

NATIVE FISH IN SCIENCE

By Mark Gottlob

The NANFA publication has taken a decidedly aquarist point of view regarding the value of native fishes. I think most of us hope that by preserving and observing native fish in aquaria we will increase people's awareness of native fish, especially non-game fish, and by doing so promote the conservation of our natural waters. And to a large extent I think we will. I have seen numerous people become aware of the extensive variety of native fish by seeing my limited number of aquariums. Now with our organization and publication we have a real opportunity to help save a portion of our natural heritage. To add to this growing awareness of native fish, I am going to write a series of articles on how the sciences, both natural and social, have used the physiology and behavior of native fish to increase man's knowledge in other areas. These articles will not add to your ability in keeping native fish nor are they designed to show the "true value" of fish. The fact that native fish are an integral part of the greater ecological system is value enough. They will, I hope, prove interesting and offer our readers a different kind of article.

As an archaeologist, I am naturally interested in what value native fish have in analyzing man's past. The use of animal remains from archaeological sites is a relatively recent but growing concern of archaeology. Along with pottery and stone tools, animal bones are commonly found in archaeological sites. In the past, animal bones were used only to indicate what the prehistoric peoples were eating. From this, archaeologists learned that fish were an important food source to most prehistoric Indians but taboo or ignored by some. More recently, fish remains have been used to indicate much more. For those of you who are familiar with the habitat preferences of native fish from your attempts to locate and catch them, the other uses of native fish for the archaeologist are apparent, but it took the archaeologists years to start realizing the potential that fish habitat preference offered.

In 1957, W. I. Follett analyzed the fish remains from a site in California that had been dug in the 1930's. They were almost totally ignored by the archaeologists who originally dug the site. After determining what species the fish bones represented, Follett made statements about the method the Indians used to catch the fish and the seasons that the site had been inhabited. All but two species of the fish identified inhabited areas less than ten feet deep and were thus possibly caught with nets. The deeper water fish were known to take a hook. Two methods of catching fish were probably necessary. Since the Indians of this period and area usually had two homes, one for the fall-winter months and one for the spring-summer months, Follett decided that this site was probably a winter site because two of the recovered species were only available from January through March.

A larger scale study was done by Cleland in 1966 in the Great Lakes region. By using the known habitat preferences of the fish identified from all the archaeological sites in the area in conjunction with other archaeological data, Cleland showed how early man in North America adapted to his changing environment. Man lived in the Great Lakes Region during the last glacial-interglacial period. The region underwent major changes in climate, in both temperature range and amount of precipitation. These climatic changes caused a subsequent change in the fauna and flora of the area and thus indirectly as well as directly forced man to change his way of life. The sites Cleland worked with represented inhabited areas from all periods extending over the last 10,000 years. Some species of fish were found at sites of all periods, others were only found in one or two periods. The general abundance of fish in comparison to other food animals was also indicative. The species of fish and other animals found and the eco-zone they represent should in turn correspond to the climate that was dominant at the time the site was occupied. For instance, recovered remains of predominantly deciduous forest animals and aquatic animals indicate a cooler and wetter climate. In all cases the fauna present agreed with the climate that was predicted to have been occurring during the occupation period at the site.

A closer comparison was done of two sites where the animal remains were predominantly from aquatic animals, to yield additional information about the subsistence pattern of the inhabitants. In one site almost all the fish were less than six inches in length; the fish from the other site were all larger. Since they were both sites of a cool wet period and in similar ecological areas, the difference in fish was thought to be due to the technique of capture. Small fish from the first site were probably taken with fine nets in shallow water where the larger open water fish were probably taken with harpoon. The large fish were sturgeon, which do not readily take a hook, while the open water makes netting difficult. Harpoon points were also found at the site.

Archaeologists have difficulty in reconstructing man's past from his meager remains, but when all the evidence is used to its fullest extent, such a reconstruction becomes possible. Fish remains, along with a thorough knowledge of fish behavior, add one more tool for the archaeologist to use.

Bibliography

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