

COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **Smoke Creek Shoals**

Designated: **October 15, 1987**

County: **Erie**

Town(s): **Lackawanna, Hamburg**

7½' Quadrangle(s): **Buffalo SE, NY**

<u>Score</u>	<u>Criterion</u>
9	Ecosystem Rarity (ER) Relatively large, shallow, gravel and rubble shoal, uncommon in Erie County.
0	Species Vulnerability (SV) No endangered, threatened or special concern species reside in the area.
4	Human Use (HU) Recreational fishery for walleye attracts many anglers from throughout Erie County.
4	Population Level (PL) Recreational fishery for walleye attract many anglers from throughout Erie County.
1.0	Replaceability (R) Uncertain of ability to replace the habitat or population level.

SIGNIFICANCE VALUE = [(ER + SV + HU + PL) X R]

= **17**

DESIGNATED HABITAT: SMOKE CREEK SHOALS

LOCATION AND DESCRIPTION OF HABITAT:

Smoke Creek shoals is located on the shoreline of Lake Erie, on the boundary between the City of Lackawanna and the Town of Hamburg, Erie County (7.5' Quadrangle: Buffalo SE, N.Y.). The fish and wildlife habitat is an approximate 500 acre area of open water, generally located within a one-half mile radius of the mouth of Smoke Creek. This area encompasses a broad, productive, littoral zone, where water depths are generally less than 20 feet below mean low water, and the bottom substrate is a mixture of sand, gravel, and rubble. The entire shoreline bordering Smoke Creek Shoals has been modified through filling or bulkheading in conjunction with adjacent industrial development (steel mills). Smoke Creek drains approximately 33 square miles of industrial, residential and abandoned agricultural land, and much of the channel has been modified for flood control purposes.

FISH AND WILDLIFE VALUES:

Smoke Creek Shoals is one of only a few sizeable areas of relatively shallow, gravelly shoals in the Erie County portion of Lake Erie. Apparently, wave action and inflows from Smoke Creek provide adequate water circulation in the area to prevent siltation of the bottom substrate. This extensive littoral zone probably serves as an important spawning area for a variety of warmwater fish species, especially walleye, along with yellow perch and smallmouth bass. Observations of walleye in and around the mouth of Smoke Creek during the spawning period (mid-march - early May, generally) suggest that the adjacent shoals attract a major lake-spawning concentration. Concentration areas such as this are unusual in Erie County. Walleye entered Smoke Creek to spawn in 1985 but did not appear to be successful.

As a result of the abundant walleye population at Smoke Creek Shoals, this area attracts significant recreational fishing pressure during late spring and early summer, primarily by residents of the Buffalo metropolitan area. Boat access to the fishery is available from the Small Boat Harbor in Buffalo. Reproduction of walleye at Smoke Creek Shoals may also contribute to the Lake Erie commercial fishery for this species, located farther offshore in waters greater than 55 feet deep.

IMPACT ASSESSMENT:

A **habitat impairment test** must be met for any activity that is subject to consistency review under federal and State laws, or under applicable local laws contained in an approved local waterfront revitalization program. If the proposed action is subject to consistency review, then the habitat protection policy applies, whether the proposed action is to occur within or outside the designated area.

The specific **habitat impairment test** that must be met is as follows.

In order to protect and preserve a significant habitat, land and water uses or development shall not be undertaken if such actions would:

- destroy the habitat; or,
- significantly impair the viability of a habitat.

Habitat destruction is defined as the loss of fish or wildlife use through direct physical alteration, disturbance, or pollution of a designated area or through the indirect effects of these actions on a designated area. Habitat destruction may be indicated by changes in vegetation, substrate, or hydrology, or increases in runoff, erosion, sedimentation, or pollutants.

Significant impairment is defined as reduction in vital resources (e.g., food, shelter, living space) or change in environmental conditions (e.g., temperature, substrate, salinity) beyond the tolerance range of an organism. Indicators of a significantly impaired habitat focus on ecological alterations and may include but are not limited to reduced carrying capacity, changes in community structure (food chain relationships, species diversity), reduced productivity and/or increased incidence of disease and mortality.

The *tolerance range* of an organism is not defined as the physiological range of conditions beyond which a species will not survive at all, but as the ecological range of conditions that supports the species population or has the potential to support a restored population, where practical. Either the loss of individuals through an increase in emigration or an increase in death rate indicates that the tolerance range of an organism has been exceeded. An abrupt increase in death rate may occur as an environmental factor falls beyond a tolerance limit (a range has both upper and lower limits). Many environmental factors, however, do not have a sharply defined tolerance limit, but produce increasing emigration or death rates with increasing departure from conditions that are optimal for the species.

The range of parameters which should be considered in applying the habitat impairment test include but are not limited to the following:

1. physical parameters such as living space, circulation, flushing rates, tidal amplitude, turbidity, water temperature, depth (including loss of littoral zone), morphology, substrate type, vegetation, structure, erosion and sedimentation rates;
2. biological parameters such as community structure, food chain relationships, species diversity, predator/prey relationships, population size, mortality rates, reproductive rates, meristic features, behavioral patterns and migratory patterns; and,
3. chemical parameters such as dissolved oxygen, carbon dioxide, acidity, dissolved solids, nutrients, organics, salinity, and pollutants (heavy metals, toxics and hazardous materials).

Although not comprehensive, examples of generic activities and impacts which could destroy or significantly impair the habitat are listed below to assist in applying the habitat impairment test to a proposed activity.

Any activity that substantially degrades water quality, increases temperature or turbidity, alters water depths, or reduces physical diversity of bottom substrates at Smoke Creek Shoals would affect the fisheries resources of this area. Discharges of sewage, stormwater runoff, or industrial wastewater, containing heavy sediment loads or chemical pollutants would result in adverse impacts on fish populations. Activities such as dredging, oil and gas drilling, and solid waste disposal are all potential causes of permanent habitat degradation. Construction of breakwalls or jetties in the area would increase sedimentation, resulting in loss of suitable spawning habitat of walleye. Temporary habitat disturbances would be most detrimental during fish spawning and nursery periods (mid-March - July for most warmwater species); any unavoidable human disturbance of the littoral zone should be scheduled during fall or winter to minimize potential impacts on fisheries use of the area. Thermal discharges, depending on time of year, would also have adverse effects on fish populations in the area, since spawning activities and survival are directly affected by water temperature. Installation and operation of water intakes could have a significant impact on fish concentrations, through impingement of juveniles and adults, or entrainment of eggs and larval stages.