Asian Clam Survey

Owasco Lake July 26, 2017



Thanks to:

- Ed Wagner, OLWMC
- Drew Snell, Owasco Lake Watershed Specialist
- Tim Schneider, Kathryn Velone and Josh Allan,
 Owasco Lake Watershed Inspectors
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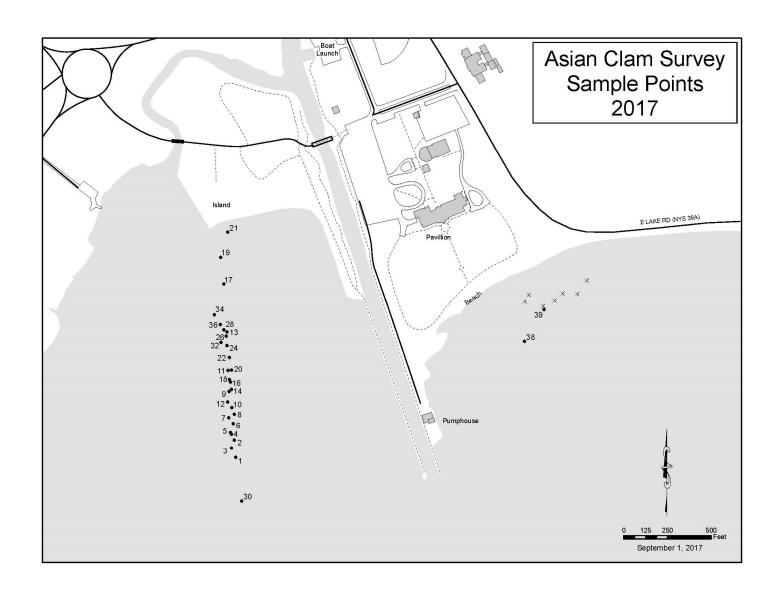


Asian Clams

- Were discovered in Owasco Lake in September 2010.
- Larval clams are released from adults at about 0.25 mm in size.
- First year growth rates after initial spawn through the summer to early fall of about 4 mm a month.
- Asian clams can reach 10-30 mm in size during their first year depending on food availability and temperatures.
- In Lake George clams were not identified as reproductive until they reached a minimum size of 12.7mm.
- Timing of reproduction in Lake George is mid June through mid October.

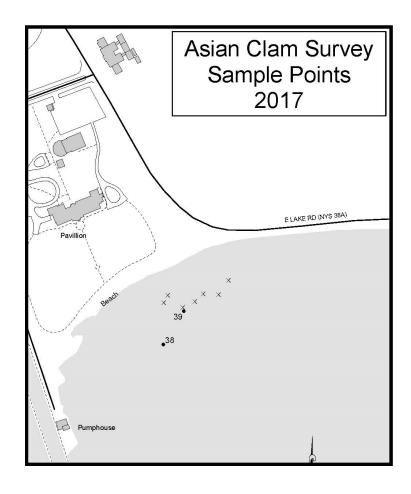
Asian Clams

- Lake George researchers have observed that winter ice contact with sediments killed Asian Clams.
- Lowest lake level during a cold snap: Owasco Lake was at 710.75 feet (above sea level) with low temperatures of 1 degree F on January 7, 2017.



East Side off of Pavilion Beach, 2017

- Only two clams found with multiple sample sites.
- One of the two of the clams was less than 10 mm (point 39).
 - In 2016, 100% were less than 10 mm (33 clams).
 - In 2015, 83% were less than 10 mm (6 clams).
 - In 2014, over 50% were larger than 10 mm (15 clams).
- One of the clams found was 12.3 mm which is close to reproductive size.
- 40% were larger than 16 mm in 2014. No clams of reproductive size found since 2014.
- Survival is poor on this side of Emerson Park.

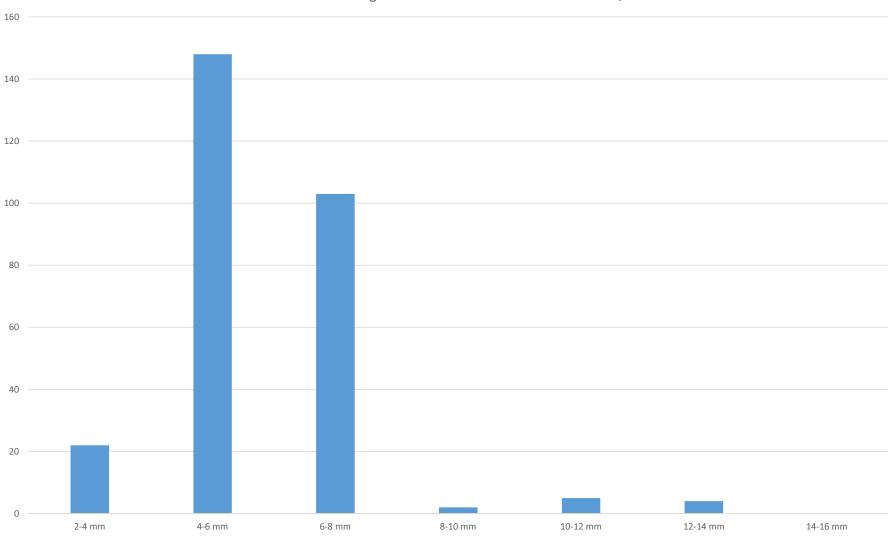


West Side off of Deauville Island, 2017

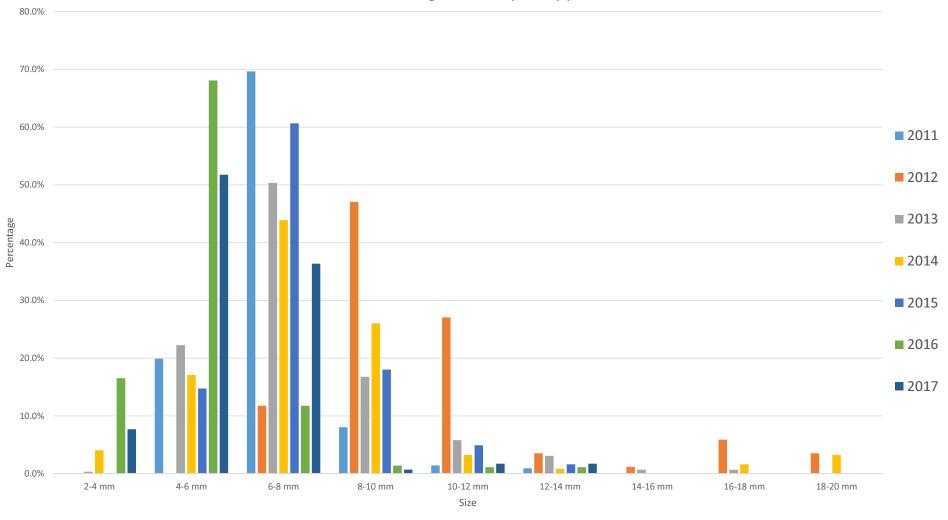
- Transect to shore.
- 97% of the clams were smaller than 10 mm. Similar to 2014-2016.
- 1.1% were of reproductive size (one clam at each point 5, 7 and 8).
- 11% of samples had more than 20 clams and 68% had less than 10. Largest number of clams found at points 13 (42 clams) and 28 (67 clams).
 - In 2016, 40% of samples with clams ha
 - d more than 20 clams.
 - All samples in 2015 had less than 7 clams.
 - 90% of samples in 2014 had less than 10 clams.
- More clams in areas that adults could survive in over winter.
- Poor survival of adults.



Asian clam sizes along north south line off of Deauville Island, 2017







Quantitative Samples

- 2011: 1018 clams per m²
- 2012: 429 clams per m²
- 2013: 1,462 clams per m²
- 2014: 1,018 clams per m²
- 2015: 511 clams per m²
- 2016: 2,632 clams per m²
- 2017: 1,023.4 clams per m²
- Lake George: up to 6,000 per m²

Observations

- Very few clams found on east side.
- The clams on the west side is mostly young of the year.
- Only the west side had clams that were of reproductive size. One on the east side was close (but only two clams found).
- It appears young of the year clams are transported into the shallow areas by wind and wave action since there are no mature clams there to reproduce.
- Some occasionally denser population areas but less dense than Lake George.
- Past surveys have shown that drawdown appears to cause 100% mortality of clams in areas where the substrate was exposed during the winter.

Darrin Freshwater Institute Research

- Hypothesis: *Chaetogaster limnaei* adversely affect the Asian clam population with respect to size distribution and relative abundance.
 - Have been observed eating the offspring of Asian clams inside adult clams
 - May alter the population structure of Asian clams
 - Will infect Asian clam within a short time period in a scale experiment
 - Can transfer from one clam to another in a small scale lab experiment
- County Planning staff took clam samples in 2015 and sent them to Darrin Freshwater Institute for research and DNA analysis. None of the parasites were found in Owasco Lake samples.
- Not sampled this year. Maybe 2018.





