Water Resources Research Center
University of Massachusetts

Annual Technical Report
2018

General Information

Products

Lloret, J., Valiela, I., Reynolds, A., McElroy, H., Cormier, H. Nitrogen interception in coastal watersheds: Historical changes in the role of forest cover in the reduction of nitrogen loads to estuaries. (In prep.)

Information Transfer Program

Three meetings took place in FY18:
1) The Northeast Student Water Symposium was held September 7-9 2018 at UMass Amherst. 137 students registered for the conference from 33 institutions and organizations from 8 US states and 2 Canadian provinces. All presentations were given by undergraduate and graduate students: 42 oral presentations in 11 sessions and 46 posters grouped in the following topics: data science applications, drinking water treatment, environmental modeling, environmental monitoring and sensors, hydrology, wastewater treatment, water quality, water quality monitoring for policy and governance tools, and water treatment.
2) Food, Water and Energy was a session held at the Worcester Polytechnic Institute's "Center for Global Public Safety's 2nd Annual Industry Forum" in Worcester, MA on March 27, 2019. Seventeen faculty, industry professionals, and MassDEP staff discussed the current research needs in this multidisciplinary field and future opportunities to cooperate on projects.
3) The Water-Energy Nexus project. . On May 13, 2019, Eve Vogel held a workshop at University of Vermont, entitled, "From Quebec to Massachusetts: Material, environmental, social, economic and political connections of electricity." Interdisciplinary faculty from Massachusetts, Vermont, Maine and Quebec, together with UMass students and a New Hampshire Public Radio reporter, presented on the interconnections between electricity policy in Massachusetts, transmission lines in New Hampshire and Maine, and hydropower, First Nations and rivers in Quebec. As a follow-up to the conference, Vogel is planning a special journal issue for the Northeastern Geographer that will include many of the participants' updates of their presentations.

Student Support

Undergraduates: 5
Graduate: 5
Post-Docs: 1

Notable Achievements and Awards

None to report to date.

Projects

Forest land cover as a tool in water quality management: Developing a valuable addition to the Cape Cod Commission’s 208 Technologies Matrix

Project Type: Student Internship **Project ID:** 2018MA469

Project Impact: This is only a test to see if I get a confirmation email.

Forest land cover as a tool in water quality management: Developing a valuable addition to the Cape Cod Commission’s 208 Technologies Matrix

Project Type: Annual Base Grant **Project ID:** 2018MA469

Project Impact: The goal of this proposal was to (1) quantify the potential of forested land cover management to reduce nitrogen loads to coastal waters and (2) develop a section of the Cape Cod Commission Technologies Matrix that conveys that assessment and its application to the Cape Cod region. Our main results emphasize the role of forest covers as effective areas for the reduction of nitrogen loads to estuaries, and clearly highlight the potential of forest cover preservation and recovery as effective tools for management of nitrogen in the watersheds of Cape Cod and elsewhere. We prepared a technical report to complete our tasks under goal (2) of the proposal. Initially, this document has been written in the format of a scientific paper, and will be submitted for review and publication in a peer-reviewed journal. We will also work with the Cape Cod Commission to incorporate our results into their 208 Technologies Matrix, as planned. Together with the Cape Cod Commission, we are committed to completing this part of the project to inform the 208 Technologies Matrix and continue supporting Cape Cod communities watershed-management planning.

Strategizing for future research in current water resources topics

Project Type: Annual Base Grant **Project ID:** 2018MA477B

Project Impact: A Master’s Student in Geosciences (GIST Program) compiled a list of grants with applicability to our water resources project to restore a salt marsh. For each opportunity, he researched the due dates, application requirements, specific requests for proposals and likelihood of success. These, along with a proposal template, will be extremely useful to our multidisciplinary team as we continue to seek support for this important wetland research. In addition, the MS student assisted with processing and analysis of several soil samples from the site to assess the hydrologic properties of each to determine whether or not they are suitable for wetland development.