

Fish Population Dynamics of Saginaw Bay, Lake Huron 1998–2004

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Abstract.—Saginaw Bay’s fish community is annually surveyed by the Michigan Department of Natural Resources. Fish are collected in the bay by fall sampling with gill nets and trawls. Walleyes spawning in the Tittabawassee River are captured with electrofishing gear and tagged. This report summarizes survey findings for 1998–2004 and is supplemented with some reports from sport and commercial fisheries. The production of age-0 percids (walleyes and yellow perch) has increased substantially. Analysis of walleye origins, aided by oxytetracycline marking of stocked fish, indicated that about 80% of recent year classes were naturally reproduced. This was attributed principally to the decline and near absence of adult alewives which are believed to prey upon, and compete with, newly hatched percid fry. Ideal spring climate conditions are also thought to have aided reproduction in 2003. Survival of these abundant age-0 percid year classes has been only moderate for walleyes and very poor for yellow perch. Predation and overwinter mortality were identified as the principle losses. Since 2003 age-0 walleyes and yellow perch have been growing much slower than previous cohorts. Adult walleyes stemming from year classes prior to the recent increase in natural reproduction continued to grow very fast. Walleye total annual mortality rate and exploitation rate were generally low. The yellow perch population has declined to some of the lowest levels measured since monitoring began in 1971 because of poor survival of age-0 yellow perch and an overall trend of lower recruitment since zebra mussel colonization in the early 1990s. Other species of notable abundance in Saginaw Bay collections include channel catfish, white sucker, and white perch. The exotic round goby, which became abundant during this reporting period, is now ubiquitous in the bay. Despite profound changes in the bay’s fish community since 2003, the overall prey fish base remains abundant and largely underutilized. Notably absent from survey catches were lake herring and lake sturgeon, once historically abundant in the bay. Saginaw Bay’s fish community appears to be in a major transition stemming from the scarcity of adult alewives. The increased percid production speaks favorably to the ability of the bay’s habitat to still produce large year classes but new factors appear to be limiting the survival of these cohorts. Walleye abundance is increasing as a result of the increased recruitment and is expected to make significant advances toward recovery objectives. Some management recommendations are offered including a more conservative approach to harvest by the yellow perch fisheries.