

Lower Connecticut River Water Chestnut, *Trapa natans* 2018

Report for:
Cynthia Boettner, Coordinator
Invasive Plant Control Initiative
Silvio O. Conte National Fish and Wildlife Refuge
U.S. Fish and Wildlife Service
103 E. Plumtree Rd.
Sunderland, MA 01375

Submitted by:
Margot Burns
Environmental Planner
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Portland Boat Works Pull 2018 – Where There is a Will, There is a Way!

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Outreach, Collection, and Survey

Trapa natans work in the lower Connecticut River, Haddam to Long Island Sound, has been ongoing since the summer of 2011. From 2011 to 2013 the Lower Connecticut River Valley Council of Governments (RiverCOG) partnered with Tidewater Institute through funding provided by U.S. Fish and Wildlife to survey, pull, and conduct public outreach in the lower River region. The final report for that project is available through RiverCOG. Since 2014 RiverCOG's *Trapa* work became part of our Unified Work Program and is funded through the Federal Highway Administration, State of Connecticut Department of Transportation, and the municipalities of the RiverCOG represented by an 80/7.6/12.4 funding breakdown.

This funding through US Fish and Wildlife Service allows RiverCOG to continue its public outreach work, monitoring, and pulling of existing water chestnut sites in partnership with the State of Connecticut Department of Energy and Environmental Protection (CT DEEP). Outreach in 2014 and 2015 included creation of a large informational postcard (Fig. 1) that was mailed to landowners along the main stem and major coves of the lower River in the towns of Haddam, Chester, Deep River, Essex, East Haddam,



and Lyme and a flyer (Fig. 2) designed to be hung on doorknobs and hung on bulletin boards etc.. They have been a great resource and have continued to be distributed for the 2018 season.

Through 2018 marinas have been visited each year to leave postcards and flyers on bulletin boards and at front desks to replace what is taken down each fall and talk with current staff. Many of the marina owners and managers hang the flyers in their lady's and men's rooms as

they feel this is where they will be seen the most. Flyers have also been posted at primary canoe and kayak put-ins and boat launches, youth camps, and commercial establishments. In 2017 additional,

important new connections were made at Black Hall Outfitters in Old Lyme, a kayak rental location and educational program provider who will include *Trapa* education within their program, and to Camp Claire in Lyme on Hamburg Cove where a presentation was given to counselors concerning *Trapa* and the need for their help in stewarding the Cove. They were contacted this year but did not ask for another presentation, however we did receive a call this season

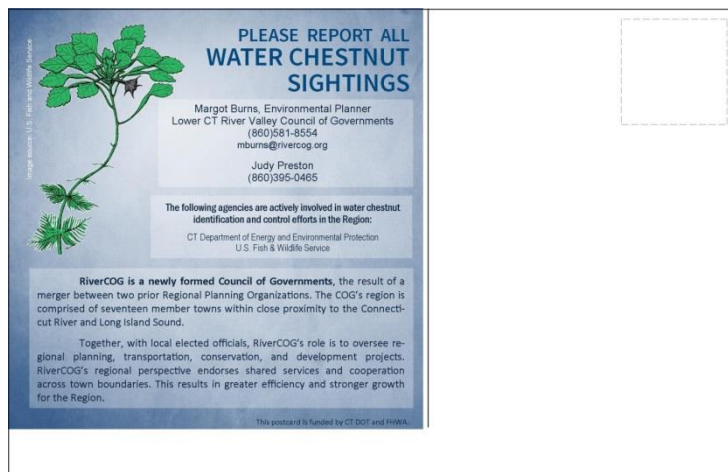


Fig.1 – Postcard

from a young camper of Pettipaug Sailing Club to report she had found 10 seeds on a sand bar in the river and 1 in Selden Creek when she was out boating with her mother. She had learned about the plant from the counselors at camp. An attempt will be made again next year to provide a presentation to the camp counselors. Where residential properties abut existing Trapa locations (Selden Cove and



**HAVE YOU
SEEN THIS
PLANT ?**



Trapa natans

WATER CHESTNUT

Please help us keep this dangerous aquatic plant out of the lower Connecticut River.

FOR MORE INFORMATION:
(860) 395-0465

Water Chestnut

- Infestations **limit boating, fishing, swimming and other recreational activities**
- Cost of Lake Champlain Water Chestnut Management 1982-2001: **\$4,316,886**
- Grows rapidly in any freshwater setting - from intertidal waters to **12 feet deep**
- Forms dense floating mats, severely limiting light – a critical element of aquatic ecosystems; Once established, can reduce oxygen levels, increasing chance of fish kills
- Fruit is a nut with four ½-inch, barbed spines that **puncture tires**; Seed dormancy can be from 4 months to **12 years**
- This is **NOT** the familiar Chinese water chestnut, sold in cans and commonly served in Chinese restaurants




Water chestnut prevents nearly all water use where it occurs, creates breeding grounds for mosquitoes, and provides only marginal habitat for native fish and invertebrates.

**IF YOU FIND THIS PLANT
PLEASE LET US KNOW**

Margot Burns, RiverCOG
860-581-8554
Judy Preston
860-395-0465



Fig. 2 – Trapa Flyer

Brockway Ferry boat basin) home owners have been visited yearly and now allow us to access the sites from their property. This season, as well as the last 2, a show was taped for WMRD radio in Middletown for their CT Outdoors program. Field work for the 2014, 2015, and 2016, and 2017 field season

consisted of pulling and monitoring at existing *Trapa* locations that included: Salmon Cove in Haddam and East Haddam, Selden Cove and Eustasia Island east side inlet in Lyme, the Brockway Ferry boat basin in Deep River, and just north of the Haddam Bridge below Camp Bethel. Three new locations were found in 2017. Chrisholm Marina in Chester called and reported *Trapa* located along the south side of their entrance channel, about 25 rosettes, which were subsequently pulled by RiverCOG; one plant was found at the entrance to Pratt Cove in Deep River near Deep River Marina while we were scouting; and *Trapa* was also found at the entrance (3-5 plants) and within the entrance channel (6 stems) to Whalebone Cove in Lyme. Although we were not happy to hear the marina had found *Trapa* we were overjoyed to know that our visits and conversations over the last 6 years had made a difference. We were also able to enlist a steward for the site, a boat owner that is retired and lives at the marina in the summer. Outreach was also begun with private land owners on Chapman's Pond in East Haddam and they will allow us easy access to the area for monitoring. Outreach has also included Lyme Land Conservation Trust and access to Joshua's Creek which has been granted by a private land owner. A contractor they have hired for phragmites control reported that they had not found any *Trapa*.

The 2018 U.S. Fish and Wildlife funding to RiverCOG has allowed the Agency to continue partner coordination with other organizations in the lower River region including the Jonah Center, the Connecticut River Museum, the Connecticut River Conservancy, and the Friends of Whalebone Cove. Because of 2017's successful efforts concerning outreach and stewardship efforts it was decided that the 2018 season should focus more heavily on early pulls in already known occurrence locations, making sure that areas not surveyed this year were adequately stewarded, as well as outreach and survey in the Middletown area. In 2016 RiverCOG provided an informational session and material for the Jonah's Center first volunteer surveying / pulling canoe and kayak event that summer on the floating meadows in Middletown. That event and 2 subsequent events ultimately revealed a large quantity of *Trapa* in more than several locations in the floating meadows between the towns of Middletown and Cromwell and the confluence of the Mattabesset and Coginchaug Rivers. In 2017, the Jonah Center and the Connecticut River Conservancy provided unparalleled leadership in organizing community volunteers, as well as resources, in confronting the impending real threat to the health and wellbeing of these river systems by organizing a second year of pulling events and informational meetings in which RiverCOG attended. This led to the relationship with Friends of Whalebone Cove and last year's intern program and subsequent finding of *Trapa* in Whalebone Cove and a volunteer that searched Pecausett Pond in Portland, a worrisome area due to its proximity to the floating meadows where there is an abundance of *Trapa*. The intern's activities also took them to Selden Cove where they were able to pull some smaller widespread plants while working on a submerged aquatic vegetation inventory.

In 2016 surveyed locations included Lord's Cove in the town of Lyme and Old Lyme, Selden Creek in Lyme, and Salmon Cove and River to Pine Brook in Haddam and East Haddam. Some survey work was transferred from the pre-season list of most important sites to survey, which included Lord Cove, Selden Creek, Clark's Creek, and Joshua's Creek to spend time surveying Salmon Cove and Salmon River due to the increased reports and spread of *Trapa* within the Cove. They were priority areas again for the 2017 *Trapa* season. With the help of CT DEEP *Trapa* was pulled from both Selden and Salmon Cove on 7/22/16 and again on 7/27/17. The pull for Selden's was estimated at about 90 cubic feet, a bit less

than 2016 and a lot less than 4 years prior, for Salmon Cove, an estimated 45 cubic feet, maybe half of the amount of 2016. It is unclear how much if any was removed by other paddlers that frequent Salmon Cove and Selden Cove, although there were some small amounts removed from Selden Cove by the interns working for Friends of Whalebone Cove. 2017 RiverCOG survey areas included the Deep River between Deep River and Chester, Pratt upper and lower Cove and Post Cove in Deep River, and upper and lower Chester Creek and marinas in Chester.

For 2018 I am happy to report that we did not need help from the CT DEEP in either Salmon Cove or Selden Cove. **We believe that deciding to go out early and visiting twice dramatically lessened the work load through the reduction of biomass and the ability to pull plants we removed with the seed before the plants were heavily rooted and entangled in other vegetation. We also hope that we have gained good control over our more heavily infested locations through persistent diligence.** We reached out to our region's lake associations this year through a mailing of a letter and the informational flyer. They were well received and included:

- Rogers Lake Association, Old Lyme;
- Lake Hayward Association, Colchester;
- Laurel Cove Association (Bashan Lake), East Haddam;
- Moodus Estates (Lower Moodus Reservoir), East Haddam;
- Moodus Lake Shores (Upper Moodus reservoir), East Haddam;
- Moodus Sipple Hill Estates, East Haddam;
- Bashan Lake Association, East Haddam;
- Moodus Reservoir Preservation Group, East Haddam;
- Hidden Lake Association, Haddam;
- Lake Besick Association, Middlefield;
- Friends of Lake Pocotopaug, East Hampton;
- Deer Lake Scout Reservation, Killingworth;
- Bushy Hill Nature Center, Essex.

Current State of Existing Trapa Locations in the Lower River –

Haddam to Long Island Sound

- **Brockway Ferry boat basin, Deep River:** Pulled and monitored since 2012; In 2014 only pulled a few plants; 2015 pulled 10 large plastic bags; 2016 4 medium size plastic bags; 2017 1 small plant found and pulled; and 2018 one small rosette found.
- **Eustasia Island, Lyme:** 2011 fairly large quantity – 2016 no plants found; 2017 about 30 rosettes found and pulled at north end of inlet; 2018, 1st visit early July, found 2 small areas of young plants at north/back end of inlet, second visit beginning of August found 3 small plants within the active wave zone of the sand bar at the opening of the inlet and along southern shore.

- **Selden Cove, Lyme:** Found 2014, 2 large thick areas found – approximately 500 cubic feet removed. 2016 approximately 170 cubic feet removed – much less but spread over wider area of cove; 2017 about 45 cubic feet pulled; 2018 mid-July visit found scattered plants throughout the cove, the largest patch was found in the northwest corner north of docks on west side of the cove. Ct DEEP survey end of the month found no other plants. Because the plants were still young they only yielded about a ½ a kitchen garbage bag at most.
- **Salmon Cove, Haddam – East Haddam:** 2013 medium not very thick site in east inlet pulled, there have been 2 or 3 visits a year with good control. 2015 abundant wild rice prevented effective monitoring and pulling. 2016 much less wild rice in inlet - good patch pulled, but not thick. *Trapa* has been found and pulled throughout the narrow southern part of the cove and along the margins of the upper cove in the past 2 years. 2016 found a very thick patch on the east side of the stem of the cove (this was a surprise) as well as other patches around the perimeter. Approximately 170 cubic feet pulled in 2016. This site is the most troublesome because of its size and shallow nature; 2017 about 90 cubic feet pulled, the large patch seemed to have migrated south from 2016; 2018, 2 visits in July, small amounts found in east side inlet both trips, one area especially far to the back, most prolific area was the heavy patch from last year on the west side of the cove where the neck enters the wider cove.
- **North of Haddam Bridge, west side - Haddam:** Small amount spread over a long area - pulled 2013, 2014, 2015. Only a couple of plants found 2016; 2017 non found; 2018 non found.
- **Whalebone Cove, Lyme:** 2017 - several plants found at entrance and midway up entrance channel; 2018 about 45 rosettes found by Friends of Whalebone Cove, northeast quadrant (Fig 3).
- **Pratt Cove, Deep River:** 2017 - one plant found.
- **Chrisholm Marina, Chester:** 2017 – about 25 rosettes found on south side of entrance channel; 2018 no plants found.



Fig. 3 – Friends of Whalebone Cove

We seem to be making head way as we endeavor to keep *Trapa* out of the lower Connecticut River below Middletown. Although additional locations have been found in the past few years (Fig. 4) we believe they were first season plants and they were pulled before they were able to set seed. Our most troublesome locations, Salmon Cove and Selden Cove seem to have less *Trapa* this year than last.

Two locations were found to be free of plants, north of Haddam Bridge and the Brockway Ferry boat basin (only 1 small undeveloped rosette). We have also increased the number of stewards for specific locations over last year and our public outreach seems to be doing its job as we are receiving notifications when *Trapa* is found. This is very

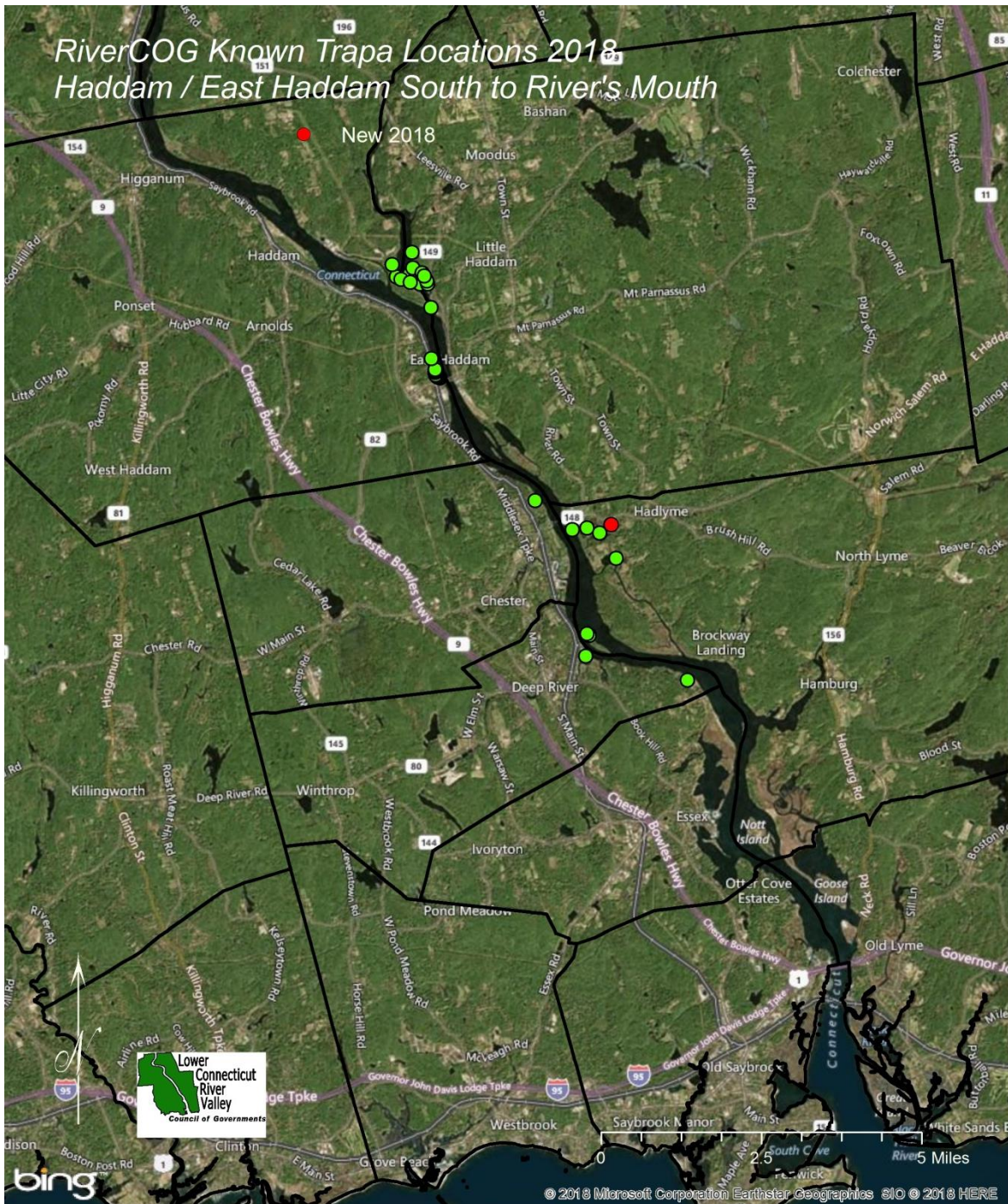


Fig. 4 Trapa Locations – Haddam to Mouth of River 2018

encouraging and puts us in a good position to have a very effective *Trapa* season in 2019 in the lower River region below Middletown.

Middletown/Portland/Cromwell

For the purpose of Trapa work RiverCOG's program has only participated in the Middletown area as an on request for need for information due to the Connecticut River Conservancy taking that portion of the River in Connecticut from Middletown to the Massachusetts border. This year we received a report from RiverCOG staff they had found Trapa at the Portland Boat Works across the River from Middletown in Portland, CT. RiverCOG visited the marina and with considerable help from marina staff the infestation was cleared. Outreach in the form of staff visits were done to all the marinas in Portland and will become a regular part of each year's Trapa program. **Of great concern is the continued areas of new Trapa emergence along this part of the River which we believe is being fueled by the abundant Trapa which is located in the Mattabeset River. Trapa was also located just south of Gildersleeve Island at the entrance to the inlet on the west side of the River in Cromwell at the Deadman's Swamp Unit. It is thought that there is Trapa located in the inlet itself which will be checked on next field season.**

Very serious concern surrounds the pulling of Trapa in these locations because of suspected Hydrilla. In a survey of the River from Portland Boat Works to Wethersfield Cove on August 30th, 2018, made possible due to a request for help from the United States Coast Guard and Captain of the vessel Executive Petty Officer Lee Caddell and his crew, Coast Guard ANT Long Island Sound, out of New Haven, CT (Fig. 5) after a fortuitous meeting while we were both putting in for field work at Portland Boat Works, large areas of suspected Hydrilla were documented and samples taken from 10 locations (Fig. 5). A sample was tentatively identified as Hydrilla through the University of Connecticut and samples have been sent for genetic testing, through help from the Northeast Aquatic Nuisance Species Panel (NEANS), to the University of Wisconsin's Nicholas Tippery, Ph.D. as of the writing of this document.



Fig. 5 - Executive Petty Officer Lee Caddell (right) and his crew, Coast Guard ANT Long Island Sound, out of New Haven, CT

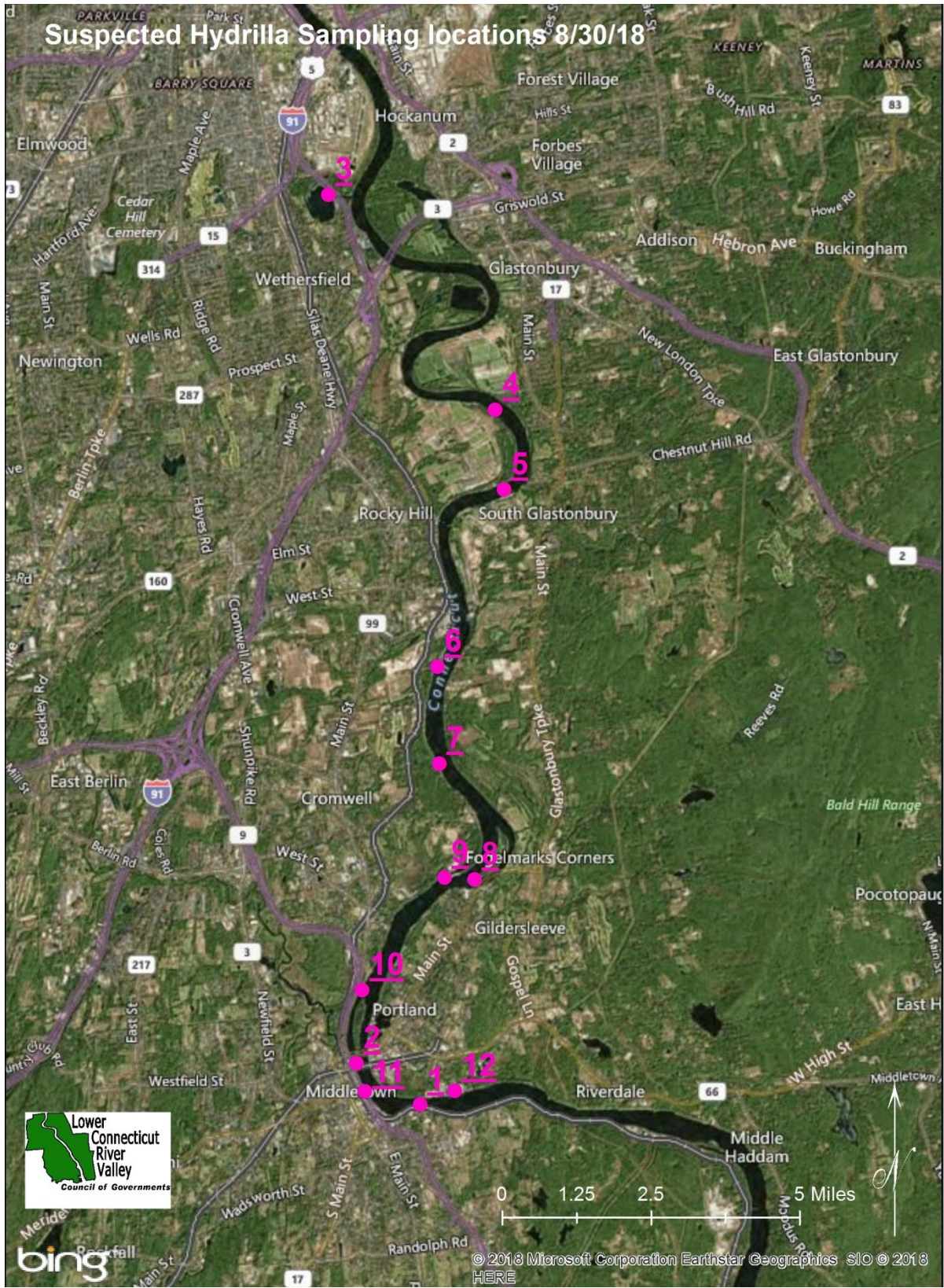


Fig. 6 – Hydrilla Sampling Locations 8/30/18

Hydrilla Sampling Locations 8/30/18

