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Partners in Spread Prevention

Nancy C. Balcom

University of Connecticut, nancy.balcom@uconn.edu

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Partners in Spread Prevention



UCONN student and Sea Grant outreach assistant Charlie Dyson interviews an angler at a boat ramp in Groton, Connecticut.

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haven't really given them much thought. As part of the survey, you are asked what you do with any live bait, like sand worms, that are left over after the trip, as well as the seaweed packing material. Explaining your reasoning, you acknowledge dumping them over the side.

The interviewer shows you a "Don't Dump Bait" sticker and asks if you are familiar with the message, have you seen it anywhere? In follow-up, he asks if you can name at least one way to avoid transporting organisms from one marine water body to another, if you are familiar with a "Stop Aquatic Hitchhikers" message and what your typical reaction is to signs with messages like these two? In less than 10 minutes, the survey is done, you are now in possession of a ruler sticker and key chain with these messages on them, and the young man has moved on to the next angler or boater in line.

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The open water is calling. A box of fish-tempting marine worms sits in the cooler. A full tank and well-tuned engine are ready to transport you to fishing grounds full of promise and the ones that won't get away, at least not if you can help it. What could be more relaxing than a day of fishing on Long Island Sound with family or friends?

As the day wanes and it's time to head in, you look in the cooler at the prized catch of the day and think dinner. You notice the bait box; it contains a couple of sand worms and the glistening seaweed in which they were packed. What to do with them? You think, they are saltwater worms, and seaweed is natural and from salt water too, so you dump them over the side and put the box in the trash.

As you pull up to the boat ramp and wait your turn to pull your boat to trailer it home, a young man approaches, wearing a Sea Grant ball cap and carrying a clipboard. "Uh oh, what's this?" you think, but he pleasantly asks if you'd be willing to answer a few questions as part of a University of Connecticut study. There are a few boats ahead of you, so to kill time, you agree.

The survey focuses on aquatic invasive species (AIS) in Long Island Sound, organisms that are not native to the Sound but have been introduced somehow, and now inhabit the Sound. They are considered invasive because they cause environmental or economic harm, or harm to human health. You've heard of invasive species, but

Marine Bait Worms Pave the Way for Non-Native Species

Roll back a few years to 2006, when University of Connecticut scientists Charles Yarish, Robert Whitlatch, and Senjie Lin, graduate student Christina Haska, and SUNY Purchase scientist George Kraemer began a study to determine whether live marine bait worms and the seaweed in

which they are packed and sold, could inadvertently serve as a pathway for the movement of other organisms. Funded by the U.S. Environmental Protection Agency Long Island Sound Study (EPA LISS), and Connecticut Sea Grant (CTSG), the study combined visual and microscopic inspection with sophisticated molecular biological techniques to detect what else might be present with the bait worms.

They purchased boxes of live marine worms from retailers in Connecticut and Long Island, New York. Sand worms (*Nereis virens*) are commonly packed with wormweed (*Ascophyllum nodosum*—also known as bladder wrack), a brown seaweed used to keep them moist during shipping. Contents of each box were carefully examined to determine the presence of any “hitchhikers”. The researchers identified 14 species of seaweed, two species of harmful plankton, and 23

different taxa of invertebrate animals, including small crustaceans called amphipods, gastropods (snails), bivalve mollusks, worms, spiders, and insect larvae. Sand worms, blood worms, and the packing seaweed—commonly sold in Connecticut and New York—are primarily harvested from intertidal flats of the Gulf of Maine, and are the basis of small but commercially-important industries. While many organisms identified from the bait already live in Long Island Sound and other local marine waters, some do not. Purchased live bait comes from a variety of sources, most not local. This project confirmed what other studies have suggested; bait worm packaging can be a pathway for the movement of other organisms. If they are disposed of overboard and survive, some could have the potential to become invasive. Even marine worms shipped from another part of the Northeast have the potential to bring something new with

them to our local waters. (For the full report, to the Long Island Sound Study, see <http://s.uconn.edu/1kr>.)

Sharing the Research Findings with Anglers

The research is completed, now what? One of CTSG’s three mandates is to extend research results to the community at-large who may have an interest in them. In 2011, CTSG was awarded a grant from the EPA LISS, through the National Fish and Wildlife Foundation, to conduct a social marketing campaign for coastal boaters and anglers on aquatic invasive species. While there are many efforts locally, nationally and globally to raise awareness about AIS, it is not always clear if anyone is paying attention, and if they are, do the messages have any effect on their behavior? Part of this project focused on establishing lines of communication with coastal boaters



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and anglers to hear directly from them which methods they find most effective, if any.

The project team included Connecticut Department of Energy & Environmental Protection (DEEP) staff from both Marine Fisheries and Boating, three Divisions (7, 24, & 25) of the U.S. Coast Guard Auxiliary in Connecticut and the Marine Safety Detachment on Long Island, and the U.S. Coast Guard Sector Long Island Sound, Sea Partners Program. Undergraduate student Charlie Dyson was hired to implement the project and survey coastal anglers and boaters in southeastern and central Connecticut during summer 2011; undergraduate student John Bair surveyed coastal anglers and boaters in southwestern Connecticut during summer and early fall 2012.

The project team decided to focus on three basic messages: “Don’t Dump Bait”; “Keep Boat Hulls Clean”; and “Stop Aquatic Hitchhikers / Protect Our Waters”. The

John Bair, undergraduate student and project assistant, at Veterans Memorial Boat Ramp, Norwalk, Connecticut.



latter is a national awareness campaign managed by the U.S. Fish & Wildlife Service. These messages were shared verbally and on outreach gizmos including neck wallets, “ruler” stickers for coolers, refrigerator magnets, and key chains handed out to boaters and anglers. Signs and posters were posted to spread the messages at marinas, boat launches and bait shops. “Don’t Dump Bait” stickers were applied to bait purchases at point-of-sale by 11 retailers volunteering to participate in the project.

Once the messages were agreed upon and the outreach materials purchased, distribution of the materials commenced, starting with DEEP displays at the major boating and fishing shows held in Hartford. Introductory training on AIS and the project was provided to Coast Guard Auxiliaries by Bill Nelson, Marine Safety Detachment, during their annual District meeting. Members of local Auxiliary flotillas were asked if they would be willing to hand out key chains, stickers and magnets and share a brief message on AIS while conducting voluntary boat safety inspections or participating in community events as part of their Auxiliary duties. Ginny Lovas, Bill Ensign, Michael Headd and Mark Bennett served as the primary coordinators for flotilla members in the three Divisions. Signs were also posted at boat ramps, marinas and in bait shops; key chains were given to boaters from the DEEP Boating Safety Education vessel, *Prudence*.

Did It Mean Anything?

During the summers of 2011 and 2012, Dyson and Bair surveyed coastal boaters and anglers to help assess their awareness of AIS, document actions that could increase or decrease the risk of spreading aquatic organisms, and determine how successful we were in getting our messages out. The survey was open-ended, meaning the questions were asked, and the responses were recorded, rather

than providing answer choices to pick. Nearly 400 interviews were conducted with boaters and anglers from 131 Connecticut towns and 10 New York towns, at 34 coastal boat ramps from Groton to Greenwich.

While the response data are still being reviewed, there are some preliminary findings to report. Among the lessons learned were that it is important to share key messages widely and consistently, from a variety of sources, in order to make headway in increasing awareness and understanding year after year. Working with partners, such as the Coast Guard Auxiliary, the Coast Guard Sea Partners program, the DEEP divisions of Boating and

Marine Fisheries, and bait retailers, to share the same messages helps reinforce them in the minds of the intended audiences. Overall awareness of the aquatic invasive species issue is strong among coastal anglers and boaters in Connecticut. The vast majority of those interviewed (admittedly a small percentage of the total in Connecticut) appear to be knowledgeable of the issue and undertake proactive behaviors to minimize their possible role in spreading non-native organisms through their recreational activities.

As you head home from this day of fishing, your mind fast-forwards to the next trip. How successful will your

next day of fishing be? That will be revealed in time. One thing you do know, at the end of the day, you will either take the worms and seaweed home, throw them in the trash, or share them with another angler, rather than tossing them overboard. As you leave the launch, a sign catches your eye. "Protect our waters...keep your boat hull clean". Hmmm, wonder what that means?

Nancy C. Balcom is Associate Director for Connecticut Sea Grant at UCONN Avery Point.



Dyson (foreground) and two U.S. Coast Guard Auxiliary members provide information on preventing the spread of aquatic invasive species to boaters during the 2011 Open House in New Haven, Connecticut.

Bennett