

Project Period 01/01/2011 - 10/31/2012
Award Amount \$33,123.00
Matching Contributions \$11,974.00
Project Location Description (from Proposal) Project activities will be concentrated at bait retailers in Connecticut and New York, at public boat access points, and marinas, primarily in Connecticut but also on the north shore of Long Island.

Project Summary (from Proposal) Create and implement a social marketing campaign to educate marine boaters and anglers about aquatic invasives and to change behavior to minimize their potential role in causing new introductions.

Summary of Accomplishments This project brought together a group of partners who had not previously worked together to collectively mount an outreach program on aquatic invasive species (AIS) for coastal boaters and anglers in Connecticut. The voluntary participation of US Coast Guard Auxiliary members from flotillas in three Divisions in Connecticut was a key factor in the program's success, as these individuals are out conducting vessel inspections and program visits all along the coast during the spring, summer and fall, and can easily share messages and hand out materials at the same time. A variety of outreach materials promoting three simple AIS spread prevention messages ("Don't Dump Bait"; "Keep Hulls Clean"; and "Stop Aquatic Hitchhikers / Protect Our Waters") were produced and distributed during inspections or visits, at boating and fishing shows, and by retailers of live marine bait. The results showed increased familiarity with the materials from 2011 to 2012 and overall, a strong awareness of AIS and knowledge of appropriate measures to take to prevent inadvertent transport or introduction of non-native organisms by the 395 boaters and anglers interviewed over the course of the project period.

Lessons Learned 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. Working with partners, such as the Coast Guard Auxiliary, the Coast Guard Sea Partners program, the DEEP divisions of Boating and Marine Fisheries, to share the same messages helps reinforce them in the minds of the intended audiences. Overall awareness of the aquatic invasive species issue is very strong among coastal anglers and boaters in Connecticut and that the vast majority of those interviewed (admittedly a small percentage of the number of coastal anglers and boaters in Connecticut) appear knowledgeable of and undertake proactive behaviors to minimize their possible role in spreading non-native organisms through their recreational activities. In order to keep these positive behaviors going, it will be important to continue sharing these messages as widely and as often as possible.

Conservation Activities	See Narrative - Not Required
Progress Measures	Other Activity Metric
Value at Grant Completion	Not Required



Final Programmatic Report Narrative

Instructions: Save this document on your computer and complete the narrative in the format provided. The final narrative should not exceed ten (10) pages; do not delete the text provided below. Once complete, upload this document into the on-line final programmatic report task as instructed.

1. Summary of Accomplishments

In four to five sentences, provide a brief summary of the project's key accomplishments and outcomes that were observed or measured.

This project brought together a group of partners who had not previously worked together to collectively mount an outreach program on aquatic invasive species (AIS) for coastal boaters and anglers in Connecticut. The voluntary participation of US Coast Guard Auxiliary members from flotillas in three Divisions in Connecticut was a key factor in the program's success, as these individuals are out conducting vessel inspections and program visits all along the coast during the spring, summer and fall, and can easily share messages and hand out materials at the same time. A variety of outreach materials promoting three simple AIS spread prevention messages ("Don't Dump Bait"; "Keep Hulls Clean"; and "Stop Aquatic Hitchhikers / Protect Our Waters") were produced and distributed during inspections or visits, at boating and fishing shows, and by retailers of live marine bait. The results showed increased familiarity with the materials from 2011 to 2012 and overall, a strong awareness of AIS and knowledge of appropriate measures to take to prevent inadvertent transport or introduction of non-native organisms by the 395 boaters and anglers interviewed over the course of the project period.

2. Project Activities & Outcomes

Activities

- Describe and quantify (using the approved metrics referenced in your grant agreement) the primary activities conducted during this grant.
- This project was carried out over a two-year period, from 2011 through 2012.
- Formation of Team CT ANS
A project team was formed, with representatives from Connecticut and New York Sea Grant, CT Dept. of Energy & Environmental Protection – Marine Fisheries, Boating; the US Coast Guard Auxiliary – three Divisions in Connecticut and the Marine Safety Detachment on Long Island, and the US Coast Guard Sector Long Island Sound, Sea Partners Program. Undergraduate student Charlie Dyson was hired to carry out much of the implementation of the project and to survey coastal anglers and boaters in southeastern and central Connecticut during summer 2011; undergraduate student John Bair was hired to survey coastal anglers and boaters in southwestern Connecticut during summer / early fall 2012. The group met 3-4 times in person and corresponded the rest of the time by phone and email to develop and refine the basic approach for raising awareness of aquatic invasive species (AIS) among coastal boaters and anglers as well as the key standard messages.
- Development and Purchase of Materials
The project team decided to focus on several standard messages: "Don't Dump Bait"; "Keep Hulls Clean"; and "Stop Aquatic Hitchhikers / Protect Our Waters". The latter is a national awareness campaign managed by the US Fish & Wildlife Service. The messages were shared verbally and on materials handed out to boaters and anglers. The following outreach materials were developed and distributed throughout the two year period. Some materials (magnets, neck wallets) were purchased using other funds, in order to ensure the project could begin in time to participate in key boating and fishing shows held in January and February in Hartford.

- “Don’t Dump Bait” message
 - Stickers (40,000) – applied at point-of-sale by ten bait retailers (2011) and four returning bait retailers (2012) volunteering to participate in the project.
 - Laminated posters of sticker (75) – posted by bait retailers and at some boat ramps
 - Neck wallets (1000) – distributed at 2011 boating and fishing shows
 - Ruler stickers (2 print runs, total 15,000) – for distribution to anglers via bait retailers, DEEP, Coast Guard, Coast Guard Auxiliary and Sea Grant, distributed at 2012 and 2013 boating and fishing shows
 - Plastic multi-lingual signs (800) – posted at coastal boat ramps by state partners
 - Keep Hulls Clean
 - Key chains (8,000) – for distribution to boaters / anglers via Coast Guard, CG Auxiliary and Sea Grant; distributed at 2012 and 2013 boating and fishing shows
 - Ruler stickers (same as above) – for distribution to anglers via bait retailers, DEEP, Coast Guard, Coast Guard Auxiliary and Sea Grant, distributed at 2012 and 2013 boating and fishing shows
 - Hull Fouling Posters (2 versions, 300 of each) – for distribution by mail, Sea Grant, and Coast Guard Auxiliary
 - Stop Aquatic Hitchhikers / Protect Our Waters
 - Magnets (1,500) – for boaters and anglers; distributed at 2011 boating and fishing shows, and by Coast Guard, Coast Guard Auxiliary and Sea Grant
 - Long Island Sound Invasive Species field card sets (1,000) – distributed by Sea Grant for use / distribution by Coast Guard Auxiliary during surveys, at Coast Guard Open Houses, and selectively at 2011 and 2012 boating and fishing shows. Older stock of field cards were used up and a revised version (2,000 sets) produced as part of the project.
- Distribution of Materials

Materials were distributed in a variety of ways, including:

- Fishing and Boating shows – Space for a small display was provided courtesy of CT DEEP at both the CMTA Hartford Boat Show in January 2011, 2012, and 2013 and the North East Fishing and Hunting Show (Hartford) in February 2011, 2012, and 2013. Neck wallets and magnets were handed out in 2011, ruler stickers and key chains in 2012 and 2013.
- New York Sea Grant: small quantities of key chains, ruler stickers, magnets, and neck wallets were distributed at fishing and boating venues on Long Island. NY Sea Grant produced a ruler sticker similar to the one for the project, so that they would have more available for distribution.
- US Coast Guard Sector Long Island Sound Open House invasive species display – May 2011 and 2012, New Haven
- Mystic Aquarium World Oceans Day display – June 2011 and 2012 (Mystic); Cove Marina Boat Show, Norwalk (September 2012) – Coast Guard Auxiliary display
- Bait retailers – 10 retailers along Connecticut coast volunteered to apply stickers at point-of-sale, display ruler stickers for pick-up, and post information in 2011; four continued to do so in 2012. Laminated copies of the bait sticker in an 8 1/2” x 11” format were generated and shared with both bait shops as well as the Coast Guard Auxiliary Divisions.
- Marinas – posters were to 32 coastal marinas in CT and RI that cater to transient boaters; posters distributed also by US Coast Guard Auxiliary and Connecticut Sea Grant to other marinas.
- USCG Auxiliary – An introductory training on aquatic invasive species (AIS) and this project was provided to members of the US Coast Guard Auxiliary by Bill Nelson from the Marine Safety Detachment during their March 2011 annual District meeting, held in Mystic. Members of local Coast Guard 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. Contacts for Divisions 7, 24 and 25 identified Auxiliary members from their flotillas who were willing to help educate boaters and anglers about AIS, and supplied them with materials.

- In 2011, the Auxiliary members conducting vessel inspections or program visits voluntarily introduced the subject of aquatic invasive species and/or shared the outreach materials as opportunity arose, and if they felt comfortable doing so. Records of the number of contacts made by each individual were requested but not received, however, members of flotillas in all three Divisions contributed to the outreach effort. Sea Grant periodically held telephone or email conversations with the three Division Heads during the summer and early fall.
 - During 2012, the heads of the three Coast Guard Auxiliary Divisions renewed their interest in the project, received a re-infusion of outreach materials, and met with their flotilla members involved in vessel inspections and/or program visits. Division 25 had a booth for World Oceans Day at Mystic Aquarium, and Division 7 had one at the Cove Marina in-water boat show in Norwalk. Division 24 shared materials with participants at the Guilford Duck Races (Guilford, September 2012) and the Hammonasset Jamboree (Madison, October 2012). Members of flotillas in Division 7 (Fairfield CT to Mamaroneck NY) conducted 662 vessel inspections during 2012 and spoke about not dumping bait to at least 400 of these boaters. More than 1,000 program visits were made, during which discussions about not dumping bait were conducted about 50% of the time. During the Division's public education courses, they spoke with students about safe fishing practices, including the proper disposal of bait. The Division 7 primary point of contact for this project, Ginny Lovas, made two specific "Don't Dump Bait" program visits, covering Rowayton and Norwalk Connecticut. She put up posters in post offices, boat ramps, marinas and in marine related stores, and spoke with many people in the stores and on the street as part of these visits.
- Project Publicity:
 - Article appeared in The Day (New London CT) June 14, 2011 on project
 - Article appeared in Blue Water, Green Boat section of Boating Times Long Island October 2011 that covered this project in part, September 28, 2011
 - Web article on Sea Grant website (<http://web2.uconn.edu/seagrant/whatwedo/ais/uscgaux.php>; US Coast Guard Auxiliary and Sea Partners team up with Sea Grant for Aquatic Invasive Species Outreach)
 - Poster presentation at Connecticut Conference on Natural Resources, March 2012
 - Certificates of Recognition issued by Connecticut Sea Grant to Coast Guard partners, in conjunction with briefing for Captain Joseph Vojvodich, Captain of the Port – Sector Long Island Sound in 2012 (followed by the Captain recognizing the project and the Coast Guard Auxiliary's involvement at their annual meeting in 2012)
 - Planned article on project results to be submitted by February 28, 2013 to editor of Connecticut Sea Grant magazine, Wrack Lines, for publication in Spring/ Summer 2013 issue
 - Two accepted presentations, 18th International Conference on Aquatic Invasive Species, Niagara, Ontario, April 21-25, 2013.
 - Press release to be issued by Connecticut Sea Grant Communications Director on project results (Spring 2013)
 - Angler and Boater Survey

A 10- question survey was drafted; the final version was reviewed by the University of Connecticut Institutional Review Board. The undergraduate students hired for the project sought permission from local, private and state organizations to survey boaters and anglers 18 years and older at boat ramps. The purpose of the survey was to determine the level of awareness of coastal boaters and anglers about AIS, document current behaviors that could increase / decrease risk of spreading organisms, and determine how successful we were in getting our messages out. The survey was designed to be open-ended, meaning that anglers and boaters were asked questions and their answers recorded, without being shown the actual survey form. That way, they would not derive any answer prompts from the survey form. Surveys were completed with 229 boaters and anglers (168 self-identified as both an angler and a boater), at 22

ramps/marinas in 16 coastal towns in 2011. The no-cost extension (NCE) granted allowed additional surveys to be undertaken in 2012, the results of which could be compared to those of 2011. An additional 166 boaters and anglers (80 self-identified as both an angler and a boater) were surveyed in 2012, at 14 boat ramps in eight towns in southwestern Connecticut. Between 2011 and 2012, 395 interviews were conducted with boaters/anglers from 131 Connecticut town and 10 New York towns, at 34 coastal boat ramps from Groton to Greenwich.

- Analysis of Results / Feedback from Project Partners

Before, during and after the 2011 boating season, conference calls and email correspondence with the project team members led to a refinement of the outreach plan for 2012. To bolster their comfort level in answering questions about AIS, Auxiliary members requested some brief additional information on marine invasives to hand to interested boaters and anglers was requested from the ranks. In response, an outreach postcard on marine invasive species produced by the MIT Sea Grant Program was provided to the Divisions for distribution along with the other materials in 2012. All involved were enthusiastic about the program and were interested in continuing the effort in 2012 and beyond. The prevalent feeling was that the spread prevention messages need to be “out there” as much as possible and on an ongoing basis, in order for boaters and anglers to keep marine invasives in mind. The participation of the Auxiliary was a very important piece of this project; fortunately, they plan to continue to share information about AIS for the foreseeable future. The point of contact for Division 25, Michael Headd, spoke with Fred Furnell, the District Safety Officer for Vessel Inspections, who heads up vessel examiners throughout the district including Connecticut. Fred has re-established the Auxiliary with CT DEEP and has formed a framework for a partnership where the Auxiliary can help DEEP train boat owners how to clean their boats during scheduled Auxiliary or DEEP vessel examinations. This renewed partnership will facilitate the sharing of AIS preventative messages with boaters more widely starting in 2013.

Feedback received from the 2011 participating bait retailers was reviewed as well. Several boat shops owners/managers requested larger signs with more information on invasive species to post in their shops in lieu of applying the individual stickers at point-of-sale. Laminated larger versions of the bait stickers were provided to address this request on a short-term basis. Sea Grant will look to produce larger, more informative signs and send them to all coastal-located bait shops for posting in the future. There was also a request for a Spanish version of the bait sticker. While fewer bait shops applied stickers at point-of-sale in 2012, more would likely have participated if the undergraduate student program assistant had been hired earlier in the spring and made personal contact with them. Unfortunately, the student was not hired until late July due to an unexpected death in the PI’s family that prevented her from paying much attention to the project in the spring and early summer. Many of the bait retailers did indicate support for sharing the message, and some have volunteered to distribute the remaining stickers available in 2013.

Overall, 395 boaters and anglers were interviewed during the course of two summers by two undergraduate students. Both students received the same training, but the 2011 program assistant was more heavily involved in all aspects of the project planning and implementation. The survey was conducted largely in the same manner by each student, with the exception of Question #7 (Have you seen this “Don’t Dump Bait” message). In 2011, the question was asked only of those interviewees who indicated they were anglers or boater/ anglers. In 2012, the question was asked of all interviewees. The interviewer in 2012 recorded multiple answers to certain questions if they were offered by the interviewee, whereas the interviewer in 2011 recorded the first answer provided only. As planned, the students did not randomly sample the boaters / anglers to be interviewed – instead, they were asked to approach those leaving a boat ramp (as early interview efforts demonstrated that individuals who were trying to get out on the water were far less inclined to agree to be interviewed than those coming back in). The students requested the boater/angler’s time for a brief survey and if declined, continued on to the next available boater/angler. As a result, these data are qualitative in nature, have some bias in that the responses come from those boaters and anglers who agreed to be interviewed, and cannot be compared for statistical significance.

- Briefly explain discrepancies between the activities conducted during the grant and the activities agreed upon in your grant agreement.

The project was initially planned to be conducted over one year. The timing of the award meant that to avoid missing the key Hartford boating and fishing shows in 2011, other Sea Grant funds were used to purchase some of the outreach materials for distribution. Together with lower than anticipated cost for some of the outreach materials, unused funds carried over from year 1 facilitated the purchase of additional stickers and key chains and the hiring of an undergraduate surveyor in 2012. The no-cost extension benefited the project in two respects: we could continue to refine our outreach approach and get the messages out to more boaters and anglers through continued distribution of the outreach materials in a second year, and we were better able to determine the effect of the social marketing campaign on boater and angler behavior, through the qualitative comparison of the 2011 and 2012 interview responses.

Anticipated travel expenses were underestimated: the federal mileage reimbursement rate increased from \$.50/mile to \$.555/mile during the project period and more trips to boat ramps needed to be made in order to achieve a reasonable number of completed surveys. Student program assistant expenses in year 1 were higher than expected as the student graduated in May and had to be re-hired as a temporary assistant, with slightly higher associated fringe benefit related costs.

The CT DEEP Boating Division was sent copies of the plastic “Don’t Dump Bait” signs in combinations of languages, for posting at coastal boat ramps in 2011. The reprinted signs, originally produced as part of a Northeast Sea Grant regional effort, were inadvertently stored without the key staff involved being notified of their whereabouts. As a result, the signs will be posted at boat ramps in 2013.

More effort could have been expended to distribute hull fouling signs to marinas in person, to encourage their posting. This effort will continue by Sea Grant on an ad hoc basis, in 2013, with the assistance of some CG Auxiliary members.

Outcomes

- Describe and quantify progress towards achieving the project outcomes described in your grant agreement. (Quantify using the approved metrics referenced in your grant agreement or by using more relevant metrics not included in the application.)

Indicator 1 (met): *At least 25% of participating Connecticut and New York marine bait retailers surveyed share “Don’t Dump Bait” advisory messages regularly with anglers at point-of-sale. Baseline = 0 bait retailers*

10 Connecticut bait retailers volunteered to apply the bait stickers at point of sale in 2011 as well as post laminated signs in 2011. Post-season follow-up with 7 of 10 bait retailers found that only one had trouble applying the stickers at point-of-sale due to the time it took in a busy store. One other applied them, but found it hard, given the small number of staff. Five retailers or 50% had no problem applying the stickers during sales and felt the stickers were largely well-received by anglers.

In 2012, four (4) bait retailers offered to distribute the stickers again. All requested more stickers during the season. Follow-up indicated that all four (100%) applied the stickers at point-of-sale while supplies lasted and all 10 retailers participating in 2011 posted the laminated bait sticker signs in 2012.

The NY Sea Grant project partner did not pursue working with bait retailers on Long Island due to lack of the time needed to devote to it. Moreover, the project team decided that given the quantity of bait stickers (40,000 total) available for the project, it would be better to concentrate their distribution in Connecticut where the surveys were being conducted.

Indicator 2 (met): *At least 10% of Connecticut marine anglers surveyed indicate they have seen and followed the “Don’t Dump Bait” labels, are aware of AIS, and dispose of unused live marine bait and seaweed packing material in the trash.* Baseline = 0 marine anglers

Have seen “Don’t Dump Bait” labels: In 2011, 18.2% (35) anglers and in 2012 63.1% (99) of anglers/boaters indicated they had seen the message.

Awareness: 94.3% (216) of all boaters and anglers in 2011 and 76.5% (127) of all boaters and anglers in 2012 indicated “yes” when asked if they had ever heard of aquatic invasive species.

Disposal of bait: Of 147 anglers in 2011 and of 85 anglers in 2012 that use live marine bait, 96.6% or 142 in 2011 and 92.9% or 79 in 2012 disposed of marine bait by one or more appropriate ways (take home, share, put in trash) and only 2.7% or 4 in 2011 and 6 or 7.1% in 2012 dumped the unused live bait over the side.

Disposal of seaweed/packing materials: Of 147 anglers responding in 2011 and of 80 responding in 2012, all 147 or 100% disposed of the packing materials in an appropriate way (take home, dump in trash, share) in 2011 and 72 or 90% disposed of the packing materials in an appropriate way (take home, dump in trash, share) in 2012. Eight or 8% in 2012 indicated they dumped it over the side.

Indicator 3 (met): *At least 10% of Connecticut boaters surveyed indicate they have seen the “Stop Aquatic Hitchhikers” label, are aware of AIS, and can name at least one best management practice (BMP) to minimize the transport of aquatic organisms via recreational boating.* Baseline = 0 marine recreational boaters

Have seen “Stop Aquatic Hitchhikers” label: Of 207 angler/ boaters in 2011 and 159 in 2012, 15.9% or 33 in 2011 and 59.1% or 94 in 2012 indicated they had seen the label.

Awareness: 94.3% (216) of all boaters and anglers in 2011 and 76.5% (127) of all boaters and anglers in 2012 indicated “yes” when asked if they had ever heard of aquatic invasive species.

Name at least one BMP: Of 207 angler/boaters in 2011 and 152 angler/boaters in 2012 that responded to the question, 192 or 92.8% in 2011 and 127 or 83.6% in 2012 could name at least one BMP that minimized inadvertent transport of invasive species via recreational boating.

Indicator 4 (met): *At least 25% of the marinas sent the hull fouling posters have displayed them in prominent space.* Baseline = 0 marinas

Thirty-two marinas were mailed posters and more were distributed in person by Sea Grant and CG Auxiliary. Return visits by Sea Grant to 12 Connecticut marinas over the two year period found that nine (9) or 28% had posted at least one of the two poster versions in their offices.

- Briefly explain discrepancies between what actually happened compared to what was anticipated to happen.

Because of the location of the undergraduate interviewers (Avery Point, Groton in 2011; Stamford campus, Stamford in 2012) and limited travel funds especially in 2012, the interview locations are largely skewed towards the eastern and central coastline in 2011 and focused along the western coastline in 2012. In 2012, boaters / anglers mentioned seeing the materials or hearing the messages during vessel inspections by the Coast Guard 8 to 11 times versus no mention in 2011. This was expected as the effort by the Coast Guard Auxiliary was renewed and enhanced in 2012, especially in the area covered by Division 7 which overlapped with the area of interviews. It would have been ideal to have interviews from locations all along the coast in both years to better track the impact of the efforts of these important partners.

It was disappointing that the percent of boaters and anglers aware of AIS decreased from 2011 to 2012, but given that the interviews were focused in southwestern Connecticut in 2012, and very few interviews were conducted in this area in 2011, it cannot be determined if the percent awareness of boaters / anglers in this region actually increased from 2011.

One complete failure was the establishment of a unique UCONN email address for those to use who wished for additional information. The email address was placed on several of the outreach materials, but not one email was received during the project period. Survey respondents occasionally mentioned looking at the Coast Guard Auxiliary or DEEP websites for more information, but not Sea Grant's. In retrospect, providing a web address may have proven more useful, particularly if the web site linked to other key sites, such as the aforementioned.

- Provide any further information (such as unexpected outcomes) important for understanding project activities and outcome results.

Overall, the results of the surveys underscore the benefits derived from expanding the project from one year to two, by demonstrating increased familiarity with the messages among boaters and anglers from 2011 to 2012, due to the extended effort to disseminate the information. If the project had ended after 2011, there would have been little to say about the efficacy of the educational campaign. It is evident that these sorts of efforts must continue from year to year to ensure that the messages remain prominent and accessible to the intended audiences.

The feedback from the bait retailers indicate support for the dissemination of information about aquatic invasives to anglers, but the time and effort involved in applying stickers individually at point-of-sale for most is too great, and they prefer to post large signs with the message and brief background information instead.

3. Lessons Learned

Describe the key lessons learned from this project, such as the least and most effective conservation practices or notable aspects of the project's methods, monitoring, or results. How could other conservation organizations adapt their projects to build upon some of these key lessons about what worked best and what did not?

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. Working with partners, such as the Coast Guard Auxiliary, the Coast Guard Sea Partners program, the DEEP divisions of Boating and Marine Fisheries, to share the same messages helps reinforce them in the minds of the intended audiences. Overall awareness of the aquatic invasive species issue is very strong among coastal anglers and boaters in Connecticut and that the vast majority of those interviewed (admittedly a small percentage of the number of coastal anglers and boaters in Connecticut) appear knowledgeable of and undertake proactive behaviors to minimize their possible role in spreading non-native organisms through their recreational activities. In order to keep these positive behaviors going, it will be important to continue sharing these messages as widely and as often as possible.

4. Dissemination

Briefly identify any dissemination of lessons learned or other project results to external audiences, such as the public or other conservation organizations.

- Planned article on project results to be submitted by February 28, 2013 to editor of Connecticut Sea Grant magazine, Wrack Lines, for publication in Spring/ Summer 2013 issue
- Press release to be issued by Connecticut Sea Grant Communications Director on project results (Spring 2013)
- Two accepted presentations, 18th International Conference on Aquatic Invasive Species, Niagara, Ontario, April 21-25, 2013.

- Project summary to be shared with members of Connecticut ANS and LIS Interstate AIS Working Groups, the US Coast Guard Auxiliary participating Divisions, the Captain of the Port – Sector Long Island Sound, and the Long Island Sound Study Communications Team.

5. Project Documents

Include in your final programmatic report, via the Uploads section of this task, the following:

- 2-10 representative photos from the project. Photos need to have a minimum resolution of 300 dpi and must be accompanied with a legend or caption describing the file name and content of the photos;
- report publications, GIS data, brochures, videos, outreach tools, press releases, media coverage;
- any project deliverables per the terms of your grant agreement.

POSTING OF FINAL REPORT: *This report and attached project documents may be shared by the Foundation and any Funding Source for the Project via their respective websites. In the event that the Recipient intends to claim that its final report or project documents contains material that does not have to be posted on such websites because it is protected from disclosure by statutory or regulatory provisions, the Recipient shall clearly mark all such potentially protected materials as “PROTECTED” and provide an explanation and complete citation to the statutory or regulatory source for such protection.*

Curbing Invasion Pathways through Aquatic Invasive Species Awareness

Date of survey: _____ Location of survey: _____

1. Are you 18 or older? Yes / No

2. Town, State of residence: _____

3. Have you ever heard of aquatic invasive or aquatic nuisance species? Yes / No / DK

(If no / DK: *Aquatic invasive species are organisms that are introduced into a body of water that they have never before inhabited.*)

4. Do you believe aquatic invasive species are a problem in Long Island Sound? Yes / No / DK

5. Do you consider yourself a: _____ Saltwater Angler _____ Recreational Boater _____ or Both?

IF ANGLER OR BOTH:

6. Do you use any live marine bait, such as sand worms? Yes / No (If yes, go to Q6a/6b; if no, go to Q7)

6a. (If Yes) What do you do with any unused live bait at the end of a fishing trip?

_____ Save / Take home _____ Dump over side _____ Share with another angler

_____ Dump in trash _____ Other _____

6b. (If Yes) What do you do with the seaweed / packing material that the live bait is packed with?

_____ Save / Take home _____ Dump over side _____ Share with another angler

_____ Dump in trash _____ Other _____

7. Have you seen this "Don't Dump Bait" message? Yes / No / DK (Show sticker; if yes, go to Q7a, if no, go to Q8)

7a. (If yes) Where? Location: _____

_____ poster/sign _____ sticker on bait box _____ neck wallet _____ ruler sticker _____ don't recall

IF BOATER OR BOTH:

8. Can you name at least one way to avoid accidentally transporting organisms from one marine body of water to another?

_____ Eliminate water from equipment _____ Clean plants/mud off boat, trailer _____ Wash boat, trailer

_____ Maintain clean hull _____ Dry boat, trailer _____ Other _____ DK _____

9. Have you seen this "Stop Aquatic Hitchhiking" message? Yes / No / DK (Show magnet; if yes, go to Q9a; if no, go to Q10)

9a. (If yes) Where? Location: _____

_____ poster/sign _____ ruler sticker _____ key chain _____ magnet _____ don't recall

TO ALL:

10. What is your reaction when you see these and other messages about aquatic invasive species on items such as stickers, magnets, key chains and signs?

_____ I try to follow the suggested behavior _____ I seek more information _____ I ignore them

_____ Other _____

Balcom, N. Curbing Invasion Pathways Through AIS Awareness

Project No. 2010-0071-013/23961

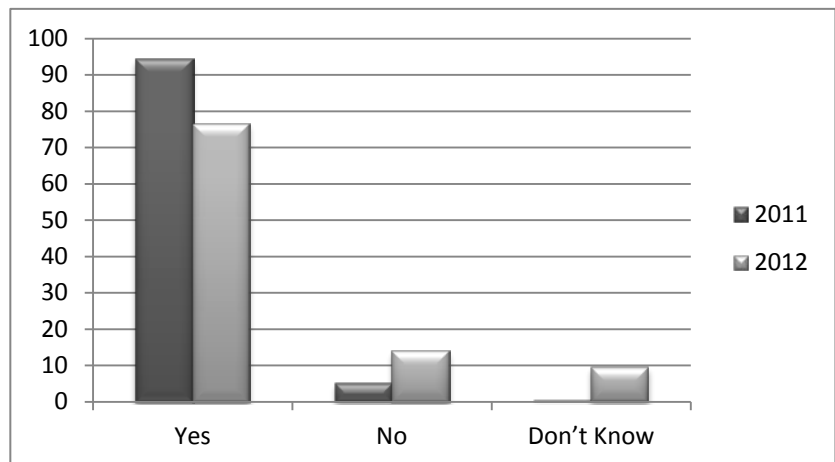
1/1/2011 – 10/31/2012

Summary of Interview Responses, 2011 and 2012

Year	Interviewer	No. of Interviews Completed	Dates of Surveys	No. of Towns Represented by Survey Participants	No. of Boat Ramps (Towns) where surveys conducted
2011	C. Dyson	229	6/9/11-8/20/11	117 (CT)	22 (16 towns)
2012	J. Bair	166	8/4/12 – 10/13/12	25 (CT); 10 (NY)	14 (8 towns)
Total		395		131 (CT); 10 (NY)	34 (20 towns)

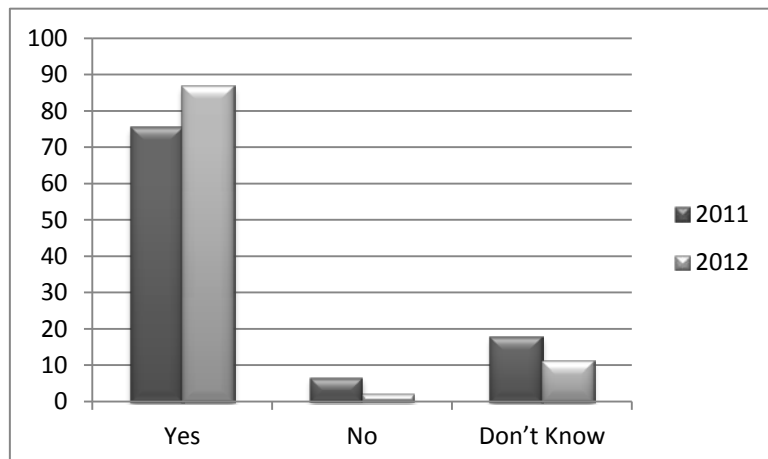
Question 3: *Have you ever heard of aquatic invasive or aquatic nuisance species?*

Year	Yes	No	Don't Know	Total
2011	216	12	1	229
	94.3	5.2	0.4	100%
2012	127	23	16	166
	76.5	13.9	9.6	100%



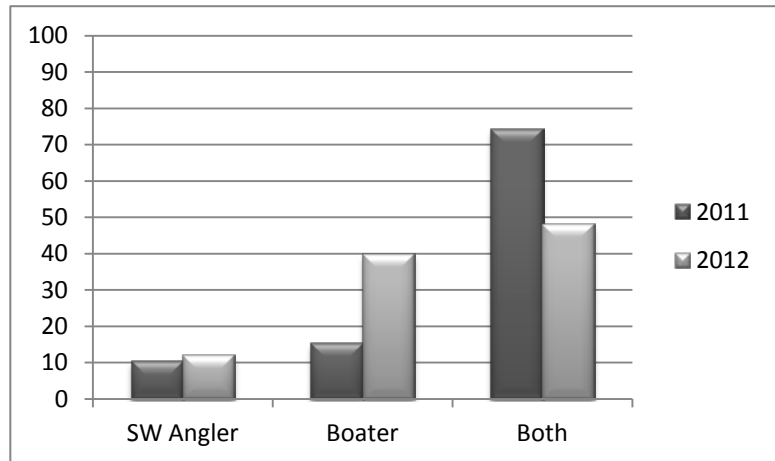
Question 4: *Do you believe aquatic invasive species are a problem in Long Island Sound?*

Year	Yes	No	Don't Know	Total
2011	173	15	41	229
	75.5	6.6	17.9	100%
2012	139	3	18	160
	86.9	1.9	11.2	100%



Question 5: Do you consider yourself a 1) saltwater angler, 2) boater, or 3) both?

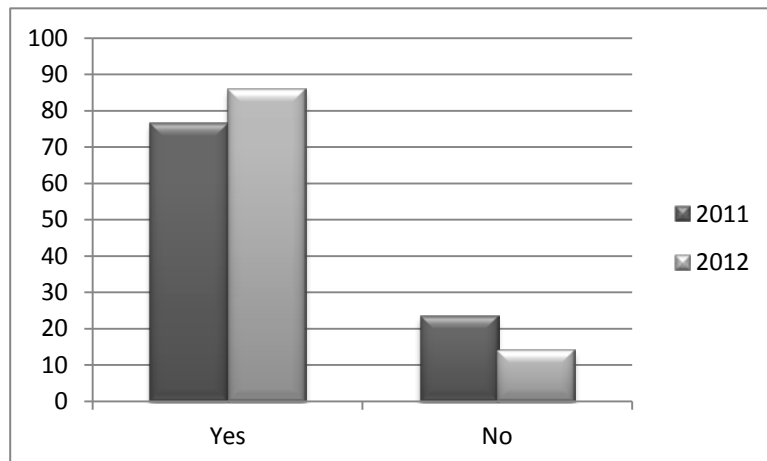
Year	SW Angler	Boater	Both	Total
2011	24	35	170	229
	10.5	15.3	74.2	100%
2012	20	66	80	166
	12.0	39.8	48.2	100%



For Anglers or Both Angler and Boater

Question 6: Do you use any live marine bait, such as sand worms?

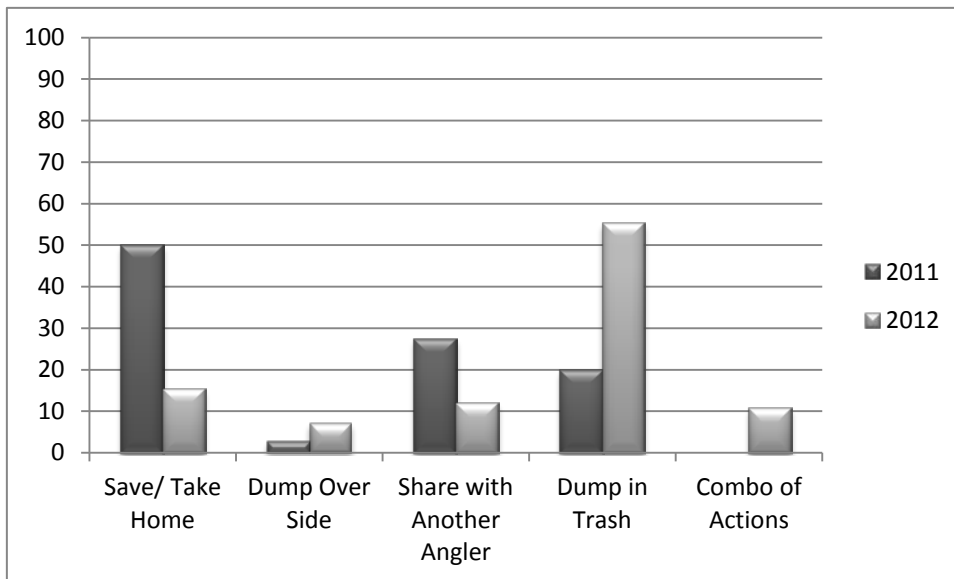
Year	Yes	No	Total
2011	147	45	192
	76.6	23.4	100%
2012	85	14	99
	85.9	14.1	100%



(If yes)

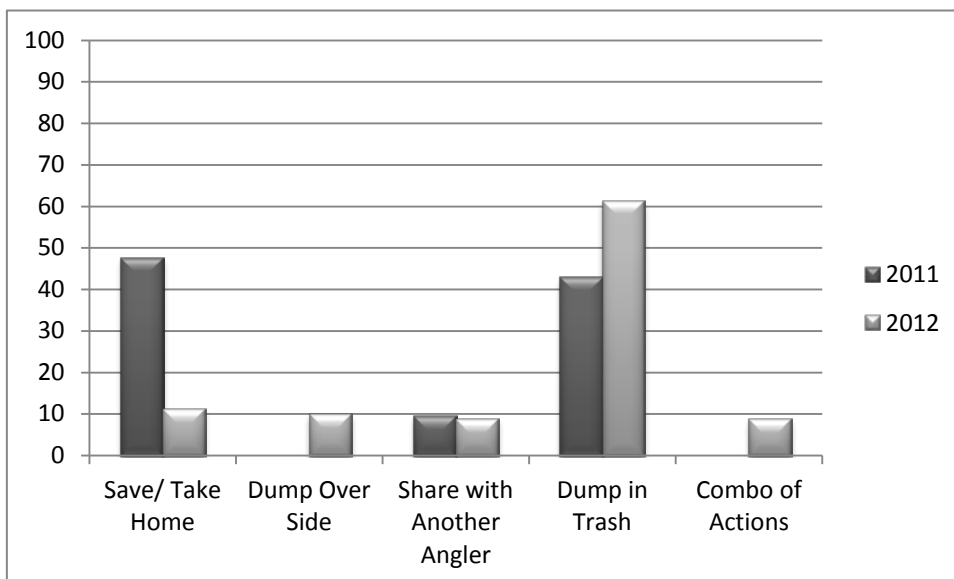
Question 6a: What do you do with any unused live bait at the end of a fishing trip?

Year	Save / Take Home	Dump Over Side	Share with another Angler	Dump in trash	Combo of Actions	Total
2011	73	4	40	29	0	146
	50	2.7	27.4	19.9	0	100%
2012	13	6	10	47	9	85
	15.3	7.0	11.8	55.3	10.6	100%



Question 6b: What do you do with the seaweed / packing material in which the live bait is packed?

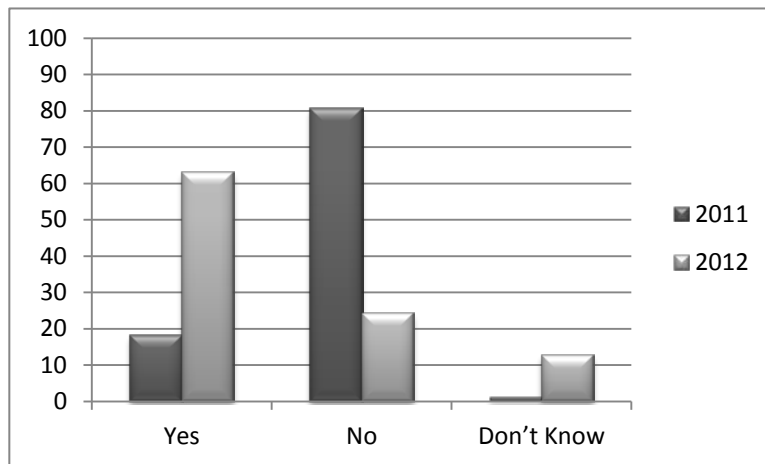
Year	Save / Take Home	Dump Over Side	Share with another Angler	Dump in trash	Combo of Actions	Total
2011	70	0	15	61	0	146
	47.6	0	9.5	42.9	0	100%
2012	9	8	7	49	7	80
	11.2	10.0	8.8	61.2	8.8	100%



Question 7: Have you seen this “Don’t Dump Bait” message?

Year	Yes	No	Don’t Know	Total
2011	35	155	2	192
	18.2	80.7	1.1	100%
2012	99	38	20	157*
	63.1	24.2	12.7	100%

**All asked in 2012, regardless of angler only, boater only, or angler & boater status*



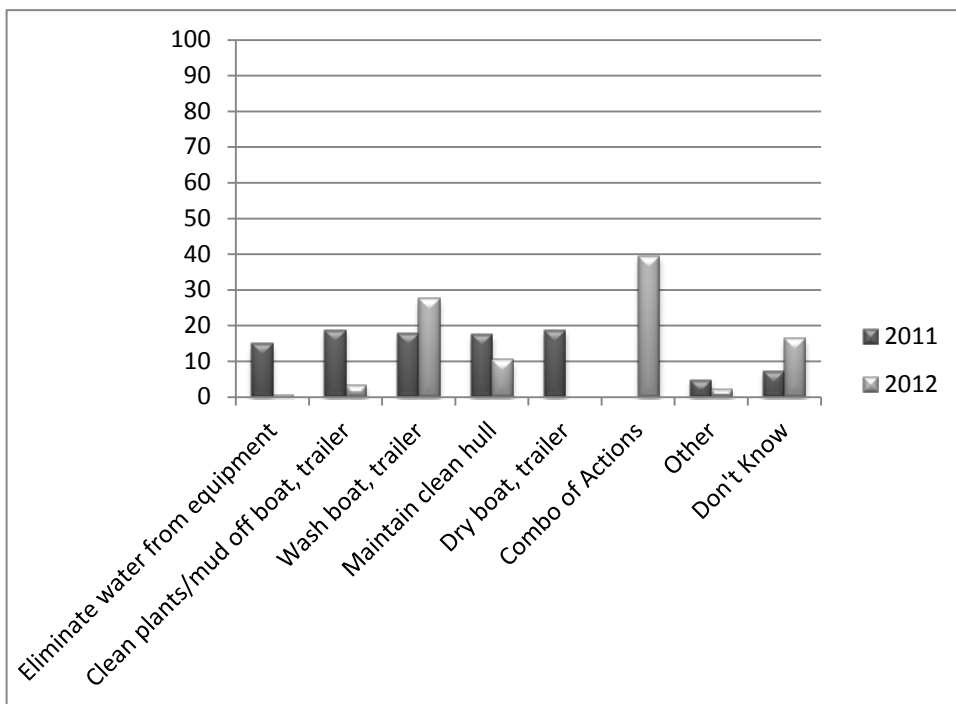
Question 8: Can you name at least one way to avoid accidentally transporting organisms from one marine body of water to another?

Year	Eliminate water from equipment	Clean plants/mud off boat, trailer	Wash boat, trailer	Maintain clean hull	Dry boat, trailer	Combo of Actions*	Other**	Don't Know	Total
2011	31	39	37	36	39	0	10	15	207
	15.0	18.8	17.9	17.4	18.8	0	4.8	7.3	100%
2012	1	5	42	16	0	60	3	25	152
	0.7	3.3	27.6	10.5	0	39.5	1.3	16.4	100%

*Combo of Actions: Respondent listed more than one way

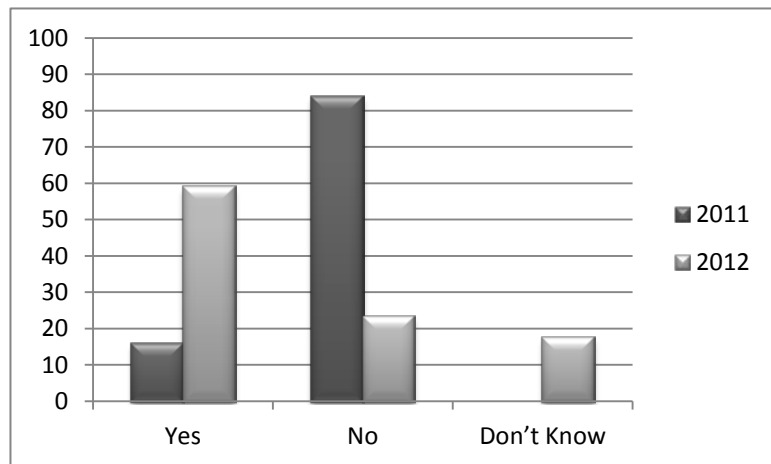
**Other (2011): Paint (7); keep out of the water (3)

**Other (2012): Don't dump bait (2); keep engine clean (1)



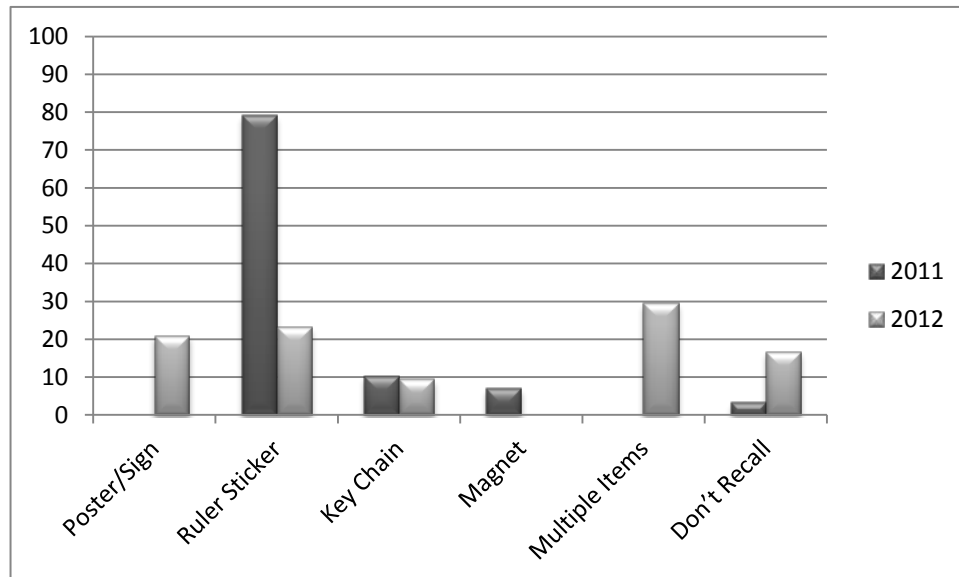
Question 9: Have you seen this “Stop Aquatic Hitchhiking” message?

Year	Yes	No	Don't Know	Total
2011	33	174	0	207
	15.9	84.1	0	100%
2012	94	37	28	159
	59.1	23.3	17.6	100%



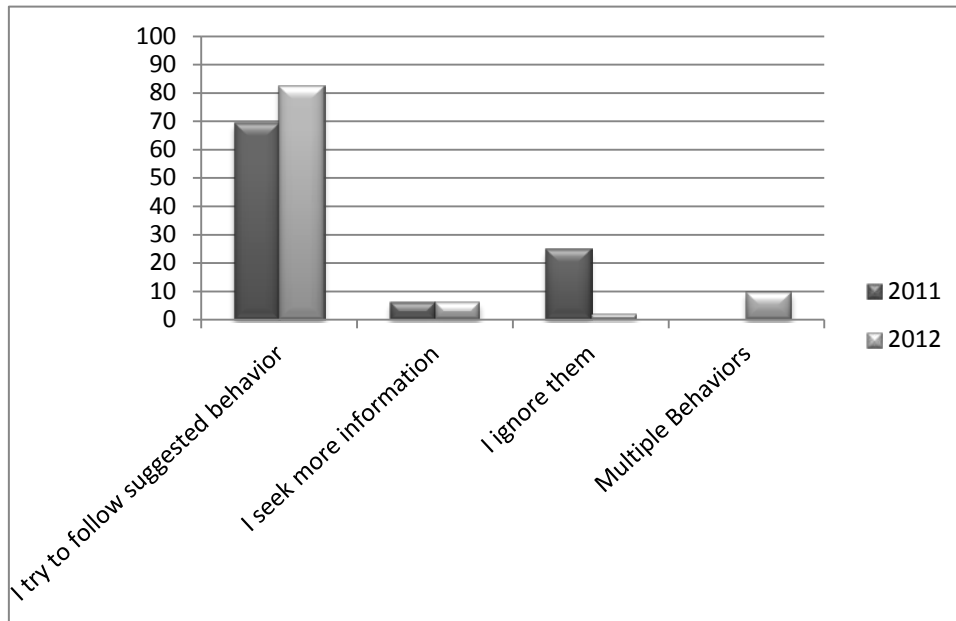
Question 9a: If yes, in what form?

Year	Poster/Sign	Ruler sticker	Key chain	Magnet	Multiple Items	Don't Recall	Total
2011	0	23	3	2	0	1	29
	0	79.3	10.3	7.0	0	3.4	100%
2012	20	22	9	0	28	16	95
	21.0	23.2	9.5	0	29.5	16.8	100%



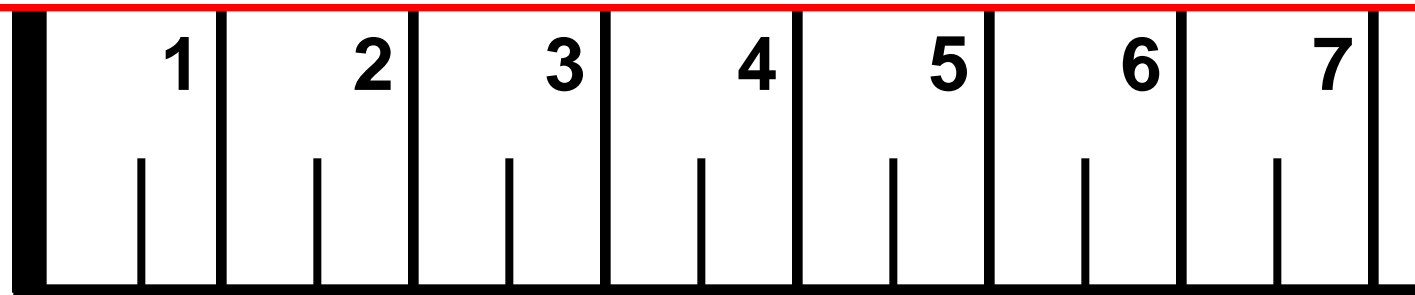
Question 10: What is your reaction when you see these and other messages about aquatic invasive species on items such as stickers, magnets, key chains, and signs?

Year	I try to follow suggested behavior	I seek more information	I ignore them	Multiple Behaviors*	Total
2011	158	14	56	0	228
	69.3	6.1	24.6	0	100%
2012	136	10	3	16	165
	82.4	6.1	1.8	9.7	100%



*Includes remind / tell others not to dump bait and to keep hull clean; look at DEEP website

Inches



PROTECT OUR WATERS - *DON'T DUMP*

For more information: www.seagrant.uconn.edu



STOP Aquatic Hitchhikers
Keep Boat Hulls CLEAN

aquatic.invasives@uconn.edu
860-123-4567

DISCARD BAIT IN THE TRASH

Bait and non-native plants and animals hitchhiking with bait can harm our coastal waters, lakes and rivers...

**PROTECT YOUR
WATERS**



Sea Grant
Connecticut & New York

For information on non-native and invasive species:
aquatic.invasives@uconn.edu 860-405-9107

Credit: Illinois-Indiana Sea Grant



STOP AQUATIC HITCHHIKERS!™

Prevent the transport of nuisance species.
Clean all recreational equipment.

www.ProtectYourWaters.net

When you leave a body of water:

- Remove any visible mud, plants, fish or animals before transporting equipment.
- Eliminate water from equipment before transporting.
- Clean and dry anything that comes into contact with water (boats, trailers, equipment, clothing, dogs, etc.).
- Never release plants, fish or animals into a body of water unless they came out of that body of water.



PYW TBS1/02



Produced by
**Tessa Getchis and
Nancy Balcom**

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CTSG-07-01 rev. 2012

For additional information, visit:
[seagrant.uconn.edu/whatwedo/
ais/index.php](http://seagrant.uconn.edu/whatwedo/ais/index.php)

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*With gratitude to Dr. James T. Carlton,
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for providing dates for the non-native species
introductions into Long Island Sound.*



Dead Man's Fingers

Codium fragile fragile

PAST INVADER (LIS -1957)



N. Balcom, CT Sea Grant

- branched, spongy, buoyant green alga
- also called oyster thief, green fleece
- holdfast attaches to rocks or shells
- up to 1 m tall; intertidal to subtidal
- introduced from Asia
- competes for space; can smother shellfish

Green Tuft

Cladophora sericea

NATIVE SPECIES



C. Yarish

- bright green to yellowish brown
- can be attached to hard surfaces or floating in mats
- branches to 25 cm, forms large "tufts"
- found in fresh and brackish waters
- major nuisance to boaters and shellfish producers

Red Seaweed

Grateloupia turuturu

RECENT INVADER (LIS -2004)



P. Van Patten, CT Sea Grant

- large, flat, thick blades with irregular shapes; burgundy, deep red, or maroon in color
- blades may feel “slimy” or grainy
- subtidal, 1-2.5 m deep; year-round
- can reach 2 m in length
- introduced from Japan
- competes with Irish moss (*Chondrus crispus*) for space and resources

Dulse

Palmaria palmata

NATIVE SPECIES



T. Getchis, CT Sea Grant

- large, flat, firm, thick blades, to 50 cm
- single blade fans out from holdfast, dividing into lobes
- dusty rose, pink, light red to dark reddish purple
- subtidal; year-round
- commercially harvested for food in Maine

The Kelsey Point Light

Official Publication of Flotilla 24-8
June 2011



MEETING NOTICE:

Wednesday, 8 June 2011 at 1930
Flotilla Base, Cedar Island Marina
Uniform: Tropical Blue Long or ODUs

AGENDA:

MOMs Patrol
All Staff Officer reports should be in writing — the FC has lots of new business

SEA PARTNERS BOOTH



Jim Terenzio is at the Sea Partners and Boating Safety Booth at Coast Guard Sector Long Island Sound Open House on 14 May. With him is Eric Dyson from Sea Grant, New London. Not shown is Heather Smiarowski of the Branford Flotilla and Mark Bennett, Flotilla Commander who took the photograph.

Wednesday, September 28, 2011

BOATING TIMES[™] LONG ISLAND

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Hey, Neighbor! Connecticut Sea Grant

September 18, 2011 by [Beth Kutcher](#) · [Leave a Comment](#)



Connecticut Sea Grant, based at the University of Connecticut Avery Point campus in Groton, has a mission: conserving and sustaining coastal and marine resources in the Long Island Sound and environs.

In partnership with the National Oceanic and Atmospheric Administration (part of the U.S. Department of Commerce), CT Sea Grant supports research on marina and coastal issues, provides outreach regarding science-based information, and promotes “ocean literacy through education,” according to Nancy Balcolm, Associate Director and Program Leader. This may take the form of sharing information with local communities on sustainable landscaping practices designed to reduce pollution runoff into the Sound, or bringing necessary information to shellfish farmers and commercial anglers.

Currently, CT Sea Grant is funding five research projects that are investigating topics relating to ocean conservation, including the effects of acidification on coastal habitats and the development of seaweed coastal system technologies. In partnership with other northeast Sea Grant programs, CT Sea Grant is also funding research on the impact of the invasive species *didemnum vexillum* on habitats and fisheries, and on mitigating the risks to whales from offshore lobster fishing.

CT Sea Grant oversees numerous programs that provide K-12 teachers with experience and knowledge about the marine environment. Those teachers already knowledgeable about the marine environment share their experience and activities with other teachers, while other teachers travel to sea on research expeditions. Over the past several years, CT Sea Grant has hosted *Aqua Kids*, a show that educates children about the importance of protecting the marine environment, and coordinated various show topics and guest scientists.

An important part of CT Sea Grant is its work in preventing the spread of aquatic invasive species (AIS), and integrating the research into its community outreach. Since the early 1990s, Balcolm says she and CT Sea Grant have worked to “promote awareness of AIS, to develop a



management plan for the State of Connecticut (adopted in 2007), and to draft an interstate AIS plan for Long Island Sound.” CT Sea Grant Workers have posted multi-lingual signs conveying the proper disposal of bait at boat ramps, and have also distributed posters and field cards on invasive species. CT Sea Grant and its partners have recently produced a variety of materials to encourage anglers and boaters to stop the spread of AIS, which pose a danger to human health as well as the environment. “Don’t Dump Bait” and “Keep Hulls Clean” are the encouraging messages placed on stickers, bait boxes, neck wallets, and magnets distributed at boating and fishing shows.

In order to measure the success of their efforts, CT Sea Grant has put together a survey about invasive species. A student questions coastal boaters and anglers at boat ramps and marinas about what they do with unused bait and whether they have seen CT Sea Grant’s educational materials. “What we hope to find is that the behaviors of people that have seen our materials reflect our messages,” explains Balcom.

“If not, our student will take a few moments to discuss invasive species transport and introduction via recreational boating and fishing activities, and share simple steps to reduce the risk of introduction greatly. The results of the surveys will help us determine the effectiveness of our social marketing campaign.”



By Beth Kutcher

Filed under [Blue Water, Green Boat](#) · Tagged with [AIS](#), [Aqua Kids](#), [aquatic invasive species](#), [Avery Point campus in Groton](#), [Beth Kutcher](#), [Blue Water](#), [boat](#), [boating](#), [boating + Long Island](#), [boating kids](#), [Boating magazine](#), [Boating Magazine Long Island](#), [boating on Long Island](#), [boating times long island](#), [Connecticut Sea Grant](#), [CT Sea Grant](#), [didemnum vexillum](#), [Don't Dump Bait](#), [Keep Hulls Clean](#), [LI boating magazine](#), [li sound](#), [lobster fishing](#), [Long Island](#), [Long Island boating magazine](#), [Long Island Sound](#), [Nancy Balcolm](#), [national oceanic and atmospheric administration](#), [noaa](#), [ocean literacy](#), [peconic bay](#), [U.S. Department of Commerce](#), [University of Connecticut](#)

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Article published Jun 14, 2011

Local anglers asked to help protect Sound from invasive species

By [Judy Benson](#)

Connecticut Sea Grant begins campaign to keep invasive species out

With stickers, key chains, posters and face-to-face conversations, Connecticut Sea Grant hopes to convince boaters and fishermen that their everyday actions on the water can make a big difference when it comes to invasive species in Long Island Sound.

This summer, Sea Grant, based at the University of Connecticut's Avery Point campus in Groton, has begun a campaign to prevent the spread of invasive species from boat hulls and leftover bait. The message will be conveyed in signs at boat launches, materials given out at marinas, and through in-person interviews and surveys at boat launches, said Nancy Balcom, associate director, program leader and extension educator at Connecticut Sea Grant.

The neck wallets, key chains and rulers for measuring fish being given out bear the slogans "Stop Aquatic Hitchhikers - Keep Boat Hulls Clean," and "Protect Our Waters - Don't Dump Bait." Members of the Coast Guard Auxiliary who do vessel inspections will also talk to boaters and anglers about the importance of washing hulls before transporting vessels from one waterway to another.

Equally important is disposing of leftover bait and the seaweed it's packed in - which, if not from a local source, can carry invasive algae and other organisms - in the trash rather than throwing it overboard.

"It's going to be just a real basic message," Balcom said. "The fact is that things can be introduced."

The new project is funded with a \$33,000 National Fish and Wildlife Foundation grant, said Balcom, who's been working on invasive species outreach programs for the past 18 years.

"We hope to talk to hundreds of people and to get some sense of whether the message is getting out there," she said.

Safe-boating courses offered by the state Department of Environmental Protection include a section on preventing the introduction of invasive species. That message is also mentioned in DEP boaters' and anglers' guides, available at marinas and bait shops.

But there's still a need to make sure everyone on the water regularly is getting the message, Balcom said. About 30 marinas around the state were chosen to receive the printed materials, including Noank Village Boatyard, Thamesport Marina in New London and Three Belles Marina in Niantic.

"We selected marinas that cater to transient boaters," she said.

While the printed materials left at marinas are an important part of the campaign, Balcom said, the most effective means may end up being face-to-face conversations, both during surveys Sea Grant plans to begin conducting in July at the boat launches and during inspections.

"We all get numb to that stuff," she said. "But when someone hands you materials and then asks you questions, you can have that conversation."

The Connecticut Sea Grant project is part of a larger collaborative effort involving Sea Grant programs in Maine, New Hampshire, New York, Rhode Island, the Massachusetts Institute of Technology and the Woods Hole Oceanographic Institute to prevent the introduction of invasive species into the region's waterways. Invasive species can severely impact ecosystems, threaten human health and cause economic damage, according to the Northeast Marine Introduced Species project website.

Common examples of invasive marine species are shipworms that damage piers and non-native

crabs "that feed on shellfish native species and cost the aquaculture industry tens of millions of dollars each year," according to the website.

Among species of concern for northeast waters are red and green algae native to Asia; sea squirt from Europe and Asia; green crabs and shore crabs from Europe and Asia; and wood borers from the Pacific.

Diane Womack, general manager of Hannah Mac's Bait, Tackle & Charters on Pequot Avenue in New London, said she tells anglers when they come to buy bait to make sure they don't throw unused bait and seaweed overboard. She is well aware of the damage invasive species can do to native fish and shellfish, she said.

"As a new business, I want to make sure everybody does the right thing," Womack said. "I want my grandchildren to be able to fish in these waters."

j.benson@theday.com

(*Spartina alterniflora*) mixed in with it were examined for signs of other macroalgal species. Samples from each sample were incubated at three temperatures, 5°, 15°, and 25°C, for 10 days to encourage growth of these "hitchhikers" so that they could be positively identified.

The samples destined for microalgae investigation were shaken in sterilized water and filtered into sub-samples for either examination by microscope, initial DNA extraction, or culture for 7 days under intense light followed by DNA extraction. The DNA samples were then run through the biological technique called polymerase chain reaction (PCR) and sequencing to determine if any were present. The results of the PCR were validated by comparing the gene sequences to GenBank, the National Institutes of Health genetic sequence database containing a collection of known sequences.

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Yarish, Charles; Whitlatch, Robert; Kraemer, George; and Lin, Senjie, "Mollusks and their associated diseases via the Live Bait Vector in Long Island Sound" (2009). *Publications*. Paper 10.









