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Connecticut Sea Grant

10 questions: reflections and aspirations from Nancy Balcom, Jess Brandt

Editor's note: This fall, Associate Director Nancy Balcom retires after 35 years with Connecticut Sea Grant. Jess Brandt, who is on the faculty in the UConn Department of Natural Resources and the Environment & the Center for Environmental Sciences and Engineering, assumes Balcom's position, moving into the role after several months of transitioning. In these 10 questions, Balcom looks back on her career, while Brandt introduces herself and describes what drew her to CT Sea Grant.

Top, Jess Brandt, left, will become the CTSG associate director upon Nancy Balcom's retirement this fall. Photo: Judy Benson Lower left, Jess Brandt collects samples with a net as part of field work for research projects. Photo: Milton Levin. Lower right, Nancy Balcom demonstrates how to don an immersion suit and prepare to abandon ship during a safety training workshop for fishermen. Photo: CT Sea Grant

Nancy Balcom

1. What are a few of the most significant projects you've been involved in during your career at CT Sea Grant?

Early in my career, the invasive freshwater zebra mussel was found in U.S. waters, with the potential to thrive in some Connecticut waters. Collaborating with CT DEP (now DEEP) and other groups, we developed a statewide aquatic nuisance species management plan. From there, my work expanded to marine invasive species in Long Island Sound, including the Asian shore crab, the red seaweed *Grateloupia* and the strange world of sea squirts. I led the development of a LIS marine invasive species plan, focused on transport vectors such as boat hulls and bait and partnered on outreach programs. I also got involved in regional and national invasive species work.

In 1999, the American lobster population in the Sound suffered a die-off, devastating the bi-state commercial lobster fishery. With NY Sea Grant's Antoinette Clemetson, I provided support for the federal/state/industry/Sea Grant steering committee led by the late Dr. Tony Calabrese of the NOAA Milford Lab. The committee managed research to investigate the cause(s) of the die-off and the states instituted measures to reduce fishing pressure on lobsters. Antoinette and I did a lot of outreach and organized meetings with researchers and fishermen. I co-edited the special journal issue outlining the factors causing the die-off with Dr. Calabrese.

2. Tell us about some of your work related to safety issues.

As a graduate student, I investigated handling practices for tuna caught by charter boats off the Virginia coast. Tuna and humans have similar body temperatures. If not cooled quickly, tuna can develop a significant chemical hazard, scombrotoxin, which causes a nasty reaction in consumers. In time, new practices were adopted to keep the tuna onboard as cold as the beer! From there, I trained as an instructor for the national standardized course on safe seafood handling practices for wholesalers. Over 27 years, I co-taught thousands of seafood processors, dealers and regulatory personnel.

To address the risks of commercial fishing, I partnered with the Coast Guard's Kyra Dwyer, acquired instructor training and offered safety courses so commercial fishermen could practice emergency response skills. We sponsored a survival suit race at the Blessing of the Fleet in Stonington one year during which a Coast Guard helicopter pilot demonstrating a rescue at sea unexpectedly decided to land at the Town Dock, causing "a bit" of excitement. After a few years instructors with real-life experience were brought in to do the training at Avery Point.

The Superstorm Sandy death toll resulted in the CT, NY and NJ Sea Grant programs supporting research to investigate how people process storm risk communications and how messaging could be improved. The National Weather Service fully adopted one set of our research recommendations.

3. What drew you into a career in marine science?

My mother was an avid beach comber. We spent many happy vacations swimming and shelling. In 8th and 10th grades, I spent a week at what is now the Bermuda Institute of Ocean Sciences, snorkeling and exploring the island's flora and fauna. I took marine biology field courses at Avery Point as an undergraduate and worked for three years at the former Children's Museum of Hartford as an aquarist and marine educator, before pursuing a graduate degree in marine fisheries.

4. Looking back, what would you have done differently during your time at CTSG?

I wish I had recognized the damage the lobster die-off caused to the social fabric of commercial lobster fishing families. The focus was on finding the cause of the die-off and measures to help the resource recover. Unfortunately, the lobster population in the Sound never rebounded. Meanwhile, fishermen were forced to divert from lobstering to other species or leave the water altogether to support their families. Their identity and community were badly affected and the collective "we" should have brought in partners to address the social safety net and mental health needs.

5. What brought you the most professional satisfaction and kept you motivated?

I discovered Sea Grant as a graduate student in 1985 and never looked back. I can't imagine a better career for myself. I have had the tremendous privilege of working with innumerable wonderful and dedicated people who have kept me motivated. My professional satisfaction was grounded in the freedom granted me to pursue issues identified through expressed need, including seafood safety, invasive species, marine debris and storm risk communication. An early collaborative research project with a Stonington commercial fishing family led to the seasonal royal red shrimp fishery that is still viable. I'm proud of that. Benefitting from the mentorship of many, I had opportunities to develop leadership skills and use them locally, regionally and nationally. I have been truly blessed to have spent my career working in the Sea Grant network.

Jess Brandt

1. Tell us about your research and teaching in the Department of Natural Resources and the Environment.

My lab focuses on contaminant dynamics in freshwater and coastal ecosystems. We are especially interested in how contaminant movement through food webs influences contaminant distribution and potential to affect both animal and public health. Most of our research is based either in areas of western North American affected by mining activities or in coastal Long Island Sound and its watershed.

I teach environmental science and ecotoxicology courses at UConn and find a lot of synergy with my research because students are interested in human effects on the environment and contaminant events offer strong examples of those. I teach a lot of case studies and enjoy sharing my lab's projects as an opportunity to elaborate on the research process. I've been lucky to have students from my classes later join my lab as undergraduate researchers for hands-on experience.

2. How did you become interested in this area of specialty, and what are some future research questions you hope to study?

I started in research as an undergraduate and master's student in environmental public health and working in a lab at the Johns Hopkins where I helped study the long-term effects of exposures to viruses. Along the way I became increasingly curious about what happens to contaminants in the environment and how those processes can influence the potential for contaminants to cause harm. I pursued that topic as a doctoral student in Duke's Integrated Toxicology and Environmental Health Program, where I trained in both ecotoxicology and ecosystem ecology. Those programs and my postdoc with the U.S. Geological Survey set me up for the research I pursue now, emphasizing the biological processes that influence contaminant movement and toxicity. We are pursuing projects that 1) ask how contaminants and co-occurring stressors (such as temperature changes and\or pathogens) together influence animal health; and 2) consider the patterns and effects of nutrient and contaminant transfer through food webs.

3. Are there projects you have been involved in that have direct relevance to Long Island Sound and its watershed?

We have had several projects focused on mercury and PFAS in coastal Long Island Sound and its watershed. Mercury is commonly considered a "legacy" contaminant because it persists in the environment even though emissions have slowed. Mercury concentrations build up in organisms over time and can reach toxic levels, and most human exposure comes from eating seafood. We are interested in the environmental factors that influence mercury accumulation by phytoplankton and the transfer of mercury from phytoplankton to oysters. On the other hand, PFAS (the per- and polyfluoroalkyl substances nicknamed "forever chemicals") are contaminants of emerging concern. There has been a huge increase in scientific and public attention on PFAS in the environment, including our water and food. My lab focuses on how PFAS concentrations and mixtures shift as they move through food webs and how PFAS interact with temperature stress to affect fish. We recently completed several projects characterizing PFAS in streams and Sea Grant supported research on PFAS in LIS bivalves and fish. I look forward to maintaining a research program relevant to the needs of the LIS ecosystem alongside my role at Sea Grant.

4. How will you connect your research experience and expand your areas of focus in your new role?

The best part of my job is collaborating on research that addresses the scientific and management priorities of impaired ecosystems and their stakeholders. It has been especially rewarding to learn how our results lead to improved approaches for contaminant monitoring and species conservation. Addressing issues of contaminant influence on organism health and seafood safety is one focus of the program's work towards achieving healthy coastal and marine ecosystems. My new position offers the chance to expand the range of issues I work on, the group of people I will get to work with, and the audiences I will get to serve. I anticipate many opportunities to build on existing programs and potentially develop new focus areas with the team at Connecticut Sea Grant, the diverse membership of the Long Island Sound Partnership, and the Sea Grant network both regionally and nationally.

5. What brings you the most professional satisfaction and keeps you motivated?

I have two answers—the first is supporting students and postdocs as they develop their scientific identities and find success in their research. The second is partnering with great people on environmental issues that are both compelling and important. I love that I've found a job where I can be creative and curious while working to better understand and protect ecosystems and public health. I already sense that this will be my favorite part of Connecticut Sea Grant too.