

Sea Grant and Water Resources – Water Quality – 2007-2011 POW Worksheet

Situation:

The fresh and coastal waters of New Hampshire represent a valuable water resource contributing to the state's economic base through recreation, tourism, and real estate revenues. In addition some lakes and rivers serve as current or potential water supplies. For most residents (as indicated by boating and fishing registrations) our waters help to insure a high quality of life. However, New Hampshire currently leads all of the New England states in the rate of new development and redevelopment. The long-term consequences of the resulting pressure and demands on the state's precious water resources remain unknown. Of particular concern is the response of our waters to increasing non-point source pollutant loading due to watershed development and land use activities. Local citizens, lake/watershed associations and local decision-makers remain in dire need of additional information required for the intelligent management of our water resources. Limited financial resources do not allow for adequate monitoring of these waters by state or federal agencies, and the increased development and recreational use require a more accurate assessment of the water quality of our estuaries, lakes, ponds, rivers and streams.

Many volunteer water quality monitoring programs in NH and in New England have mastered basic sampling techniques and are now at the stage where they require assistance to go the next step. With data being collected they require guidance in how to manage it, analyze it and use it to tell a story of local importance. In addition they are requesting guidance on how to expand their monitoring to tackle non-point source pollution at the origins and how to better integrate their programs to address community concerns in the context of a watershed approach. There is a growing recognition that it's not just the water - it's the watershed - which must be understood in order to solve non-point pollution problems. Additional emerging issues for NH lakes and ponds involve the increasing incidences of aquatic nuisance species threatening human health, as well as the ecological integrity and designated uses of surface water resources. These include the increase in the occurrence (or at least the confirmation) of freshwater harmful algae blooms from cyanobacteria as well as the encroachment of non-native aquatic plant species such as variable milfoil. The environmental conditions that foster these blooms are not well understood and monitoring programs to address these occurrences are only in developmental stages. Potential management control options are in dire need of an integrated pest management approach not commonly undertaken for water resources management.

Assumptions:

Volunteer monitoring provides cost-effective data that is acceptable for guiding local growth and natural resources management decisions as well as providing information for statewide water quality assessments. Participation in the NH LLMP and GBCW empowers participants to become more active in their community serving as an advocate for water resources protection

Extension volunteer monitoring efforts in the New England region are model programs with high program transferability potential at a national and regional scale

External Factors:

Funding sources, program support

Outputs/Activities	Outcomes/Impact		
	Learning Outcomes	Action Outcomes	Condition Outcomes
<p>Hold water quality monitoring training sessions for new and existing volunteers</p> <p>Make field visits for in-depth monitoring and quality assurance</p> <p>Publish annual lake reports and coastal reports on water quality assessments from volunteer monitoring efforts</p> <p>Conduct workshop trainings at regional and national conferences</p> <p>Provide Natural Resource Outreach Coalition (NROC) communities with water resource/water quality related technical assistance</p> <p>Train new volunteers who participate in seasonal sampling as part of the Great Bay Coastal Watch (GBCW) or Lakes Lay Monitoring Program (LLMP) in proper water quality sampling methods</p> <p>NH LLMP and GBCW volunteers contribute hours toward conducting water quality monitoring and analysis activities in their local watersheds</p> <p>Develop protocols and training materials to allow volunteer monitoring groups to focus on watershed assessment</p>	<p>A majority of participating community members and decision makers will report an increase in knowledge about growth and its effects on aquatic/riparian habitat, water quality, and water quantity; tools for conserving water resources and tools for minimizing impacts of development on water resources.</p> <p>Volunteer water quality monitors will gain knowledge of how to correctly take water and phytoplankton samples and process them in a scientifically acceptable manner.</p>	<p>Water quality and harmful algal blooms will be monitored on a regular basis along coastal NH and water bodies throughout the state</p>	<p>Continue building the local community's capacity for monitoring water bodies with emphasis on detecting long-term trends as well as impacts due to increasing development and recreational pressures</p>
	<p>SGWR40 - 50 new volunteers per year will elect to be trained in proper water quality sampling methods and participate in seasonal sampling as part of the GBCW or LLMP</p> <p>SGWR42 - 500 NH LLMP and GBCW volunteers will contribute 6000 hours of effort conducting water quality monitoring and analysis activities in their local watersheds on an annual basis</p>		

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	<p>SGWR44 - 70% of new or existing volunteer monitoring programs that request assistance will initiate enhance or expand their program efforts due to assistance provided by the project</p>		