

Sound Bytes



NEWS FROM THE LONG ISLAND SOUND STUDY

Summer 2016

LISS NEWS

Study Shows Climate Change Connection to Shift in Fish Populations in the Sound



A sea robin, a species that favors warm-water temperatures, being counted during CTDEEP's Long Island Sound Fish Trawl Survey. Credit: Richard Howard

For over a decade scientists and resource managers at the Connecticut Department of Energy and Environmental Protection have noticed a trend in its annual Long Island Sound Trawl Survey: species of fish that favor warmer water temperatures are increasing, while fish that favor cooler temperatures are decreasing (see [LISS climate change indicators](#)). In addition, temperature trends recorded in the CTDEEP Water Quality Survey since 1991 and continuous temperature records taken at the Millstone Power Station intakes since 1976 show that water temperatures in the Sound have increased significantly. This year, a Long Island Sound Study-New York and Connecticut Sea Grant research project has just been [completed](#) that puts together all available physical and biological data to build a model of the Sound's climate from the 1970s to the present with the goal of better documenting these past changes and as a tool to predict what may be coming in the future.

The strength of this model is that it was built using a methodology called 'hindcasting' – judging the 'skill' of the model output in matching known physical and chemical measurements from past events. Once the model could predict the past, it was then used to forecast the most probable future conditions if climate change continues. First, the researchers identified significant correlations between increases in temperature and the observed shift in fish populations. They also identified the principal driver of changes to the Sound's physical environment as atmospheric forces in the Pacific and over Alaska that control the path of the jet stream. An index of these Pacific events explained 80 percent of the change in the abundance of warm tolerant fish species in the Sound over the past decades. The model was then used as a forecasting tool to simulate the effects of climate on the Sound's physical environment and marine resources if carbon dioxide levels increase at current rates (one percent per year) for 20 years.

Among the findings, reported in an article in the [New London Day](#) in June, were:

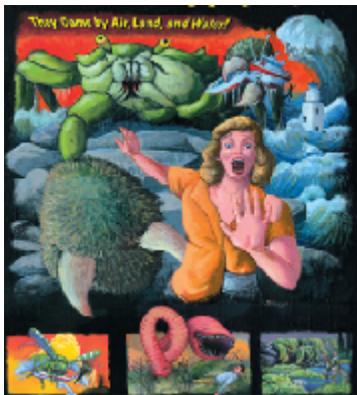
In This Issue

- [Study Shows Climate Change Connection to Shift in Fish Populations in the Sound](#)
- [Museum Exhibit Explores Real-Life Threats of Invasive Species](#)
- [Native Plant Garden Added to Historic Sagamore Hill](#)
- [Whales Spotted Again in Long Island Sound](#)
- [Sound Health Explorer Highlights Seven LIS Beaches](#)
- [EPA Honors LIS Citizens Advisory Committee members](#)
- [Video Describes Osprey Monitoring Great Island WMA](#)
- [Website Provides Guidance on Protecting Beach Properties from Coastal Hazards](#)
- [UConn Professor Interviewed about Growing Interest in Seaweed Cultivation](#)
- [EPA Releases New Climate Change Indicators Report](#)

- Since the 1970s, the surface and bottom temperature range in the Sound has risen 0.3-0.4 degrees Celsius (~0.5-0.7 degrees Fahrenheit) per decade, for a total of about 1.6 degrees C (2.8 degrees F). The most dramatic increases have occurred in the spring. This change in temperature is leading to a longer optimal growing season for warm-water species and a shorter season for cold-water species.
- The volume of freshwater flowing into the Sound from its rivers is increasing, resulting in a drop in salinity. All the reasons for these changes are unclear but increased precipitation in the form of large storms instead of mild rain within the large Connecticut River watershed may be a principal cause, as well as land use changes that lead to increased stormwater runoff.
- Future projections indicate a calendar shift in temperature of several weeks to a month which will result in warm-water species migrating into the Sound earlier in spring and staying later in fall, which will greatly increase competition between them and historically abundant cold-tolerant species.

The research team included Nickitas Georgas of Stevens Institute of Technology, Penny Howell of CTDEEP, Marine Fisheries Division, Vincent Saba of the National Oceanic and Atmospheric Administration and Alan Blumberg and Philip Orton of Stevens Institute of Technology. The full report is on the LISS website in the research grant [section](#).

Museum Exhibit Explores Real-Life Threats of Invasive Species



This image of weird-looking plants and animals looks like it could be a movie poster for a monster movie. But it's actually promoting a new museum exhibit of a real life threat: the "invasion" of non-native plants and animals in our region.

Invaders: They Come by Air, Land & Water! is a Connecticut River Museum exhibit that examines the impact of invasive animal and plant species to the Connecticut River Valley, a region celebrated for its ecological and biological diversity. As the exhibit notes: "In many cases, the invasion resembles a classic monster movie that unfortunately has serious, real-life consequences."

Invaders explores current threats through the themes of air, land and water. Of the dozens of invasive species explored in the exhibit some of the highlights include Asiatic bittersweet that people often use in holiday decorations, and the beautiful purple loosestrife. Also featured is didymo, known as "rock snot" which is often spread via fishing equipment. This asexual single cell organism likes cool, fresh water and can quickly multiply creating a thick mat on the bottom of riverbeds, destroying trout habitats.

There is also a laboratory that will allow children and adults to explore and identify invasive species through microscopes, specimens, and fun activities. The exhibit closes with a "Call to Action" on the many ways the public can make a difference.

The exhibit will be on view at the Museum, located in Essex, until October 10 when it will begin to travel to libraries, schools, museums, and nature centers. Sponsors include the Long Island Sound Study (which provided a grant through the Long Island Sound Futures Fund), Channel 3 Eyewitness News; the William and Alice Mortensen Foundation; The Rockfall Foundation; the Department of Economic and Community Development, Office of Tourism; the Community Foundation of Middlesex County; Saybrook Point Inn & Spa; the Edgard & Geraldine Feder Foundation; and the many supporters of the Connecticut River Museum.

Visit the Connecticut River Museum [website](#) for directions and hours. You can also watch a [video](#) featuring the movie poster by accomplished illustrator Michael DiGiorgio.

Native Plant Garden Added to Historic Sagamore Hill

The National Park Service has planted a native plant demonstration garden this summer at the [Sagamore Hill National Historic Site](#), the summer home of Theodore Roosevelt in Oyster Bay.

The garden is designed to show the environmental and personal benefits of restoring native plants on Long Island. When in full bloom, it will show how visitors can help to halt the decline of critical and charismatic species like monarch butterflies and ruby-throated hummingbirds by returning these plants to their own gardens.



Theodore Roosevelt and his family hiking in Oyster Bay. Credit: National Park Service

Important support for this project comes from the Long Island Sound Futures Fund, the Huntington-Oyster Bay Audubon Society (HOBAS), and the For the Birds! environmental education program at Washington Rose School.

As a child, the summers Theodore Roosevelt spent taking field notes during hikes in Oyster Bay helped inspire him to a life-long pursuit of learning about nature and protecting the environment. As president, Roosevelt protected an astonishing 230 million acres of parkland, forests, bird

refuges, and game preserves. In 1903, he created the first national wildlife refuge at Pelican Island in Florida. The Oyster Bay National Wildlife Refuge, adjacent to the Sagamore Hill, is also designated as a [Long Island Sound Stewardship Site](#).

AROUND THE SOUND

Whales Spotted Again in Long Island Sound



For the second year in a row whales were spotted by boaters in Western Long Island Sound. CBS 2 News in New York City [interviewed](#) a 16-year-old Greenwich resident Hannah Doyle who took an amazing photo in July of a humpback whale feeding on menhaden (or bunker). The report also includes interviews with staff from the Maritime Aquarium in Norwalk discussing how they are tracking the whales and alerting the public about how to avoid collisions.

Sound Health Explorer Highlights Seven LIS Beaches

This summer, Save the Sound is highlighting seven great Long Island Sound beaches on its [Green Cities/Blue Waters blog](#). The beaches have all received grades of A by the environmental group for having an excellent record of passing EPA's bacterial pollution standards for safe swimming for the past five years. Check out the blog post to find out interesting facts about the beaches. You can also visit Save the Sound's [Sound Health Explorer](#) website to find out the condition of your local Long Island Sound beach.



Children flying kites at one of the seven beaches highlighted by Save the Sound - Orchard Beach in the Bronx. Credit: New York City Parks and Recreation

EPA Honors LIS Citizens Advisory Committee members



Margaret Miner, second from left, holding her EPA award, with (left-right) CTDEEP Commissioner Rob Klee, EPA Region 1 Deputy Administrator Deb Szaro, and EPA Region 1 Regional Administrator Curt Johnson.

A

member of the Long Island Sound Citizens Advisory Committee and a CAC member organization received EPA environmental awards earlier this year for water-related activities.

EPA Region 1, which serves states in New England, gave a Lifetime Environmental Merit Award to Margaret Miner, executive director of the Rivers Alliance of Connecticut, a non-profit that protects rivers and streams in Connecticut. Through her leadership at the Rivers Alliance, Connecticut in 2005 passed vanguard legislation requiring the state to adopt flow standards for all rivers and streams. She was also instrumental in 2014 to encourage the state legislature to pass for the first time a law requiring comprehensive water planning. Miner was nominated for the award by US Sen. Chris Murphy.

EPA Region 2, which service area includes New York, gave an Environmental Champion Award to the Town of North Hempstead for distributing fishing line collection receptacles on docks and waterways in order to protect wildlife from the dangers of becoming entangled in fishing line. North Hempstead is represented in the CAC by Erin Reilly, the town's chief sustainability officer.

Another CAC group, the town of Mamaroneck, received an Environmental Champion Award from Region 2 for its participation with Sustainable Westchester, a consortium of local governments that focuses on sustainability initiatives. The group established a Community Choice Aggregation, allowing municipalities to choose their own clean electricity sources. Mamaroneck is represented on the CAC by Nancy Seligson, Mamaroneck's Town Supervisor. She is also the New York Co-Chair of the CAC.

AROUND THE WEB

Video Describes Osprey Monitoring Great Island WMA

Ecologist Paul Spitzer discusses the resurgence of osprey and why they are indicators of menhaden in a [video](#) shot earlier this year at the Great Island Wildlife Management Area in the Lower Connecticut River. The videos were produced by videographers Tim Cook and Peter Huoppi of the *New London Day*. You can also learn more about the Lower Connecticut River, a Long Island Sound Stewardship Area, in the [LIS Stewardship Atlas](#).



Website Provides Guidance on Protecting Beach Properties from Coastal Hazards



Dune loss at Harkness Beach. Credit: Micheal P. Grzywinski, CTDEEP

Connecticut Sea Grant has announced a new [website](#) intended to assist coastal Connecticut beach property owners and beach associations with hazards such as impacts from storms and associated erosion and flooding. The new site helps

users evaluate threats and prepare to protect property from further damage. A variety of actions, depending on the scale of damage and cost, are provided, including options such as dune restoration, repairing seawalls, moving landward or elevating structures.

“We hope this website will be a valuable resource for both coastal property owners and managers in helping to protect infrastructure as well as the natural environment,” said Dr. Juliana Barrett, one of the site’s creators. Barrett is an associate coastal habitat educator with Connecticut Sea Grant and UConn Extension.

UConn Professor Interviewed about Growing Interest in Seaweed Cultivation



UConn marine scientist Charles Yarish left, and Jang Kim, center, formerly of UConn, pull up *Gracilaria* in Long Island Sound. Credit: Robert Burg/NEIWPCC

Charlie Yarish, professor in the Department of Ecology and Evolutionary Biology at the University of Connecticut in Stamford, was recently [interviewed](#) by NBC News as part of an article on the growing interest in cultivating seaweed in America’s coastal waters. Yarish, a former Co-Chair of the LISS Science and Technical Advisory Committee, has helped spark interest in seaweed cultivation with his research conducted for the Long Island Sound Study, NOAA, and the CT Sea Grant Program showing the viability of harvesting kelp and *Gracilaria* to remove nitrogen and improve water quality. As part of the research, Yarish worked with a local oyster farmer interested in growing kelp for commercial uses. Kelp is a highly valued food source in health food and restaurant markets.

EPA Releases New Climate Change Indicators Report

EPA has released the 2016 edition of [Climate Change Indicators in the United States](#). The 4th edition of the report includes indicators that show temperatures are rising, snow and rainfall patterns are shifting, and more extreme climate events – like heavy rainstorms and record high temperatures – are occurring. Many of these observed changes are linked to the rising levels of carbon dioxide and other greenhouse gases in our atmosphere, caused by human activities.

EPA partners with more than 40 data contributors from various government agencies, academic institutions, and other organizations to compile the key set of indicators related to the causes and effects of climate change.



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