**Supporting research is a Sound investment to inform the management of Long Island Sound**

By Sylvain De Guise

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Since 2008, the Long Island Sound Partnership has invested $11.7M in 35 research projects related to Long Island Sound. That is a significant investment, and since that time, the program I lead, Connecticut Seat Grant, has worked in partnership with New York Sea Grant to manage it. I would like to invite you to reflect with me on the value of this investment and what it means for the health of Long Island Sound and the communities that depend on it.

Before discussing the value of research, however, it is important to understand process for selecting the supported projects. It starts with gathering input from the research and management communities to identify the most pressing issues and how they align with the Long Island Sound Partnership *Comprehensive Conservation and Management Plan* (CCMP). Next, we issue a call for proposals. Researchers submit their ideas, which undergo a thorough peer-review process. Independent scientists and a panel of experts evaluate each of the proposals for the responsiveness to the priorities identified and the scientific soundness of the proposed approach. This review process is as comprehensive and thorough as that of other national programs and agencies such as the National Institutes of Health and the National Science Foundation. Only the most promising, scientifically sound projects are selected for funding.

The next question is how valuable is the outcome of supporting research projects to address Long Island Sound Partnership’s vision for the Sound: waters that are clean, clear, safe to swim in, and charged with life.

Let’s start with water quality. One of the goals of the LIS Partnership is to improve water quality by reducing nutrient loads from the land and the waters impacting Long Island Sound. Research funded by the Partnership has deepened our understanding of where nitrogen comes from and how it moves through the Sound and its embayments. Projects also assess how nitrogen is processed in the water column and in sediments through complex biogeochemical studies. Insights from these studies feed into predictive models that help with management efforts. We’ve also learned how different micro-algae respond to nutrients and changing environmental conditions—knowledge that helps us better understand harmful algal blooms that cause health hazards to humans and fish. Research that tracks bacterial pathogens helps us develop preventive measures to reduce beach closures.  And we’ve obtained information on how to prevent excess nitrogen from both natural process and human behaviors from reaching the Sound. We use this information to develop educational campaigns that are timed and targeted to be most effective.

One project even measured how long it take for actions to result in measurable environmental change, and we are now using satellite data to track progress. With all this new knowledge, it is not surprising that scientists agree that the overall water quality in Long Island Sound continues to improve.

Another major goal of the LIS Partnership is to restore and protect the Sound’s ecosystems so they remain healthy, productive, and resilient. Two such critical habitats are eelgrass beds and salt marshes. Research is showing us how we can improve sediment conditions to promote eelgrass beds, which are essential for juvenile fish. Other studies are contributing to our understanding of how changing environmental conditions affect salt marshes. This information helps us develop science-based salt marsh restoration efforts. Additionally, we are learning about food webs and relationships between species and how changing habitats influence fish distribution and migrations. Finally, other projects assess the impacts of emerging threats such as microplastics and the “forever chemicals” PFAS on the inhabitants of the Sound. Together, this work provides a comprehensive assessment of both the threats and opportunities for the health of Long Island Sound.

Finally, let’s not forget the people. The LIS Partnership aims to support vibrant, informed, and engaged communities. After all, we can’t protect the Sound without people who appreciate and care about it. One current research project is exploring how transportation access affects people’s ability to reach and enjoy the Sound, and how that shapes their willingness to protect it.

In closing, these examples show how research supports every aspect of the Long Island Sound Partnership, from improving water quality and habitats to engaging the public. This work is fundamental to achieving both short-term progress and long-term sustainability. I hope you agree that continued investment in basic and applied research is critical to understanding and protecting Long Island Sound today and for generations to come.