Saginaw Bay Walleye and Perch Recruitment – 2003
-Fact Sheet-

Since the early 1970's, the Michigan Department of Natural Resources has been conducting a fall survey of the Saginaw Bay fish community. In September, 2003, the MDNR research vessels *Channel Cat* and *Chinook* surveyed the fish populations with bottom trawls and variable-mesh gill nets. Results of the survey indicate that reproductive success for both walleye and yellow perch in 2003 was extraordinary.

Walleye:

The average catch rate of young-of-the-year walleyes in the trawl in 2003 was 41 fish per 10 minute tow. This value represents a new record high for the data time series which dates back to 1971. The previous high of 8.55 was recorded in 1998. The 2003 mean is 4.8 times higher than the 1998 value. Young-of-the-year walleye caught in the trawls during the September (2003) survey ranged in length from 4.5 inches to 9.2 inches.

Hatchery fish stocked in Saginaw Bay in 2003 were marked with a chemical called oxytetracycline that allows biologists to tell a hatchery fish from a wild fish. This analysis indicates that at least 72% of the 2003 walleye year class were wild (naturally reproduced) fish and 28% were from stocking. In most years, hatchery fish account for the majority of recruitment in Saginaw Bay. This means that even though 1.8 million walleyes were stocked in 2003, the record year class is mainly a result of unusually high levels of natural reproduction and/or unusually good survival of naturally reproduced walleye.

Yellow Perch:

The average yellow perch young-of-the-year catch rate for trawls in 2003 was 2,390 fish per ten minute tow, the highest young-of-the-year average catch rate ever observed for yellow perch during the annual fall survey in Saginaw Bay. This new record is 3.47 times higher than the previous high observed in the time series (687 young-of-the-year yellow perch per tow in 1982). Mean length of the young-of-the-year yellow perch collected during the 2003 survey, 3 inches, was the lowest observed for the survey time series. Thus, despite a low abundance of adults, yellow perch spawning success in 2003 appears to have surpassed that of any year since at least 1971.

The average trawl catch rate for adult yellow perch in 2003 was 20.7 fish per 10 minute tow. Since 1971, adult yellow perch catch rates for the fall trawl survey have been less than 30 fish per tow only 5 times (1994, 1995, 2000, 2001, and 2003). Thus, yellow perch adult abundance in Saginaw Bay since 2000 has been low relative to the decades of the 1970's and 1980's.

The actual final strength of these walleye and yellow perch year classes will not be determined until after over-winter losses are absorbed. It's normal to lose many young-of-the-year perch and walleye to stress and predation over the winter. The number actually recruiting to the population will be less. Final measurements of year class strength will be made by the DNR after the fall survey in 2004. It's possible that these year classes will not be nearly as large when measured as yearlings. Even with significant over-winter losses, however, these year classes may still be very large and will likely remain record in size.

Why such great spawning/survival success for Saginaw Bay walleye and yellow perch in 2003?

Large variability in annual spawning success and fry survival is quite typical for walleye and yellow perch all across North America. Although fisheries biologists have sought to understand and quantify the factors involved in this variability, they remain unclear. Various climactic factors such as winter severity, spring warming patterns, timing and magnitude of flood events, and impacts of wind storms are all suspected to play a role in spawning success variability for these species. In addition, ecological factors such as the abundance of predators which prey upon newly hatched walleye and perch, can determine how much recruitment occurs.

Yearling and older alewives which enter Saginaw Bay in the spring for spawning are thought to be significant predators on newly hatched walleye and perch fry. In 2003, the abundance of adult alewives, measured by USGS surveys in the main basin of Lake Huron, was the lowest recorded since 1992. We suspect that ideal climactic conditions resulted in excellent hatching of walleye and yellow perch eggs during the spring of 2003 and that the emerging fry survived extraordinarily well because of the extreme scarcity of adult alewives in the bay. The ideal climatic conditions may have also resulted in more abundant food resources (zooplankton) for the walleye and perch fry.

What will this mean to anglers?

In the short term, this will mean that anglers will likely catch a lot more sublegal walleye and small perch. If these fish survive well, in time fishing for walleye and yellow perch could achieve success rates not previously experienced by most Saginaw Bay anglers. There are, however, enough unknowns still remaining that we can't not exactly predict the final effect on fishing.

The DNR presented a walleye recovery plan in 2003 for Saginaw Bay. The very strong 2003 walleye year class is a very positive step forward in progress towards the goals established in the recovery plan. The 2003 year class of walleye, by itself, does not mean that the Saginaw Bay walleye population is fully recovered. Management changes to the fishery are not immediately planned as a result of these very large perch and walleye year classes, but the DNR will be monitoring them and their effect on the fisheries, closely in the years to come.

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