



YSI Real-time Water Quality Monitoring and the IPSWATCH-EMPACT Program

The Ipswich and Parker Rivers watersheds lie only a short distance north of Boston, MA. The first settlements in these watersheds began in the early 1600s. Since that time, residents have relied heavily on the natural resources of the Parker and Ipswich Rivers, their coastal estuaries and Plum Island Sound, which is known as the Great Marsh. This ecosystem has been designated and protected by the Commonwealth of Massachusetts as an Area of Critical Environmental Concern.

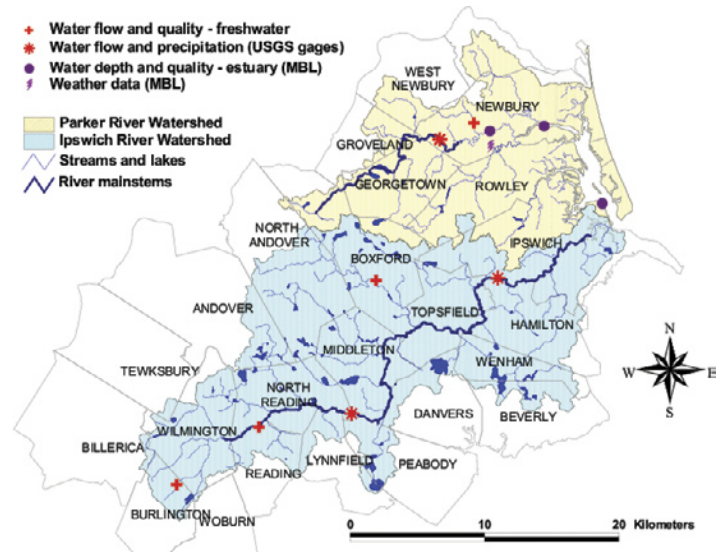
Over the past half century population growth and land development have increased dramatically, placing the riparian and aquatic habitats of these basins, as well as their natural resources, in grave danger. Recognition of the importance of these habitats and their resources is evident in the efforts made by communities such as the Town of Ipswich which has developed a number of organizations responsible for growth management and natural resource protection. Recently, the Town of Ipswich was given a grade of “B+” by the Ipswich River Watershed Association and the Massachusetts Audubon Society for water use and conservation.

Awareness of the ecological and natural resource importance of these areas is also evidenced by the number of organizations – citizen volunteers, universities, governmental agencies – that have been involved in water resource and water quality monitoring and protection. The Ipswich-Parker Suburban Watershed Channel (IPSWATCH) – a web site devoted to environmental information regarding the Ipswich River and Parker River watersheds – said of these organizations and their data, “The data collected by these groups is invaluable for understanding current conditions as well as to understand long term trends.”

Partners in IPSWATCH include:

- EPA EMPACT
- Town of Ipswich
- Ipswich River Watershed Association
- University of New Hampshire
- Water Systems Analysis Group
- United States Geological Survey
- Parker Clean Water Association
- Massachusetts Watershed Initiative
- Marine Biological Laboratory
- Eight Towns and the Bay Committee
- Merrimack Valley Planning Commission
- National Science Foundation
- YSI

IPSWATCH is an EPA EMPACT-funded program. EMPACT, Environmental Monitoring for Public Access and Community Tracking, was created to bring concise, discernible and timely information about water and air quality and water resources to residents of metropolitan areas. The impetus behind providing quality, understandable environmental data to these communities was their need to make informed decisions regarding human health and the protection of the environment. Today the EMPACT program has facilitated the development of environmental monitoring networks in 86 metropolitan areas nationally.



IPSWATCH Monitoring Stations.

The IPSWATCH-EMPACT program became a reality in large part through the efforts of forward-thinking researchers such as Charles Vörösmarty, Research Professor and Director of the University of New Hampshire’s Water Systems Analysis Group; Prof. Ted Loder, also of the Group; and Wil Wollheim, Research Scientist in the Analysis Group that is dedicated specifically to this project by the Town of Ipswich and Vörösmarty. The proposal to develop IPSWATCH was accepted by the EMPACT program in November 2000, with final design, implementation and startup beginning in January 2001.

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IPSWATCH was designed to accomplish the following goals:

1. Increase environmental awareness of people living, working, or playing in the Ipswich River and Parker River Watersheds.
2. Gather and make available data sets collected by a number of different organizations monitoring water quality and conducting research in the Ipswich and Parker Rivers Watersheds.
3. Provide real-time water quantity and quality information for freshwater stream and river sites.
4. Monitor nutrient loading from different land use types.
5. Increase awareness of how land use and water withdrawal issues impact the health of aquatic ecosystems.
6. Address three important issues affecting the watersheds:
 - A. Nutrient enrichment of lakes and streams.
 - B. Reduction of fish habitat caused by low flow.
 - C. Fecal coliform contamination of freshwater and estuarine water bodies.

When the time came to select water quality monitoring technology for IPSWATCH, Vörösmarty, Wollheim, and colleagues contacted YSI Integrated Systems & Services. YSI Integrated Systems & Services provides end-user-configurable data acquisition systems and services for virtually any water quality, hydrological, and meteorological monitoring and response program. Wollheim selected the YSI 6600 Multiparameter Sonde and the YSI 6200 Data Acquisition System (DAS).

IPSWATCH has four water quality monitoring stations equipped with YSI 6600 sondes, two of which are also equipped with a 6200 DAS. The IPSWATCH 6200 DAS stations relay data to various locations via cellular phone. Vörösmarty and Wollheim also purchased an additional 6600 sonde for performing spatially intensive water quality measurements throughout the IPSWATCH program area. Wollheim reported, “the YSI systems are very good... from a scientific, as well as resource monitoring perspective, the data is excellent.”



IPSWATCH field technician with a YSI 6200 DAS.

For additional information on IPSWATCH, please visit www.ipswatch.sr.unh.edu

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