

Report for 2002NY6B: Demonstration of Integrating Instream Habitat Assessment into Local Watershed Management

There are no reported publications resulting from this project.

Report Follows:

Problem & Research Objectives: Hydrological and habitat modification has been recognized by the US Environmental Protection Agency (EPA) as one of major contributors of non-point source pollution. It is a strategy of the NYS Nonpoint Source Management Plan (page V-45) to improve water quality and restore instream and riparian habitat as a part of maintenance and operation of existing modified channels. The majority of methods used for instream and riparian habitat restoration are constrained in their capability to quantitatively assess the biological response to water withdrawals, channel modification, pollution, and dam removals. Consequently, local and regional management agencies need watershed management tools with the capacity to predict the biological consequences of hydro-modification and applied restoration measures while optimizing the level of required technical resources.

Our overall goal is to assist communities in building more sophisticated environmental resource protection programs, and to enable communities to look beyond single issues to consider the total ecological health of their landscape.

Our specific objectives are:

- 1) Implement quantitative instream habitat assessment and modeling as a method of Instream and Riparian Habitat Restoration Management Measures (EPA-Non Point Source pollution task);
- 2) Incorporate instream habitat protection objectives into watershed management activities by local governments and not-for-profit organizations;
- 3) Provide a quantitative science-base for instream habitat in order to develop a management concept;
- 4) Demonstrate the procedures in selected watersheds in NYS;
- 5) Increase the understanding of agency staff and the lay public as to the functions and values of stream ecosystems;

Methodology:

We are proposing a project to demonstrate the application of a newly developed instream habitat modeling technique (MesoHABSIM) to integrate aquatic habitat management, flood protection and water quality protection. In this process of know-how transfer to the local citizen group and local state agency, we will help to provide an instream habitat knowledge-base for establishing ecological goals pertaining to an integrated management concept developed for the watershed.

Principal Findings & Significance:

There were the following principal findings:

- Technology is easily transferable to local groups. The technicians and volunteers are capable of stream mapping after minimal training, providing high quality data. Our method is highly educational and develops an ecological perception of aquatic ecosystems.
- Due to limited and irregular time availability, the volunteers can fulfill only supportive roles in habitat projects. One technician is necessary to assure constant progress and data quality.

- The major limitation in model applicability is fish data collection. Development of a library of transferable habitat response functions is necessary to allow the wide distribution of methods.

Notable Achievements:

We could successfully demonstrate the technology to two groups of end-users: local government agency -- Greene County Soil and Water Conservation District in Cairo, NY (GCSWCD), and citizen volunteer groups - Pomperaug River Watershed Coalition (PRWC). The groups were very different as the staff of GCSWCD was highly skilled and technically advanced, where as the volunteers consisted of people with different backgrounds and limited time availability. Nevertheless, we successfully performed habitat evaluations of the Stony Clove and Pomperaug Rivers. The main difference was in the progress of the studies. On the Stony Clove, we conducted a full fishing survey, and three consecutive habitat mapping campaigns of 9 river miles. On the Pomperaug River, 35 miles of streams were mapped once. The project demonstrated the applicability of the technique at the local level as well as its strong educational component. The obtained data are presently used for the development of a stream management plan for both watersheds.