

A SYSTEMS-BASED APPROACH TO INTEGRATED NUTRIENT MANAGEMENT IN NARRAGANSETT BAY AND ITS WATERSHED

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EPA's Office of Research and Development is embarking on a project to develop and demonstrate a systems-based management approach that will achieve more integrated and effective management of nutrients in southern New England. The geographic focus of this multi-year research project is Narragansett Bay, its watershed and airshed. Our goal is to better inform governance decisions at municipal to national scales that affect changes in air quality, land use, and water quality in this watershed and estuary. Decision options range from shifts in national policy and regulations related to air and water quality, to non-regulatory decisions and land use planning at municipal scales. We will employ historical and newly-collected data, information, and decision support tools such as models, GIS server applications, and web-based "knowledge delivery" services. The research will take into account ongoing efforts to reduce nutrient loading to water resources in this system, including tertiary treatment of wastewater in Massachusetts and Rhode Island, storm water controls, and benefits and trade-offs of changes in land use and land cover and green and grey infrastructure. We are collaborating with local and regional decision makers, land use planners, NGOs, and other stakeholders to identify specific concerns and decision support needs, so stakeholders can better evaluate policy and management options at a range of scales. The conceptual approach and decision support tools will be designed to be adaptable for use in other watershed management contexts. This project will contribute to a more holistic approach for nutrient management, and help achieve more sustainable solutions for water resources in southern New England.

Keywords: governance; integrated assessment; models; nitrogen; nutrient management; phosphorus; Narragansett Bay; watershed

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