

New Research

refer to map on next page for project locations

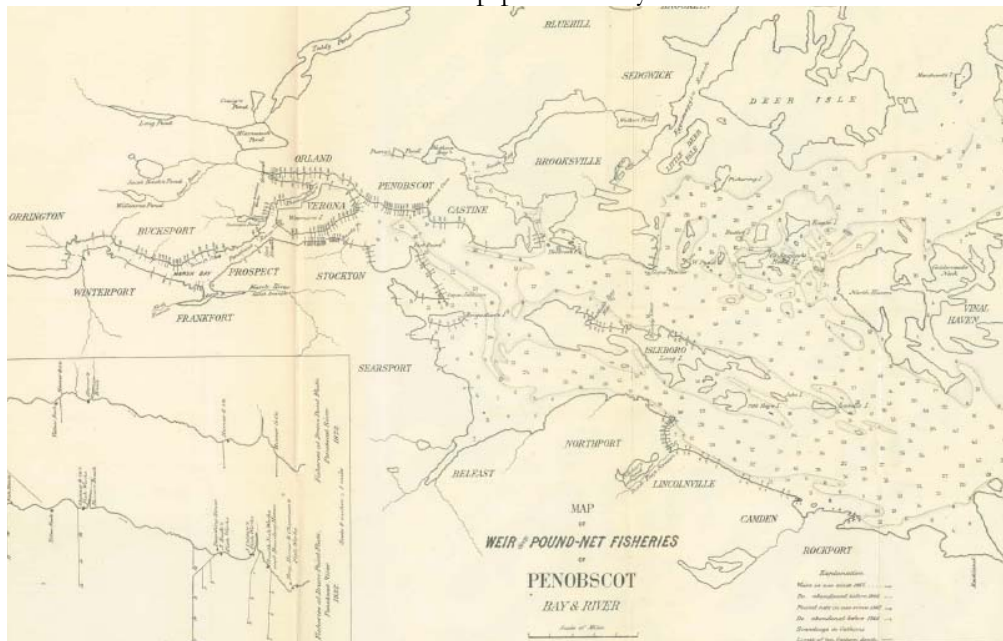
1. Members of the Penobscot River Science Steering Committee expect to receive a five-year grant from the National Science Foundation to coordinate research activities focused on the restoration of diadromous (migratory) fish species in the Penobscot, the **Diadromous Species Restoration Research Network**. The grant's project leaders include Karen Wilson of the University of Southern Maine, David Hart and Peter Vaux of the Senator George J. Mitchell Center for Environmental and Watershed Research, and Adria Elskus of the U.S. Geological Survey. Final approval of the award is expected from NSF in the spring. The new network's goal is to integrate restoration activities in ways that improve understanding of ecosystems and enhance restoration outcomes. Over the next five years, network participants will study questions fundamental to diadromous fish ecology and restoration. The network will enhance coordination of academic, government, and watershed stakeholder efforts in the Penobscot River by providing administrative structure, and supporting information management and outreach.

2. Fish passage improvement on Sedgeunkedunk Stream is providing UMaine researchers with an opportunity to examine the **response of a linked lake-stream system to dam removal and restoration of migratory fish**. Biological (algae, invertebrates, fish) and physical (water chemistry and habitat structure) indicators of ecosystem health will be measured before and after dam removal in reference and impacted sites.

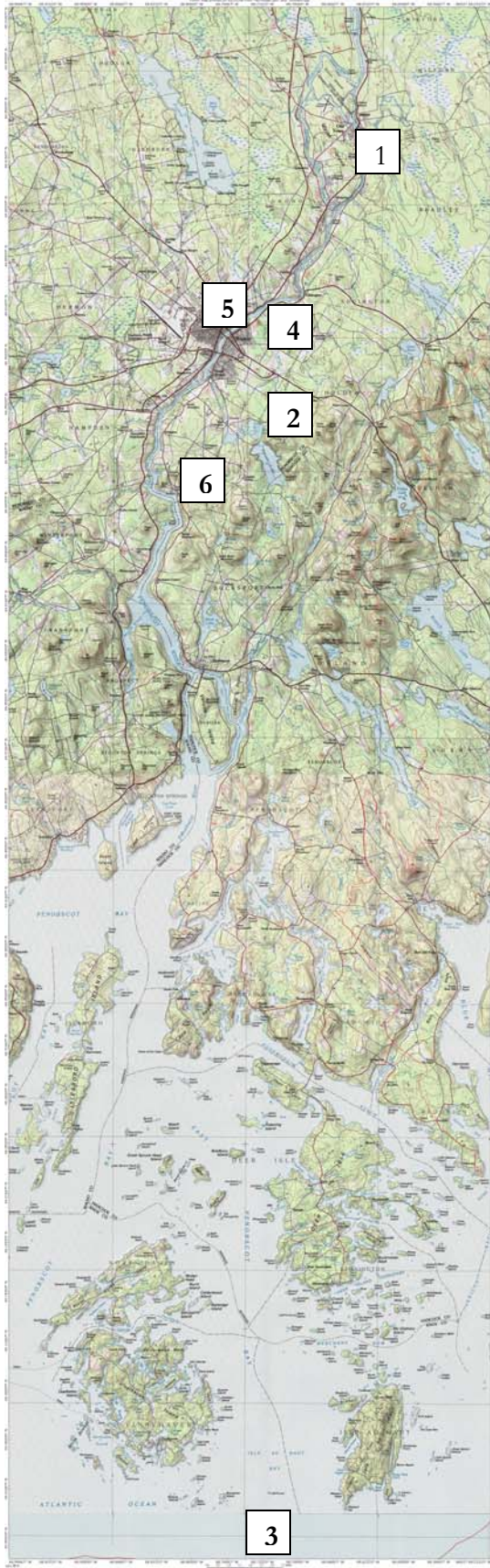
www.umaine.edu/waterresearch/bottom_menu/08WRR1onepage/Simon08.htm

www.wle.umaine.edu/faculty/coghlan_website3/Sedgeunkedunk.pdf

3. The multi-year **Historical Fisheries Project** is using historical documents and archaeological data to document long-term changes in the marine environment and to establish biological indicators and population trends for fishes in the Northwest Atlantic region, including some data for the Penobscot. Below is a map provided by Bill Leavenworth:



See fishhistory.org/index.php and www.hmapcoml.org/Default.asp?ID=222



4. In collaboration with several municipalities in the Bangor area, John Peckenham, Howard Patterson, and Collin Roesler of the University of Maine are **tracking stormwater quality using real-time in-situ fluorescence** in the lower Penobscot River, where the Bangor Area Stormwater Group has been working to reduce stormwater runoff. Sensors in the river use fluorescence and light scattering to characterize algae, particles, and colored organic matter, attributes that are expected to vary with storm-related nutrient availability and sediment loading so that hot-spots can be mapped in streams receiving stormwater in real-time. The sensor technique has already been demonstrated to be sensitive to changes in algae populations in lakes, and it can provide measurements of both organic matter and particle concentrations.

www.umaine.edu/waterresearch/esi/projects/peckenham_08.htm

5. Working with business and institutional landowners in the watershed of Birch Stream, a tributary to Kenduskeag Stream, Laura Wilson of University of Maine Cooperative Extension is spearheading a project aimed at **reducing pollutants to urban streams through “business friends” incentives**. Local business land managers will learn the connection between their land use and stream water quality, and will learn better turf management techniques, with improved water quality in the impaired Birch Stream as a result.

www.umaine.edu/waterresearch/bottom_menu/08WRRIONepage/Wilson08.htm

6. The Lower Penobscot Watershed Coalition is the testing ground for a new project that seeks to enhance stakeholder involvement in watershed stewardship by developing, evaluating, and improving a **user-friendly online map** of water resource data.

Research Updates

Dr. Lynne Lewis is continuing her work on the economic values associated with the Kennebec and Penobscot Rivers by conducting a socioeconomic analysis, **Measuring and Incorporating Stakeholder Values into River Restoration Decisions**. This new project utilizes geographic information systems (GIS), survey research methods, hedonic property value methods, and spatial statistics and modeling approaches. Lewis will survey residents of townships along the Penobscot about their assessment of different characteristics of location when they purchased their home, as well as their attitudes towards the river. "By coupling data on the attitudes of residents with market data, we will gain insight into the underlying mechanisms that link river characteristics to property values. A mechanistic understanding of these interactions will improve our ability to forecast the effects of dam removal and river restoration on local communities," says Lewis.
www.umaine.edu/waterresearch/bottom_menu/08WRR1onepage/Lewis08.htm
www.pearl.maine.edu/windows/penobscot/research_humandimensions.htm#research

The Maine Bureau of Sea Run Fisheries and Habitat is revising its **Draft Strategic Plan for the Restoration of Diadromous and Resident Fishes to the Penobscot River**. The draft was released in December and Bureau staff are now reviewing public comment and hope to release a final plan later this year.

Each year beginning in April, volunteers with The Lobster Conservancy's **Juvenile Lobster Monitoring Program** identify and inventory lobster nursery habitats to track the abundance and distribution of post-larval and early benthic phase lobsters. A total of 28 sites have been surveyed in Penobscot Bay; three sites have been monitored monthly since 1998. The Lobster Conservancy classifies Lanes Island, Waterman Point and Drift Inn Beach as important lobster nurseries because they are places where lobsters settle and grow, and they harbor juvenile lobsters in relatively great abundance. www.lobsters.org

A draft table of contents for **Penobscot River, Penobscot Bay: State of the Watershed** is available for review and comment. This outline was developed via workshops in Fall 2007 with the Lower Penobscot Watershed Coalition, scientists, managers, and other entities. Project partners will be working this winter with College of the Atlantic to develop some example maps and data products, and will be seeking funding to create the report and associated Web site. www.covebrook.org/LPWC/index.html

The **draft data report for the Penobscot River** is available from the Maine Department of Environmental Protection. This reflects sampling by the Penobscot Indian Nation, DEP, and EPA in summer 2007. www.maine.gov/dep/blwq/topic/Penobscot/index.htm

New Publications

Collins, M. et al. 2007. **Stream barrier removal monitoring guide**. Gulf of Maine Council on the Marine Environment. www.gulfofmaine.org/streambarrierremoval

Evers, M. 2007. **Draft Penjajawoc Stream and Meadow Brook TMDL**. Augusta, ME: Maine Department of Environmental Protection. This TMDL report estimates the current extent of impervious surfaces, the reductions in impervious surfaces and the application of general stream restoration techniques required to enable each stream to meet Maine's Water Quality Criteria. www.maine.gov/dep/blwq/docmonitoring/TMDL/2007/penjajawoc_rep.pdf

O'Connor, J., J. Major, and G. Grant. 2008. **Down with the Dams: Unchaining U.S. Rivers**. *Geotimes* (March 2008). Alexandria, VA: American Geophysical Union. http://www.geotimes.org/mar08/article.html?id=feature_dams.html

Wildness Within, Wildness Without: Exploring Maine's Thoreau-Wabanaki Trail (Besaw Publishing) and the **Thoreau-Wabanaki Trail Map and Guide**, both from Maine Woods Forever. www.thoreauwabanakitrail.org/trail-map.html

Science News

The **Atlantic Coastal Fish Habitat Partnership** (ACFHP) has submitted a candidate application to the National Fish Habitat Board. "ACFHP is a pilot effort under the National Fish Habitat Action Plan to bring together fishery and non-fishery associated organizations (governmental and non-governmental) to work cooperatively for the benefit of coastal habitats along the Atlantic coast from Maine through Florida. The partnership's new mission statement is: to conserve, protect, restore, and enhance habitat of native Atlantic coastal, estuarine-dependent, and diadromous fishes. This mission will be accomplished through on-the-ground habitat protection and restoration projects. The next step for the partnership is to develop a coast-wide conservation strategy and conservation assessment. The ACFHP will provide a clearinghouse for data, conservation strategies, and technical resources to help coordinate and set priorities for local, state, and federal stakeholders, as well as other entities engaged in coastal fish habitat conservation across the range of ACFHP. The ACFHP is currently being coordinated through the assistance of the Atlantic States Marine Fisheries Commission (ASMFC), but will operate as an independent organization. ACFHP is open to all stakeholders and local, non-governmental organizations are encouraged to participate." Additional information on becoming an ACFHP partner can be obtained from Jessie Thomas, ASMFC Habitat Coordinator, at (202) 289-6400.

The Penobscot River Striped Bass Tournament and River Revival will take place on Saturday, July 26, 2008, on the Bangor Waterfront.

Visit www.cca-maine.org for more details!