

Figure 3. Martin site channel catfish anterior vertebra, posterior surface, note growth rings. Cat No. 147302

The Historic Fishery

1615 Champlain describes Canadian Huron gill netting: "Then they let the net drop to the bottom by means of certain small stones fastened to the end of it. After it has been to the bottom they draw it up again by main force by its two ends, and thus they bring up the fish that are caught in it (Kinietz 1965).

1626 Recollect Father Dailion lived among a group of Neutral and describes their fishery as "better than any other of all these countries (Wright 1963)."

1641-1642 Jesuit Jérôme Lalemant relates, "... (the Niagara River) enters into the territory of the Neutral Nation, and takes the name of Onguiahra (Thwaites 1896-1901)."

1678 Father Hennepin mentions a Seneca fishing camp at the mouth of the Upper Niagara River, where more than "three hundred whittings" were caught (Kent 1974).

1687 Henri Joutel describes native gill net weights at the Straits of Mackinac: "At the lower part of these nets, they fasten stones, to make them go to the bottom; (Kinietz 1965)."

Early-1800s Seneca seine net for "muskelonge, yellow walleye, river sturgeon, black bass, pickerel, and mullet" during spawning around Grand Island (Allen 1879).

1822-23 In the upper Niagara River "a great quantity of very large fish is to be caught, either with nets or with the hook and line." Both "settlers and Indians" go in canoes lighted with torches of pitch-pine to "transfix with their spears great numbers of very large fish which are attracted by the light (Blane 1824)."

1825 Erie Canal, allows invasive species to enter Lake Erie and spurs development along shore (Regier and Hartman 1973).

1860s American Civil War spurred development of the Lake Erie fishery (Regier and Hartman 1973).

Late 1950s Intense yellow and blue walleye, and yellow perch harvest in Lake Erie (Regier and Hartman 1973).

1983 Blue walleye declared extinct (USFWS).

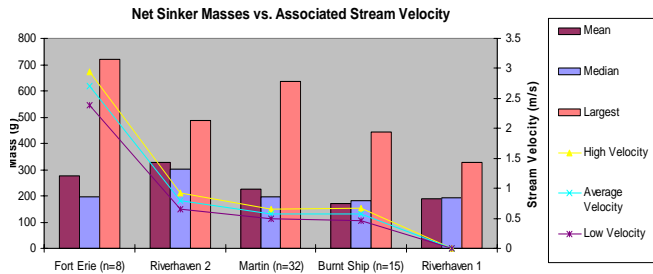


Figure 7.

Environmental Archaeology and Paleo-environmental Reconstructions: An Example from the Prehistoric Upper Niagara River Fishery



David A. Ingleman and Douglas J. Perrelli, Ph. D., RPA
Archaeological Survey, University at Buffalo, Department of Anthropology



Figure 4. Assorted Upper Niagara River prehistoric site net sinkers. Top Riverhaven #1, Right Riverhaven #2, Left, Burnt Ship.

Introduction

This research synthesizes archaeological, historic and environmental data pertaining to the Upper Niagara River prehistoric fishery (Fig. 1). Certain past fishery characteristics such as fish species, size, age, spawning locations, and fishing strategies are inferred through the study of bones (Fig. 2, 3) and other artifacts (Fig. 4) recovered from archaeological fishing sites, including radiocarbon dated deposits. By accessing these data sets, changes in the fishery can be associated with human causes and responses. The goals of this study are to generate baseline ecological information for the prehistoric and early historic period and spur multidisciplinary approaches to environmental reconstruction and rehabilitation.

Methods

- Modern and historic environmental conditions are studied in relation to archaeological evidence from five prehistoric sites (Martin, Peace Bridge/Fort Erie, Riverhaven 1, Riverhaven 2, and Burnt Ship) in the upper Niagara River drainage to identify characteristics of the prehistoric upper Niagara River fishery. Published and unpublished data are used (Fig. 1).
- Relative abundance of fish bones from these sites are compared with current fish communities in the area.
- A Martin site bone deposit (F 12) is radiocarbon dated, and analyzed in detail, then compared with comparable data from the Peace Bridge site (F 158) (Fig. 5, 6).
- Traditional archaeological interpretations of the artifact class called 'net sinkers' are tested by comparing net sinker mass to modern water velocity (Fig. 7).
- Historical data suggest possible prehistoric fish procurement strategies and technologies.

Results Summary

- Modern and archaeological fish communities do not correspond well. The prehistoric fishery appears focused on exploitation of walleye and sauger. These fish are rare today and are not known to spawn in the upper Niagara River (Fig. 1).
- Martin and Peace Bridge site radiocarbon dated fish bone deposit comparison suggests large-scale exploitation of mature spawning walleye, possibly with nets, ca. 2,000-1,300 ybp (Fig. 5, 6).
- A common archaeological interpretation of notched stones as net sinkers relies mainly on their associations with aquatic contexts and the presumed correlation of net sinker size and speed of water current.
- A relationship appears to exist between net sinker mass and modern stream velocity at the sites (Fig. 7).
- Historical information suggests that Iroquois people netted spawning fish including walleye with seines in the upper Niagara River into the early nineteenth century. Stones may have functioned as net sinkers.

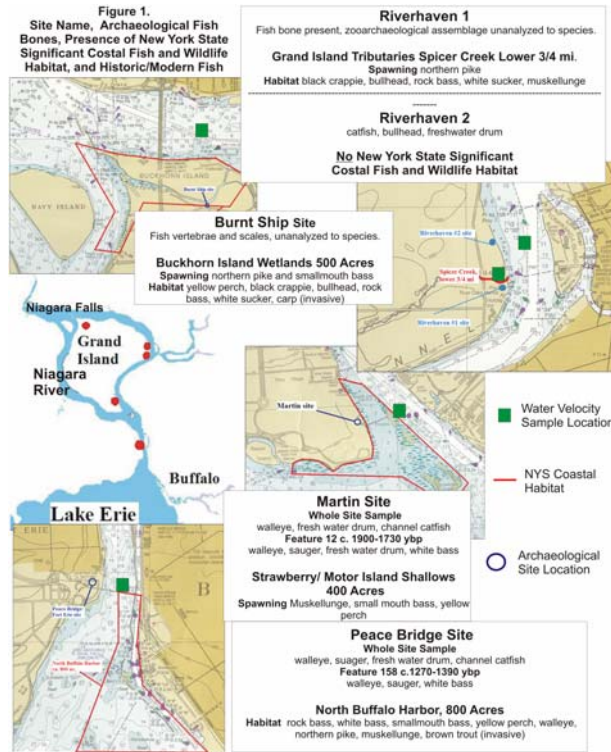


Figure 2. Martin site Walleye Lateral Dental, Cat No. 141364

Conclusions

The upper Niagara River fish community was likely more robust and biologically diverse in prehistory, but changed rapidly since 1825. Spawning walleye were taken in nets in large numbers in the Middle Woodland period (ca. 0-700 C.E.). Iroquois people are documented using similar methods into the early 1800s. Today, walleye are uncommon catches in the upper Niagara River, and are not known to spawn in that section of the river. Moreover, walleye are thought of as a key predator species and are the focus of an ongoing spawning rehabilitation program in Lake Erie (GLFC 2003:39).

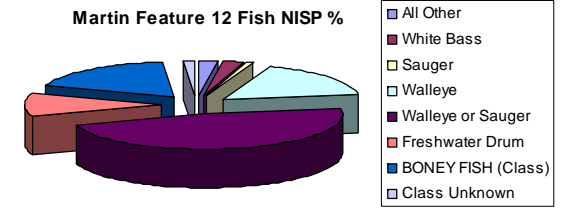


Figure 5.

Measurement Comparison: Central Trunk Vertebrae Stizostedion sp. F12, Martin, & F158, Peace Bridge

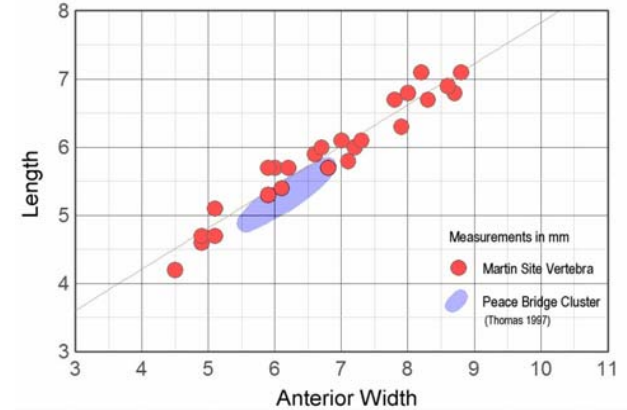


Figure 6.

References

Allen, Lewis F.
1879 *Founding of the city of Ararat on Grand Island - by Montcalm M. Noah. read before the society March 5, 1866.* Buffalo, <http://historical.library.cornell.edu/>

Blane, William
1969 *An Excursion Through the United States and Canada (1824) During the Years 1822-23 by an English Gentleman.* Reprinted by Negro Universities Press, New York.

Granger, Joseph
1978 *Meadowood Phase Settlement Pattern in the Niagara Frontier Region of Western New York State.* Anthropological Papers, Museum of Arts and Science, No. 11, Rochester.

Great Lakes Fishery Commission (GLFC)
2003 *Fish-Community Goals and Objectives for Lake Erie.* Special Publication 03-02.

Kent, Donald H.
1974 *Historical Report on the Niagara River and the Niagara River Strip to 1759.* US DOJ, Before the Indian Claims Commission.

Kinietz, W. Vernon
1965 *The Indians of the western Great Lakes, 1615-1760.* University of Michigan Press, Ann Arbor.

Lyman, Lee R.
1996 *Zooarchaeology: The Relevance of Faunal Analysis to Wildlife Management.* *World Archaeology* 28(1):110-125.

New York State, Dept of State, Division of Coastal Resources.
2006 *Significant Coastal Fish and Wildlife Habitats.* <http://www.nyswaterfronts.com>

Regier H.A. and W.L. Hartman
1973 *Lake Erie's Fish Community: 150 Years of Cultural Stresses.* *Science* 180(4092):1248-1255.

Thomas, Stephen C.
1997 *Faunal Analysis in The Shadow of the Bridge: Archaeology of the Peace Bridge Site (AIG-9), 1994-1996 Investigations.* R.F. Williamson and R.I. MacDonald, eds. Occasional Publications of Archaeological Services Inc., 1:441-492.

2004 *The Zooarchaeology of the Fish Assemblage from Feature 12 of the Martin Site (UB 214).* Ms. on File SUNY at Buffalo Archaeological Survey.

Thwaites, Reuben G. (Editor)
1896-
1901 *The Jesuit Relations and Allied Documents. Travels and Explorations of the Jesuit Missionaries in New France 1610-1791.* 72 vols. Paget Book Company.

United States Department of Army, Corps of Engineers.
n.d *Channel Velocities Along the Niagara River, Model.* United States Fish & Wildlife Service <http://www.fws.gov/>

Wright, Gordon K.
1963 *The Neutral Indians: A Source Book.* Occasional Papers of the New York State Archaeological Association No. 4, Rochester, NY.

Zubrow,
1998 *Martin Site of Grand Island: The Archaic and Woodland Occupation of Western New York.* *Journal of World Anthropology.* Dept of Anthropology, SUNY at Buffalo <http://wings.buffalo.edu/anthropology/JWA/V1N1/zubrow.art>