



USGS Great Lakes Science Center

## Reestablishing Native Clams in Metzger Marsh



View of Metzger Marsh during dewatering.

In 1996, a large population of native clams was discovered during the dewatering of Metzger Marsh. This population is critical to the future restoration of clams in Lake Erie, since it is one of the few populations in the lake that survived the negative effects of zebra mussels. During the marsh restoration project, all clams in Metzger were removed and boarded in various locations in Ohio and Michigan. Once the marsh is reopened to Lake Erie, the clams will be returned and assisted in rebuilding their population structure.

Reestablishing a viable native clam community in Metzger Marsh is our primary goal. Three basic population parameters are critical to achieving our goal: the transplanted clams have to survive, they have to reproduce, and their offspring, in turn, have to survive and reproduce.

**Survival:** Our first question is whether the "new" Metzger Marsh can support native clams, in both initial survival of the adult clams and their ability to obtain enough food in the area to support growth and reproduction. Since the habitat in Metzger has changed, the clams cannot be returned to the areas where they were initially captured. New habitat has to be created. Based on our experiences in habitats where the clams are presently boarded, this "new" habitat has to have soft, aerobic, sediments in at least one meter of water. Dewatering during winter or anoxic sediments during summer causes high mortality in adult clams. The most likely location for this kind of habitat in Metzger will be near the water control structure opening into Lake Erie. All adult clams initially removed from Metzger have been

permanently marked, numbered, measured, and registered according to species and sex (if known), which will enable survival and growth rates to be easily determined.

**Reproduction:** Successful reproduction in native clams is a team effort between the clam and a fish host. Native clams have a parasitic larval stage that must attach to fish in order to complete development. This is a complex procedure with many steps, including the need to have healthy clams that are producing larvae, suitable fish entering the gate into the marsh, and physical contact between fish and gravid clams. Finally, the fish must remain in the marsh long enough for larval metamorphosis to be completed. If all of these steps do not occur, then the native clam population in the marsh will be functionally extinct and ultimately disappear.

We estimate that reestablishing a viable native clam population in Metzger Marsh will require 5-7 years after the marsh is reopened to lake access. Some management techniques may be useful in shortening this time line, but successful rebuilding of this population will be a lengthy procedure due to the slow reproductive characteristics of these long-lived animals. Metzger Marsh is unique in that it is providing an opportunity for using pro-active management strategies to protect and enhance a group of animals that are rapidly disappearing nationwide.



Gravid clam displaying fish lure to attract host fish to act as dispersal agents for its young.