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2017 Lake George Asian Clam Lake-Wide Survey: Final Report

September 20, 2017

Year 2017 marked the sixth year of the lake-wide survey to identify any new locations of invasive Asian clams (*Corbicula fluminea*) in Lake George. Asian clams were first discovered in Lake George in 2010, and considerable effort and cost have gone into aggressive efforts to eradicate and/or control this invasive species. Left unchecked, Asian clams can reproduce exponentially and cause negative ecological and recreational impacts to a waterbody. The Lake George Asian Clam Task Force was created to address this threat, consisting of agencies, nonprofits, and municipal leadership around the Lake George watershed.



2017 Lake-Wide Survey Methods

The LGPC conducts the organization of this annual survey, which had the benefit of more than 30 people who signed up to participate. Participants ranged from agency and nonprofit staff to private individuals with an interest in the lake, who spent a combined 350+ hours of time conducting this survey (many volunteers worked more than one day). The survey work includes sieving (like panning for gold) through all sandy areas throughout the shoreline of Lake George to find any new populations of this invasive mollusk. If any clams are found which appear to possibly be Asian clam, they are brought to the Darrin Freshwater Institute for confirmation.

Four boats were utilized in this year's effort (LGPC Tritoon, two LGPC Marine Patrol vessels, and the Lake George Waterkeeper Boat). The shoreline was divided up into sections that are assigned to each boat, and it was the responsibility of the boat's captain each day to survey that area of shore. When a sandy area was identified (preferred habitat), the survey crew on the boat entered the water and took several sieves depending upon the size of the site. Small sites might only require as few as 20 sieves, while large delta areas can include as many as 500 or more sieves.

This year's survey was planned for five days (Monday, August 28th – Friday, September 1st), but Thursday was cancelled due to inclement weather. Luckily, the survey was completed in just four days this year, and the Thursday survey day was not needed.

Key Findings

This year's lake-wide survey identified four new locations of Asian clams in Lake George. This brings the total number of Asian clam sites to 23 throughout the lake, mostly in the southern basin on the more developed western shoreline which has many sandy areas. All known sites are summarized in a table below and identified on a map in this report, provided by Kristen Wilde and Randy Rath of the Lake George Association.

New Sites Include:

1. Tea Island Bay, Lake George – This site is the beach of the Alpine Village Resort on the north side of the Village of Lake George. This site is approximately 0.5 miles north of the English Brook delta, which is the closest known Asian clam site. However, given the relatively close proximity to the delta and all of the affected Village shoreline to the south, this is not entirely unexpected. The site exhibited anywhere from 1-3 clams per sieve on average, generally within the main beach area.
 - a. Determination: No treatment recommended due to close proximity of large affected areas.
2. Cramer Point, Lake George – Asian clams were discovered in the majority of the small beaches on the south side of Cramer Point, approximately 0.3 miles north of the NYS Hearthstone Point campground beach. Densities per sieve ranged from 1-3 on average in most of the beaches.
 - a. Determination: Treatment effectiveness would be limited at this location due to the relatively large size of the affected area and the presence of several large crib docks. No treatment planned.
3. Braley Point, Bolton – Asian clams were discovered at the beach of the Summer Wind Lodge approximately 1/3 mile north of Veteran's Park Beach in Bolton Landing, which is a known affected site.
 - a. Determination: Similar to the two other sites, the presence of the crib dock and the inability to lay benthic mats effectively eliminates this site as one that can be successfully eradicated. No treatment planned.
4. Lake George Club, Lake George – One Asian clam was discovered at the small beach at the Lake George Club, approximately 1/4 mile north of Middleworth Bay, which is a known affected site.
 - a. Determination: No treatment planned due to docks and proximity to Middleworth Bay.

Current Status

With the addition of the four newly identified Asian clam sites in Lake George, the total number of known sites has been raised to 23. Combining all of the known area of lake-bottom that contains the invasive Asian clam in Lake George as of this report, it appears that the total area exceeds 100 acres. Given that Asian clam control and eradication efforts cost upwards of \$80,000 per acre, the cost of treating Asian clam affected areas lake-wide is cost-prohibitive and logistically beyond the current ability to successfully manage.

The most recent Asian clam treatment site (2015), Rogers Rock campground in the Town of Hague, was seen as a success for the following year when no clams were discovered in 2016. However, in 2017, LGA staff conducted a comprehensive survey of this site and noted that clams were again present in this location.

Given the high cost of treating such sites (more than \$100,000 for two acres of treatment for Rogers Rock) and the difficulty of guaranteeing eradication, treatments using benthic barrier are largely on hold at this time. The control efforts from a percentage basis have been highly effective (96-100% mortality in most cases), but wherever even a small population of clams remain, they tend to repopulate quickly. There is a fairly strong boom/bust cycle in the Asian clam populations in Lake George at the current time, with some sites retaining high densities and populations, and other sites only a fraction of their densities from previous surveys. At this time, there have not been any significant recreational or environmental impacts from this species in Lake George, although populations have been expanding throughout the lake and the future remains unclear.

Research into a possible natural control vector (Chaetogaster worm) discovered by scientists at the Darrin Freshwater Institute in Bolton are promising, and work is being conducted to learn about this species and its effects on Asian clam populations. Work is ongoing at DFWI to follow-up on early research into this species, and funding these efforts is a top priority for the Task Force. Research has also been conducted by DFWI on topics including Asian clam reproduction, transport, settling and growth rates, and work continues on these efforts today.

The Commission would like to thank everyone who has participated in this lake-wide survey effort, as it is critical to helping ensure identification and potential management of this invasive species on Lake George. We also thank the many involved funding organizations and agencies for providing the necessary resources to address this threat to the best of our abilities.

Dave Wick
Executive Director
Lake George Park Commission

Lake George Asian Clam Sites (As of 9/15/17) Color by Year Discovered

	Year Found	Site Name	Location Details
1	2010	Lake George Village	First found at Lake Avenue Beach in Aug 2010. Shepard's Park added in 2011. Site now includes English Brook Delta South, all the way around to the Steel Pier.
2	2011	Middleworth Bay	Includes Treasure Cove, Beckley's, Capri Village
3	2011	Boon Bay	Includes Chelka Lodge and out to Hemlock Point. 8.06 Acres delineated in 2012
4	2011	Norowal Marina	Includes Sawmill Bay Marina, Bolton Boat Rentals Veteran's Park Beach added 2015
5	2012	Diamond Cove	Includes Golden Sands Resort and Blue Lagoon Resort (added to site in 2014)
6	2012	Paulist Fathers	Hwang property south of Paulist Fathers. 0.20 acres in 2012 43°26'14.0"N 73°41'06.5"W
7	2012	Shelving Rock Bay	1.43 acres in Fall 2012
8	2012	Lake Forest	0.94 acres in 2012 Site just to the south at 8940 Lake Shore Drive added in 2017
9	2013	Glenburnie	43°45'49.8"N 73°27'27.8"W
10	2013	South Basin Bay	First located by culvert outfalls adjacent to Cotton Point road, has spread in a limited fashion since
11	2013	Cotton Point	Includes Northeast side of Cotton Point, Cotton Island Bay South, South Beach Association, and Northeast Hemlock Point
12	2013	Sandy Bay	Primarily in the southernmost point, but spread throughout
13	2013	Million Dollar Beach	From cement pier east of Dog Beach to East Brook Delta
14	2014	Jacobi Point	Candlelight Cottages 43°34'27.7"N 73°38'46.0"W
15	2015	North Basin Bay	Basin Bay Association Beach & Rainbow Beach Association beach
16	2015	Rogers Rock	DEC Campground Beach
17	2016	Cape Cod Village	North of Jenkins Brook Delta at Cape Cod Village and the docks just to the north
18	2016	Edmunds Brook	South side of Edmunds Brook Delta north of Juliana Motel Juliana Resort added in 2017
19	2016	Sand Pebble Cove	200 feet of shoreline with 2 stake docks and 2 crib docks
20	2017	Bralely Point	Summer Wind Lodge 43°34'01.6"N 73°39'02.5"W
21	2017	Tea Island Bay	Alpine Village 1-3 clams per sieve 43°26'22.1"N 73°42'08.4"W
22	2017	Cramer Point	West shoreline includes the majority of the private beaches Concentration varied 1-6 clams per sieve
23	2017	Lake George Club	1 small clam found 43°29'51.0"N 73°40'29.3"W



Asian Clam Locations

Lake George, NY

as of September 5, 2017



Known 2010 -2016 sites in black. New sites found during 2017 lake-wide survey in red.