Using a Delphi Forum and Building Adaptive Capacity in the Lake Champlain Basin
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Nutrient non-point source pollution in freshwater systems is complicated by impacts of climate change. Changes in the carbon cycle, temperature, and severity and frequency of precipitation events can alter the bio-availability of nutrients present in surface waters, and exacerbate transport from the landscape, worsening eutrophication and harmful algae blooms. Decision makers in various domains are faced with mitigating and stemming non-point source pollution in a changing climate. The transdisciplinary Research on Adaptation to Climate Change team is working to build regional capacity for Lake Champlain and identify emergent properties through complex systems modeling. The Delphi Survey is a tool to bring forward current scientific knowledge and the collective wisdom of participants in the face of uncertainty and a lack of conclusive data to develop a shared mental model. Adaptive interventions that span levels of decision making and can respond to new information and changing conditions over time are needed. An interactive online and in-person survey tool involving all levels of government, businesses and farms, non-profit organizations, scientists and researchers, and engaged citizens is being employed to identify and evaluate emerging areas of consensus and disagreement around proposed adaptive interventions to improve the water quality of Lake Champlain. Proposed interventions are shared anonymously to enable information exchange and ideas to evolve through feedback. This collective process will integrate knowledge and creativity to develop more robust and acceptable interventions. Survey results will be analyzed using NVivo textual analysis program to cluster and evaluate responses by intervention domain, time horizon and climate change impacts that are addressed. The series of interventions that emerge can be tested by stakeholders according to identified evaluative criteria and utilized in computer simulations of adaptation scenarios. Climate change and complex water resource problems require mechanisms that can reveal emerging agreement across a complex network of stakeholders.