



Status of the Saginaw Bay Walleye Population and Progress Towards Recovery

April 2007 Michigan Department of Natural Resources, Fisheries Division

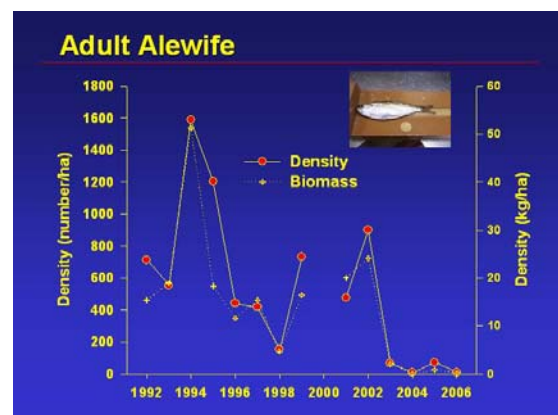


Summary

The Saginaw Bay walleye population continues to show signs of further recovery and expansion. Several strong year classes of walleye are now dominating the population and are beginning to contribute to the fishery. The 2005 year class now appears to be even stronger than the previous two which suggests that the population and fishery will continue to grow. Growth rates of walleye have reached target levels, one of the indicators of expanding abundance in the [Walleye Recovery Plan](#). The expansion of the population continues to be credited to the absence of adult alewives in the bay which are believed to prey upon newly hatched walleye. Early indications of the 2006 year class strength point to an average cohort. No walleye stocking is planned for 2007 because of the continued good natural reproduction and because of a [culture interruption](#) stemming from [VHS disease](#) in the Great Lakes.

The changing food web of Lake Huron and it's effect on Saginaw Bay walleyes

The [food web in Lake Huron](#) has undergone enormous change in recent years due to the colonization of various exotic species including zebra and quagga mussels. It is theorized that they have precipitated the decline in certain native invertebrates like [diporeia](#) that in turn support many of the open water bait fish. Alewives have declined the most. This has made reducing the

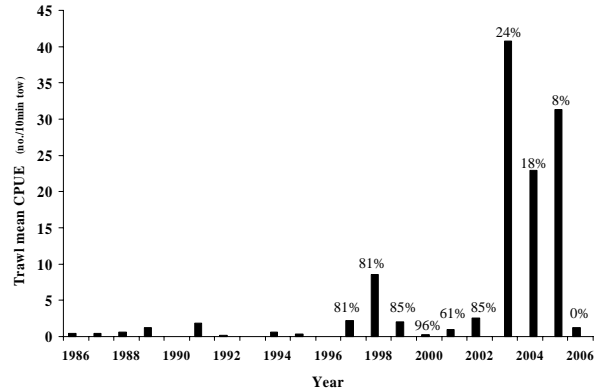


Trends in adult alewife abundance. USGS, GLSC graphic

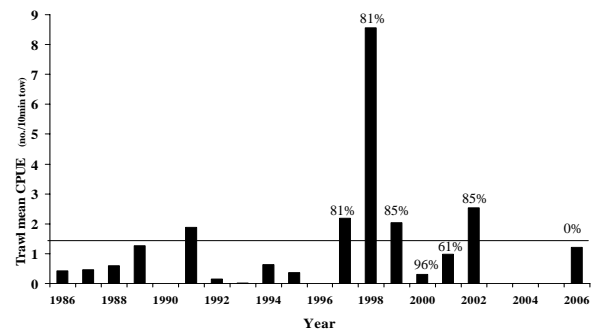
amount of predators like Chinook salmon that the lake can support. The absence of alewives, however, has been a positive development for some native species including walleye in Saginaw Bay. Adult alewives normally enter the bay for spawning about the same time walleye fry are emerging. Alewives will eat the fry reducing the amount of walleye recruitment. Walleye recruitment has surged in the absence of alewives.

Recent trends in juvenile walleye production

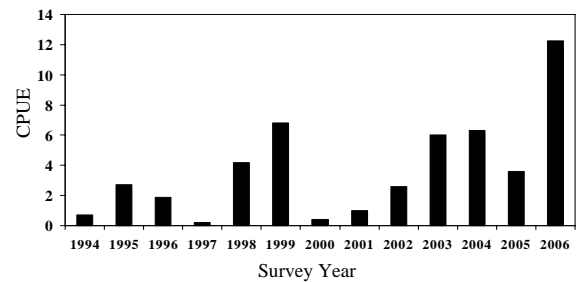
Reproductive success of walleye has greatly increased in the absence of alewives. Abundance of young-of-the-year (YOY) in annual trawling assessments has increased as much as 2100% (2003) over previous years. Because of marking of stocked walleye with oxytetracycline (OTC), we know that the vast majority of these new strong year classes are wild or naturally reproduced walleye, not stocked. Because of this excellent reproductive success, it was decided not to stock Saginaw Bay in 2006. That year's abundance of YOY in the trawl samples was less than the previous three record abundances, but still in line with the averaged stocked year in the past. It was also anticipated that it is unlikely that extreme levels of reproductive success would be repeated year after year. Such a phenomenon is rare in walleye populations yet Saginaw Bay has already enjoyed three strong years of reproductive success in a row (2003 – 2005). Because adult alewives remain scarce in Lake Huron, it is believed that the circumstances are well set for continued good reproductive success and no stocking was planned for 2007. This annual stocking decision is based on the strategies laid out in the [Saginaw Bay Walleye Recovery Plan](#). A one year [moratorium on walleye culture](#) by the DNR due to concerns stemming from the discovery of [VHS disease](#) in the Great Lakes ended the possibility for walleye stocking in 2007 regardless.



Abundance of YOY walleye in Saginaw Bay. % is hatchery fish contribution.



Strength of nonstocked 2006 year class compared to stocked years before recent surge in reproduction. Line represents average

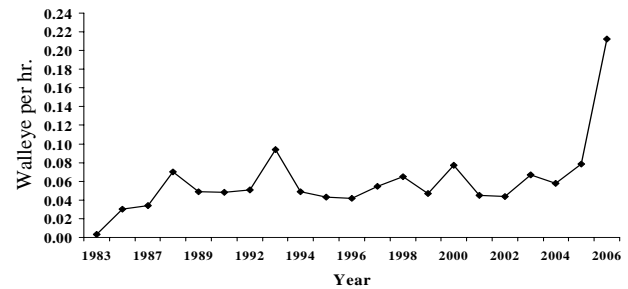


Final year class strength for yearling walleye (year class = survey Yr. -1)

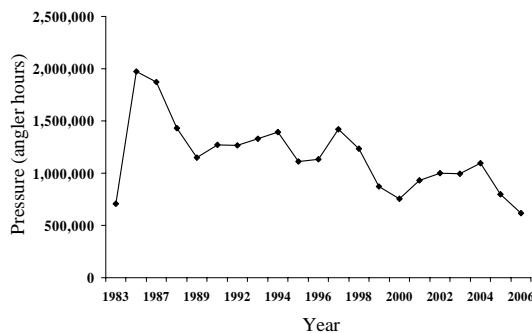
The walleye sport fishery

Because of the increase in walleye in the bay, the fishery has responded with increased harvest and angler catch rate. This is fueled mostly by the 2003 year class which, as age-3 walleyes in 2006, mostly became legal sized.

The increase in the fishery however, has so far not resulted in any increased amount of fishing activity (pressure).



Open water (Apr-Oct) angler walleye catch rate in Saginaw Bay.



Trends in Saginaw Bay open water (Apr-Oct) fishing pressure.

The continued downward trend of fishing pressure likely results from downward trends in yellow perch availability, increased marine fuel costs, and a general negative impression of Lake Huron due to the alewife decline and downward trend in Chinook salmon fishing.

Outlook for the Future

In the near term, the future looks bright for walleye and walleye fishing in Saginaw Bay. With more strong year classes yet to become fishable size, we can expect fishing to remain strong for the near term. The long term future will depend on to what degree natural reproduction remains strong, and that in turn will likely depend on future trends with alewives. Currently (2007) it appears alewives will remain scarce for some time yet. Profound [food web changes](#) continue to play out in Lake Huron driven by the continued onslaught of exotic species. Other unknowns include the possible losses to [VHS disease](#). It's not clear yet to what degree that will affect Saginaw Bay walleye.

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