



Asian Clams in Lake George

A New Invader

Asian clam was found in Lake George in August, 2010 at the southern end of the lake in Lake George Village. The threat to Lake George and the Adirondack Park was quickly grasped by

Lake George, Lake Champlain, and Adirondack Park civic and regulatory communities. A Rapid Response Task Force formed to coordinate efforts to eradicate this new invader from Lake George before it has a chance to take hold and to help prevent its spread to other nearby waterbodies.

What is the Asian clam?

The Asian clam, *Corbicula fluminea*, is a small bivalve that is native to southern Asia, the eastern Mediterranean, and Australia. They are small, usually less than 1.5 inches in size, and have a light tan or brown shell (color varies) with distinctive concentric ridges.



2010 Asian Clam Rapid Response Timeline

August 19

Asian clams found off Lake Avenue Beach.



August 25

First meeting of Task Force.



September

Additional surveys for details of infestation at Lake Avenue site. Size of infestation now estimated to be around 4 acres. Over 8,000 clams per square meter documented.



October 9 & 10

Mats for pilot study are installed at Lake Avenue & Park Lane sites.

October 25

Removed first section of mats. Initial results - lots of dead clams!



November 23

Last day of pilot study.

August 20-22

Initial surveys. Up to 600 clams per square meter were documented, total invasion covering an area of approx. 2.5 acres.



August 26 & 27

Additional surveys by boat and scuba to determine extent of invasion.

September 28 & 29

Scientists from Lake Tahoe visit to share their experience with battling Asian clam.



October & November

Water from under mats sampled every 5 days. Some mats removed at day 15, 30, and 45.

December

Meeting of Task Force to discuss results of pilot study and begin planning for full scale spring effort.



Asian Clams in Lake George

Asian clams are efficient filter feeders capable of rapid growth. This means they can:

- **Impact water quality by promoting algal blooms.** Asian clams excrete high amounts of nitrogen and phosphorus from the sediment and make it readily available to algae.
- **Facilitate more invasions.** Asian clam shells provide a hard surface and a supply of calcium for zebra mussels.
- **Clog pipes and litter beaches with dead shells.** As the clams die, their shells pile up, and can clog pipes or cover sandy beaches.
- **Outcompete native mollusks.**

Lake George has a great diversity of native mollusks that grow slowly and can live for decades. They aren't equipped to compete with fast growing Asian clams for food and space.



Algae over clam beds in Lake Tahoe

courtesy of Brant Allen, UC Davis

2011 Asian Clam Rapid Response Timeline



March - April

Developing outreach materials about the project: Signage for beach areas, brochures for hotel guests, online blog, hotline phone number.

January - March

Task Force meeting regularly to plan for spring treatment as soon as possible after ice out.



April 25-May 27

Over 825 mats are installed. Over 175 mats have ports for scientific monitoring.



July 13

Second infestation of Asian clams found 6 miles up the lake at Boon Bay. Estimated at 4-5 acres in size.

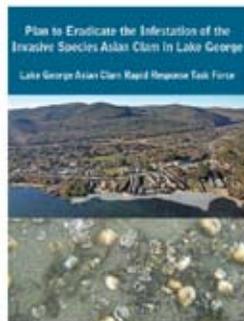


July 18-20

2,000 sand bags added to mats to improve effectiveness for additional treatment time.

February 3

Site delineation work continues.



March 18
"Plan to Eradicate the Infestation of the Invasive Species Asian Clam in Lake George" is Finalized

April

APA, DEC, and USoC issued permits for Lake George Village Project site.

April 25
Project starts!



May 31 & June 1

First round of scientific monitoring of DO levels under mats begins.



June 17-July 15

Mats removed from resort and public beach areas after 30-45 days of treatment. Mats had a 97% kill rate in these areas.

Late July

While work at project site continues, planning for a more comprehensive lakewide survey is also underway in light of recent discovery of second infestation site.



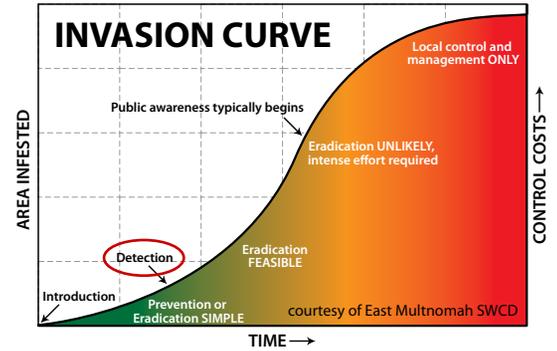
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What's the big deal?

In Lake Tahoe researchers first discovered the Asian clam in 2002, but control measures were not started until years later after algal blooms over Asian clam beds were being reported. Lake Tahoe is now past the point where eradication is possible. They have spent \$1.4 million working to manage and control clam populations in areas of greatest impact to the lake's fragile clarity. We don't want the same thing to happen to Lake George!

Now is the time to act!

Eradication of Asian clams in Lake George is still possible if we act quickly. Acting now will save Lake George millions of dollars in control and management efforts and prevent future losses from declining water quality, tourism and recreational use, and property values.



2011 Asian Clam Rapid Response Timeline

July 29

Local municipal and state and federal govt. representatives meet with Task Force at Bolton Town Hall. The Honorable Senator Betty Little chairs the meeting.



July 31

Third infestation site is found at Norowal Marina in Bolton Landing. Site appears to be small, around 1 acre.

August 2-4

55 marinas and public beaches are surveyed lakewide for Asian clams.



August 28

Tropical Storm Irene hits Lake George. Mats are torn up. Clams and sediment are tossed around.



late Sept - mid October

Mats from spring treatment removed from Lake Avenue project site. Cleaned and processed off site to be reused at Lake Avenue and other project sites for fall treatments.

July 27

Interim Report Released

Preliminary results show that the project is working - however DO levels have not remained low enough for 45 consecutive days. More treatment time is needed to be effective. Wave and boat action have made it harder than anticipated to keep the mats sealed.

August 2

Fourth infestation site found in a cove that includes the shoreline of Treasure Cove Resort and Beckley's Marina.



August 9

Small outlier site of clams found south of original project site off Shepard Park Beach in Lake George Village.

September 16

Warren County holds public hearing and passes new county-wide aquatic invasive species transport law.

September 21- October 14

Lakewide survey of over 100 sites find no new additional sites of clams. Over 160 sites have been surveyed around the lake to date.



October

Permits received to treat Norowal and Shepard Park sites this fall.



Asian Clams in Lake George

The costs keep climbing.

Treating Asian clams in Lake George is very costly. State agencies, local municipalities and environmental groups have all pitched in to help fund the program. And many groups have given countless hours of staff time toward the project as well. 2011 expenses are expected to exceed \$630,000 with more expenses to come in 2012.

Thank you to everyone who has generously provided project funding:

- Lake Champlain Basin Program \$75,000
- Lake George Park Commission \$225,000
- LGPC (administering DEC funds) \$75,000
- NYS Dept of State \$30,000
- Lake George Association \$25,000
- FUND for Lake George \$25,000
- Adk. Park Invasive Plant Program \$10,000
- The Nature Conservancy's Dome Island Committee \$10,000
- Village of Lake George \$5,000
- Town of Lake George \$5,000
- Town of Bolton \$10,000
- Town of Queensbury \$5,000
- Town of Hague \$5,000
- Town of Ticonderoga \$3,000
- Town of Dresden \$3,000
- Warren County \$130,000
- Washington County \$5,000
- Essex County \$2,500

2011 Asian Clam Rapid Response Timeline

October 18

Treatment at Norowal begins.

Around 260 mats are installed at Norowal marina to treat the infestation area of about 2 acres.



November 12 & 13

Lake Tahoe Researchers Visit

Scientists and managers from Lake Tahoe visit to share their work with Asian clams in their lake and to exchange ideas with the LGACRRTF.



October 20

Treatment at Shepard Park begins.

Only a very few clams were found at this site, which is very close to the original project site. 11 mats are being used to treat the outliers found here.



November 28

Mat Removal Begins

Mats are removed in the order they were installed at treatment locations.

December 12

Treatments done for 2011

All mats and materials are out of the water. Treatment results will be analyzed.

October 11

Phase 2 at Lake Avenue begins.

Divers start installing 380 mats. Beach areas, which still had live clams after their shortened treatment time, are being recovered. Part of the site on the north end that could not be covered in the spring is being treated as well.



November 11

Treatment at Treasure Cove begins.

A new treatment method, suction harvesting, is being piloted at this site due to the rocky, uneven nature of the lake bottom here (which makes it hard to get a good seal with benthic barriers).

November

Maintenance & Monitoring Continues

The mats at Norowal, Lake Avenue, and Shepard Park are maintained by divers and monitored for oxygen and ammonia levels periodically.

December 3

Treatment at Treasure Cove Ends

6 inches of sediment, along with clams, have been removed from the treatment site. Now the bags must dewater for the next few weeks.



Stay tuned for the results of the 2011 treatments and the plans for 2012....

For more info go to www.stoptheasianclam.info