trout-eating proclivities of these animals. It is no wonder that it is surprising when the principal food in trout stream situations turns out to be muddlers. These fishes, which are secretive in their habits and reach only fingerling size, occurred in more than half (56.6 per cent) of all the stomachs! Here then is the mainstay in the food of the watersnake on trout streams. Game fish are only a very occasional dessert.

Specimens from non-trout waters had eaten principally frogs. Among those from lakes, one contained a bluegill and a bullhead, and all the rest had forage fishes, frogs, and salamanders. Crayfish are conspicuous by their absence from the food of all of the common watersnakes that were opened.

If you think the story of watersnake food is different on your pet stream (and it may well be) all you need do is set out to prove your contention. Let the snakes "speak" for themselves. Write the author of this article for directions on how to catch and preserve and ship them. Granted, you would probably rather go after snake-eating fish than fish-eating snakes, but the dirty work of opening and sorting the stomach contents will be done for you in the laboratory and the results of the findings will be sent you forthwith. It may well be that further information will change the picture but in the meantime let's not kill every watersnake we see. The evidence is growing that predators have an important part in the management of wildlife crops.

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Report approved by A. S. Hazzard  
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Figure 1. Peaches and cream for a watersnake.  
Snake captured while swallowing a brown trout.  
Food studies show this to be the exception  
rather than the rule on natural trout waters.

