

WORKING TOGETHER FOR HABITAT RESTORATION IN THE NARROW RIVER (PETTAQUAMSCUTT RIVER ESTUARY)

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Narrow River (Pettaquamscutt River Estuary) has seen a dramatic increase in residential development of its 35.5 km² watershed since the 1960's. It has been closed to shellfishing since 1994 due to high bacteria counts, nitrogen concentrations are high, and there has been loss of eelgrass beds. Yet Narrow River is a critical resource both as habitat for birds, fish, and invertebrates and its importance for human recreation and everyday life in the increasingly popular southern Rhode Island area. Local organizations, state agencies, and federal partners are working together to address a variety of concerns and still achieve the optimal restored habitat.

Monthly water quality measurements have been taken at ten stations in Narrow River since 1992 by University of Rhode Island's volunteer monitoring program (coordinated by Narrow River Preservation Association). Despite the addition of sewers, the increase in houses, lawn fertilizer, and impervious surfaces has kept the nitrogen load at almost pre-sewering (early 1980's) levels. Comparison with measurements by URI graduate students in the 1970's shows an increase of fecal coliforms and nitrogen concentrations and low summer dissolved oxygen levels. Thus NRPA supports restoration work such as reduction of loads from runoff via detention ponds and increasing flushing with offshore water. This part of the session will discuss this monitoring and the call for restoration.

Narrow River has been the focus of many studies, including the *Fecal Coliform TMDL for the Pettaquamscutt (Narrow) River Watershed, Rhode Island*, (RIDEM, 2001). This report calls for a 54%-58% reduction in total fecal coliform levels from various segments of Narrow River. Because stormwater has been found to be a primary source of bacteria to the River, the Narrow River TMDL requirements have become a focus of the Town of Narragansett's Phase II Storm Water Program. This part of the session explores the state's role in restoration efforts – from regulatory mandates to technical and financial assistance.

RIDEM commissioned Fuss & O'Neill to develop designs for BMPs to reduce pathogens and nutrients entering Narrow River from stormwater; and to return baseflow to predevelopment levels. Designs for four subwatersheds will be discussed. They incorporate innovative BMPs including a 10,000 square foot sand filter, level spreader and vegetative filter strip, and 4,300 linear feet of disconnected catch basins. Selected control strategies were analyzed for effectiveness in treating water quality volume and

groundwater recharge capacity. It is anticipated that there will be a 40 percent reduction in pollutants of concern entering Narrow River from the study area during storms. Fuss & O'Neill will present on this project.

Eelgrass beds and other submerged aquatic vegetation provide valuable nesting, spawning, nursery, cover, and foraging habitat for aquatic and semi-aquatic animals. All of these resources depend on clean water. The U.S. Army Corps of Engineers is studying the feasibility of restoring estuarine habitats in portions of Narrow River by constructing and protecting habitats and by managing sediments. This part of the session will discuss the study and an investigation of alternatives to restore eelgrass, shellfish habitats, and salt marshes in Narrow River.

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