

## **Gulf of Maine Council on the Marine Environment River Barrier Removal Monitoring Workshop**

### **Introduction**

Across the Gulf of Maine watershed, restoration practitioners are removing dams, replacing undersized and impassable culverts, and improving fish and aquatic species passage. Common goals for these river barrier removal projects include restoring watershed connectivity and improving conditions for native species. Despite growing enthusiasm for these projects, few projects are monitored after they take place. Thus, restoration practitioners cannot evaluate the success of individual projects; make comparisons between projects; or predict possible outcomes of future projects. The Gulf of Maine Council Habitat Restoration Committee asks your help in developing a framework for monitoring barrier removal projects. This framework will provide guidance for restoration practitioners across the Gulf of Maine.

The lack of barrier removal project monitoring in the Gulf of Maine mirrors a national lack of river restoration monitoring. Bernhardt and others (2005) note that only 10% of stream restoration projects listed in their National River Restoration Science Synthesis (NRRSS) database included post-restoration monitoring or assessment. Hart et al. (2002) reported that fewer than 5% of the 450 dam removals in the US in the 20<sup>th</sup> century were accompanied by published ecological studies. While scientists and resource managers have begun to formally address river restoration monitoring, most notably for the Northwest United States' salmon rivers (Roni et al., 2005), we are unaware of any systematic, regional approach to barrier removal project monitoring in the United States or Canada. A Gulf of Maine-specific monitoring framework will help practitioners plan and evaluate restoration projects in this region.

### **Goals of the River Barrier Removal Monitoring Workshop**

The Gulf of Maine Council's *Barrier Removal Monitoring Workshop* aims to develop a restoration monitoring framework specific to barrier removal projects in the Gulf of Maine region. We envision a short list of monitoring parameters and reporting standards that are useful to all jurisdictions within the Gulf and provide flexibility to adapt to provincial or state-specific circumstances. We anticipate that some parameters will be essential to monitor, while others may be used according to funding and other resources. We will use your input at this workshop together with existing literature and case studies. Organizations such as American Rivers and UC Berkeley's Clearinghouse for Dam Removal Information work to create and consolidate databases of knowledge concerning dam removal. Other information sources include research on fish passage through stream crossings (e.g., culverts and bridges), which has intensified in the last decade. State and federal agencies are targeting crossings for replacement and adopting stringent standards for all new stream crossings (e.g., the Massachusetts Stream Crossing Handbook).

To begin the process, we have convened scientists, engineers, and resource managers from across the region and elsewhere with specific expertise in barrier removal projects. Through a series of structured workshop sessions, participants will identify critical monitoring parameters in five general topic areas: hydraulics and hydrology; sediment; instream habitat; fish passage; and wetland/riparian habitats. The framework developed through this effort and follow-up research will be available to restoration practitioners across the region in the form of a concise working document. We expect that the framework will improve the ability to 1) assess the long-term benefits of restoration efforts; 2) develop more effective restoration techniques; and 3) communicate results to stakeholders and the public. This workshop is modeled after a similar effort in 1999 to develop regional monitoring protocols for salt marsh habitat in the Gulf of Maine, summarized in the document entitled [\*Regional Standards to Identify and Evaluate Tidal Wetland Restoration in the Gulf of Maine --A GPAC Workshop Report.\*](#)