

Chapter 2: Description of the Area of Concern

2.1 Environmental Setting

The Rochester Embayment is a broad bay on the south shore of Lake Ontario at the mouth of the Genesee River. For the purposes of the RAP, the Rochester Embayment Area of Concern (AOC) is defined as the approximately 35 square mile portion of Lake Ontario between Nine Mile Point in the Town of Webster (Monroe County, Lake Ontario Central Basin) and Bogus Point in the Town of Parma (Monroe County, Lake Ontario West Basin). The AOC also includes the approximately six mile reach of the Genesee River, from the Lower Falls to the mouth, that is influenced by water levels in Lake Ontario (see Figure 2-1).

Because a watershed approach is being taken in the preparation of the Rochester Embayment RAP, the study area also includes the approximately 3,000 square mile watershed that drains to the Rochester Embayment. The drainage area for the Rochester Embayment should be described as a "basin"¹. However, it is traditionally referred to as a "watershed".

The Rochester Embayment Watershed is comprised of all or parts of three major basins: the Genesee River Basin (see Figure 2-2), the Lake Ontario Central Basin (see Figure 2-3) and the Lake Ontario West Basin (see Figure 2-3). The Genesee River basin is approximately 2,500 square miles in size and includes all or parts of ten counties (nine in New York and one in Pennsylvania). The entire Genesee Basin drains to the Rochester Embayment. The upstream areas of the Genesee Basin are characterized by farmland and mixed forest. Intensive urban development is concentrated in the downstream portion of the Basin in and around the City of Rochester.

The Lake Ontario Central Sub-basin is the 224 square mile portion of the Lake Ontario Central Basin that drains to the Rochester Embayment. The Central Sub-basin includes parts of Monroe and Ontario Counties and is predominantly urban and suburban in character. Irondequoit Bay is the dominant feature in the Sub-basin.

The Lake Ontario West Sub-basin is the 309 square mile portion of the Lake Ontario West Basin that drains to the Rochester Embayment². The West Sub-basin includes parts of Monroe and Orleans Counties and is primarily rural in character with development concentrated in the eastern part of the Sub-basin, along the Lake Ontario shoreline, and in a number of villages.

¹A basin is a collections of watersheds.

²Note that the watersheds of all streams within Monroe County, that flow directly into Lake Ontario west of the Genesee River Basin, are included in the Lake Ontario West Sub-basin. This delineation allows Monroe County to have consistent water quality policy throughout the County.

Figure 2 - 1

THE AREA OF CONCERN
The Rochester Embayment of Lake Ontario
&
The Genesee River from the Lower Falls to the Mouth

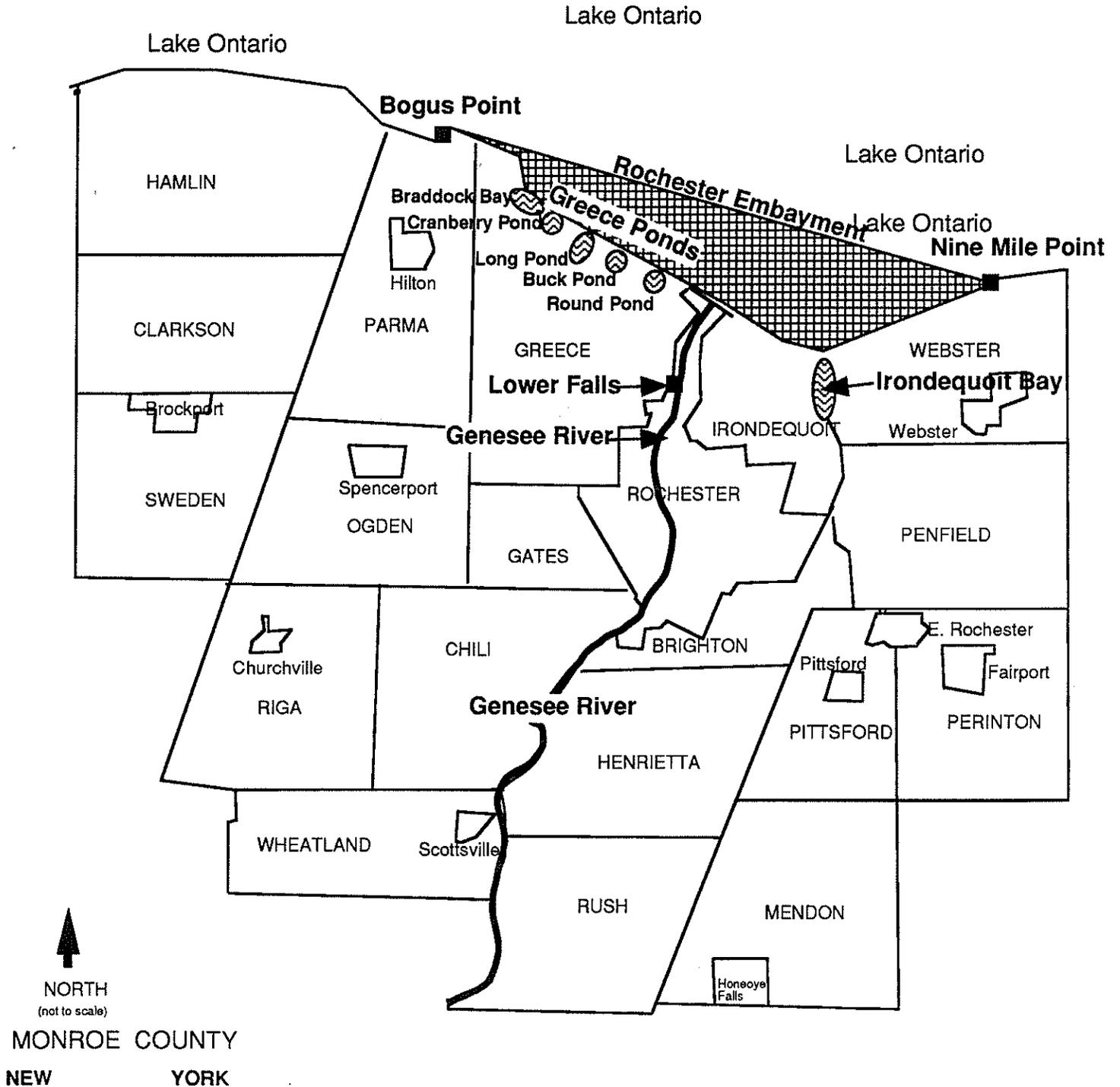


Figure 2 - 2

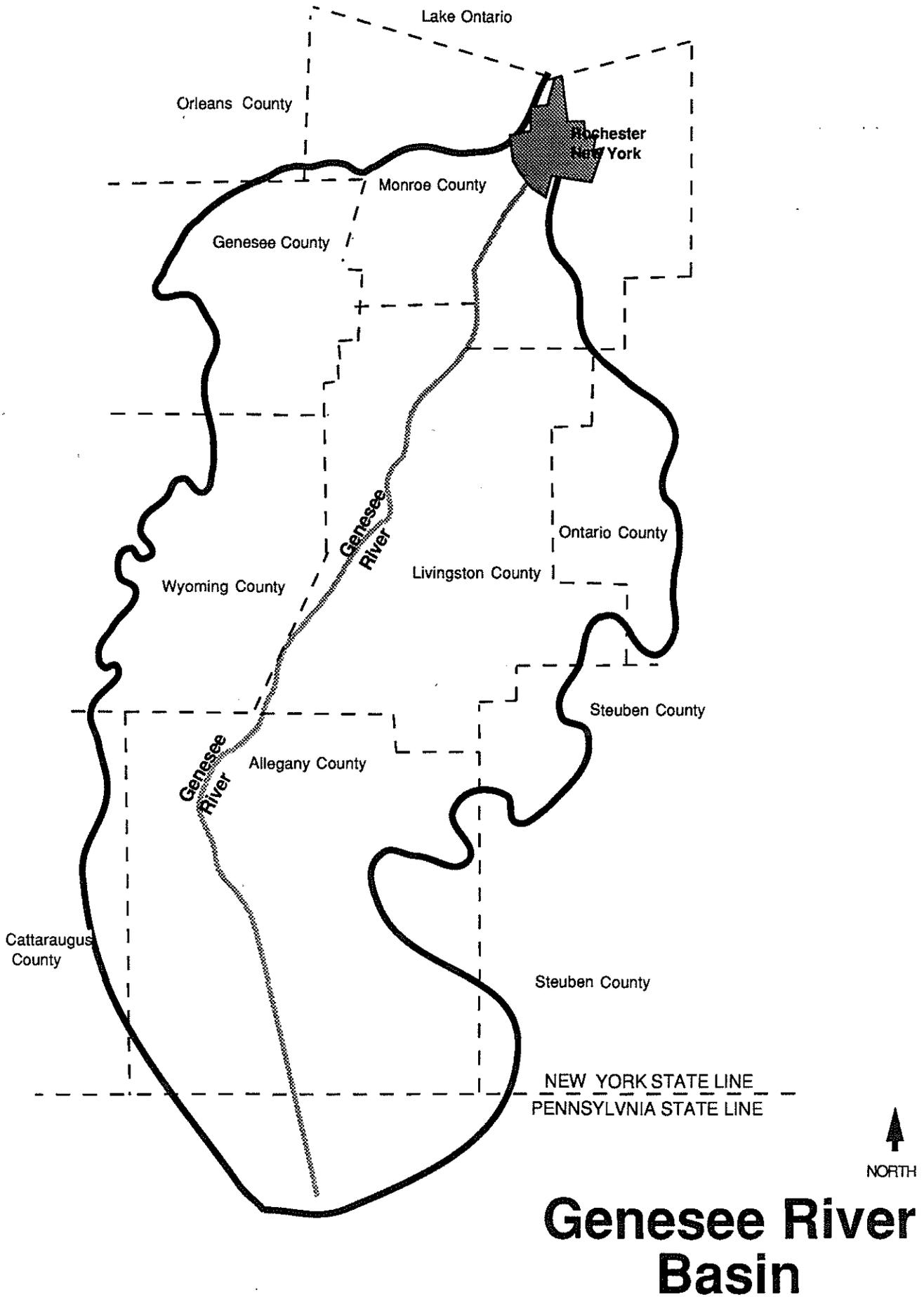
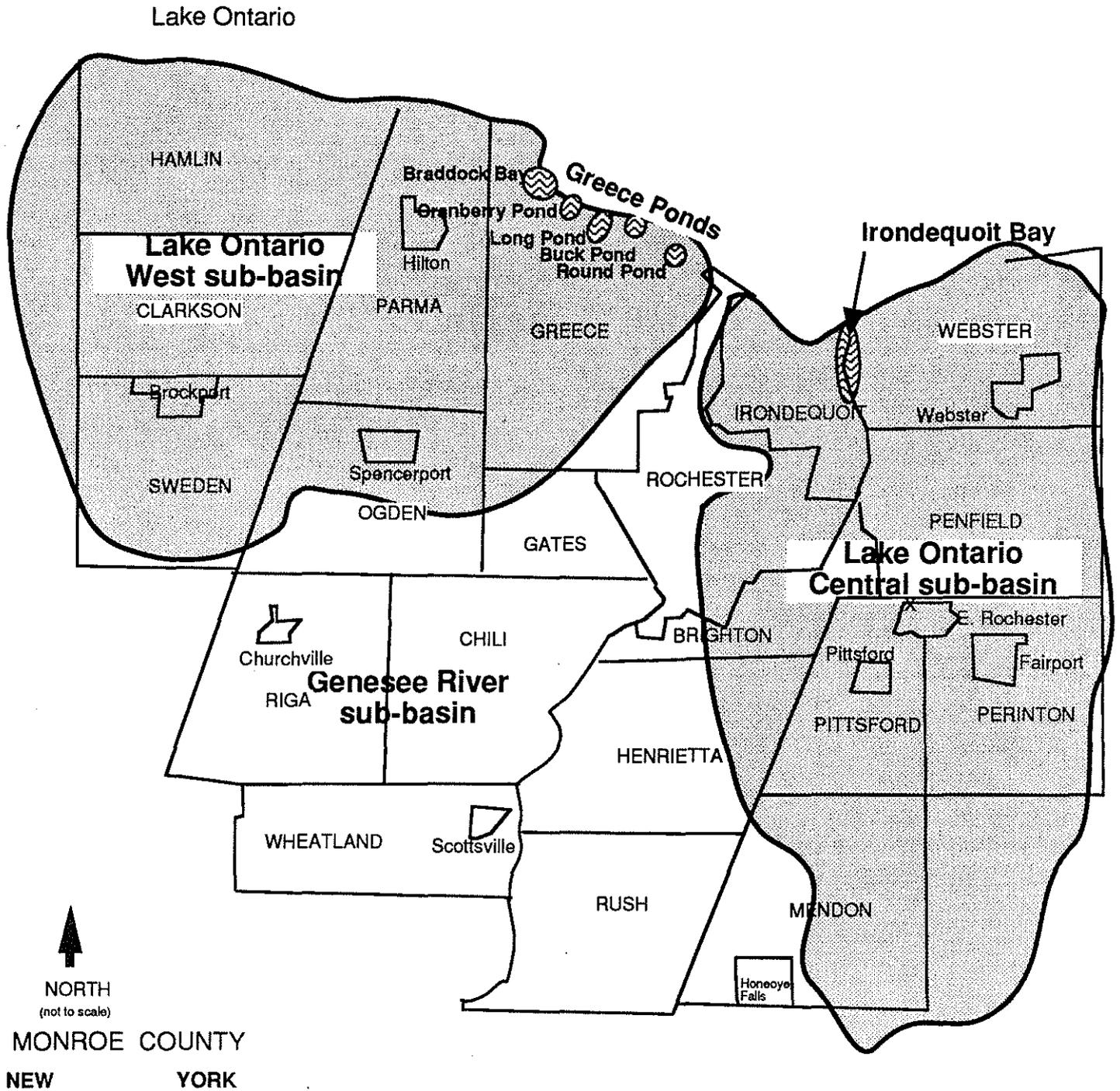


Figure 2 - 3

The Lake Ontario West Sub-basin & The Lake Ontario Central Sub-basin



The Erie Canal flows east from the Niagara River, via Tonawanda Creek, through the Rochester Embayment Watershed. The Canal receives water from and discharges water into a number of local waterways including the Genesee River and streams to its east and west. Any contributions from the Canal to beneficial use impairments in the Rochester Embayment are considered in the RAP insofar as the sources exist within the Rochester Embayment watershed. To learn more about the contributions from the Canal, monitoring of the Canal is proposed. (See the Chapter 9 section on "Monitoring of the Erie Canal".)

For a comprehensive discussion of the environmental features of the Rochester Embayment, including location and drainage area, flows, water levels, temperatures, winds, waves, food web, climate, topography, and uses, see Chapter 2 "Environmental Setting" of the Rochester Embayment Remedial Action Plan Stage I.

2.2 Supplemental Environmental Setting Information

The following information includes additions to Chapter 2 "Environmental setting" of the Stage I Rochester Embayment Remedial Action Plan (RAP).

Revisions to the "definition of the geographic scope of the Rochester Embayment Area of Concern" section of the Stage I RAP as found on page 2-1:

- For purposes of the RAP, the Area of Concern also includes the approximately six miles of the Genesee River that are influenced by lake levels and internal seiches, also known as standing waves without evidence of surface movements (Ruttner, 1963), from the River's mouth to the Lower Falls.

Revisions to the "temperature stratification and overturn" section of the Stage I RAP as found on page 2-5:

- Seasonal stratification also affects what happens to runoff as it enters the Lake. Temperature differentials and sediment loads affect the density of stream water relative to the Lake, and may be a determining factor in how and where waters and pollutants become mixed within the Embayment. For example, in the summer, warm water from the Genesee River may flow many miles across the surface of colder Lake Ontario water before Lake and River waters mix completely. Occasionally, colder Lake water extends to the Lower Falls (extension of *internal seiches*). Evidence of the seiche phenomena has been documented by a consultant (HydroQual during the mid-70s).

Revisions to the "topography" section of the Stage I RAP as found on page 2-9:

- The Genesee River, from the Lower Falls to the Turning Point Basin, flows through a steep gorge with narrow shorelines. The bedrock channel in this segment of the River is only sparsely covered with sediment that is easily flushed downstream by rapidly flowing waters (e.g., rain and snowmelt runoff). Therefore, the type of benthic organisms that can thrive in this segment of the River is limited (J. Gorsuch).

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