## Rochester Embayment Area of Concern Beneficial Use Impairment

**Restrictions on Fish & Wildlife Consumption:**
Consumption restrictions for Lake Ontario fish are due to PCBs, mirex, and dioxin. Consumption restrictions for wild waterfowl are due to PCB's, mirex, chlordane, and DDT. The sources include past agricultural and residential use, inactive hazardous waste sites, contaminated sediments, air deposition and Lake Ontario. The land-based inactive hazardous waste site remediation and accelerated PCB removal will contribute to the restoration and protection of the beneficial use. The New York State Department of Health (NYSDOH) annually issues “Health Advisories for Chemicals in Sportfish and Game."

**Tainting of Fish and Wildlife Flavor:**
The status of this use impairment is unknown. A proposed study, “Verify whether fish in the AOC have a chemical flavor or odor," is described in the Stage Two RAP in Section 4.1. The use of an angler survey is proposed. One potential cause of this use impairment is the presence of Phenols.

**Degradation of Fish & Wildlife Populations:**
This use impairment is based solely on an identified impact on Mink in the AOC. The impairment is unknown for other species. The absence of mink near Lake Ontario cited as reason for this impairment in the Stage I RAP may be caused by PCBs in their fish diet. Sources of PCBs are past usage, disposal sites, contaminated sediment, and atmospheric deposition. Recent information still in process of publication may contradict earlier studies.

**Fish Tumors or Other Deformities:**
The status of this use impairment is unknown. A proposed study “Incidence of fish tumors or other deformities in the Rochester Embayment watershed” is described in the Stage Two RAP in Section 4.3. Fish examined as part of one local study did not show an abnormally high incidence of tumors or deformities. Anglers have not complained about tumors or fish deformities.

**Bird or Animal Deformities or Reproductive Problems:**
This impairment is tied to the impairment identified for the “Degradation of Fish and Wildlife Populations” indicator. Fish have been found in the Lake and Genesee River with PCB levels known to cause reproductive failure in mink that eat the fish.

**Degradation of Benthos:**
Impairment in the lower Genesee River has been identified; however, it is unknown for the Rochester Embayment. Sediment tests in 1990 using the burrowing mayfly indicated that the sediments in the lower river fit into the “moderately polluted” category. Sediment tests in 1992 and 1993 using the sideswimmer, red midge, water fleas and a commercial culture indicated generally low toxicity to these organisms. Further study and assessment is needed to better quantify the status of this use impairment indicator and determine what remedial measure(s) is appropriate. Lake Ontario data is also needed. Possible causes of impairment are metals, fuel oil, PCBs, and other sediment toxics.

**Restrictions on Dredging Activities:**
The identified impairment is based on the request by Monroe County and NYSDEC that the Army Corps of Engineers restrict overflow dredging in the Rochester Harbor. Restrictions on overflow dredging are needed because of the concern for oxygen depletion, fecal coliform, ammonia and the re-suspension of contaminants which impact the nearby public beach as well as fish and wildlife habitat. A stage II goal was to enter a formal Agreement with USACE, but this has been abandoned as NYSDEC has agreed to include a no overflow dredging requirement in all dredging permits issued for the lower Genesee River.

**Eutrophication or Undesirable Algae:**
This use impairment has been identified as caused by excessive nutrients (phosphorus) attributable to wastewater treatment facilities, agricultural runoff, atmospheric deposition, onsite sewage disposal systems, and stormwater runoff. Upstream nonpoint source contributions were quantified in the Stage I RAP. The nearshore areas of Lake Ontario experience massive blooms of “Cladophora” and “Spirogyra” algae. When the algae accumulates along and on the shore, it promotes the growth of coliform bacteria as it decomposes.

**Restrictions on Drinking Water Consumption, or Taste & Odor:**
Although there are no restrictions on drinking treated water anywhere in the Rochester Embayment watershed, there are occasional taste and odor problems with treated drinking water, primarily in late summer. Evidence of this comes from occasional reports to the Monroe County Water Authority of taste and odor in water drawn from Lake Ontario (in the embayment) and treated. The identified causes are algae, turbidity and temperature changes.

**Beach Closings & Recreational Access:**
Beach closings occur in the AOC. Ontario beach, just west of the mouth of the Genesee River, was closed from 1967 until 1976 because it could not meet public health standards for fecal coliform bacteria. Since 1976, the beach has been open unless unacceptable water quality is predicted. In recent years, the beach has been closed for one-quarter to one-half of the beach season due primarily to the promotion of fecal coliform bacteria grown in rotting algae. Another contributor to beach closings is turbidity.

**Degradation of Aesthetics:**
The current impaired status of this use impairment is due to the presence of algae, turbidity, litter, dead fish and chemical seeps at the lower falls.

**Added Cost to Agriculture & Industry:**
An impairment has been identified due to zebra mussels. Zebra mussels in Lake Ontario and the lower Genesee River have resulted in extra water treatment cost for industrial and municipal water users, agriculture, residences and golf courses.

**Degradation of Phytoplankton & Zooplankton Populations:**
Impairment in the lower Genesee River has been identified; the impairment status in the Rochester Embayment is unknown. Data provided by NYSDEC indicates that one type of zooplankton has shown chronic toxicity at some sites in the Genesee River. The primary cause is believed to be the eutrophication caused by excess phosphorus from point and nonpoint sources. Lake Ontario data are also needed.

**Loss of Fish & Wildlife Habitat:**
Loss of habitat is due to the filling of wetlands, deforestation, agriculture and urban/suburban development. Long-term monitoring and assessment of this use impairment indicator will be needed.