

Asian Clam Survey

Owasco Lake

July 30 , 2020

Thanks to:

- Ed Wagner, OLWMC Member
- Drew Snell, Owasco Lake Watershed Specialist
- Kaitlyn Shanahan, OLWMC
- Michele Wunderlich, Gary Duckett and Doug Dello Stritto, WQMA
- Boat provided by Dave Wasileski at Owasco Marine
- Partially funded by FLOWPA

Asian Clams:

- Were discovered in Owasco Lake in September 2010.
- Like warm shallow water with sandy sediments.
- Adults can reach a length of about 2 inches (5 cm). Live 3-4 years.
- Shell is yellow-green or brown with concentric rings when alive, looking more black and white once dead.
- Found at the sediment surface or slightly buried.
- Can suspension feed (filter feed) and deposit feed (with their foot) in the substrate.



September 2010

Asian Clams:

- In Lake George only 3% of clams smaller than 13mm were reproducing.
- Can reproduce at about 60 degrees F.
 - Buoy data show Owasco Lake around 60 degrees F starting around May 29, 2020.
- Timing of reproduction in Lake George is mid-June through mid-November.
- Highest rates in the fall in Lake George.
- Self fertilize.
- Single adult can release an average of 400 juveniles per day and up to 70,000 per year.



Asian Clams:

- Larval clams are released from adults at about 0.25 mm in size.
- Transported by currents using a mucous “parachute” or hitchhiking.
- Asian clams typically grow between 0.2-0.3 mm per week during the growing season in Lake George.
 - Can get to 6 -10 mm in 3 to 6 months.
 - Can grow to 10 to 30 mm during their first year depending on food availability and temperatures.



Asian Clams:

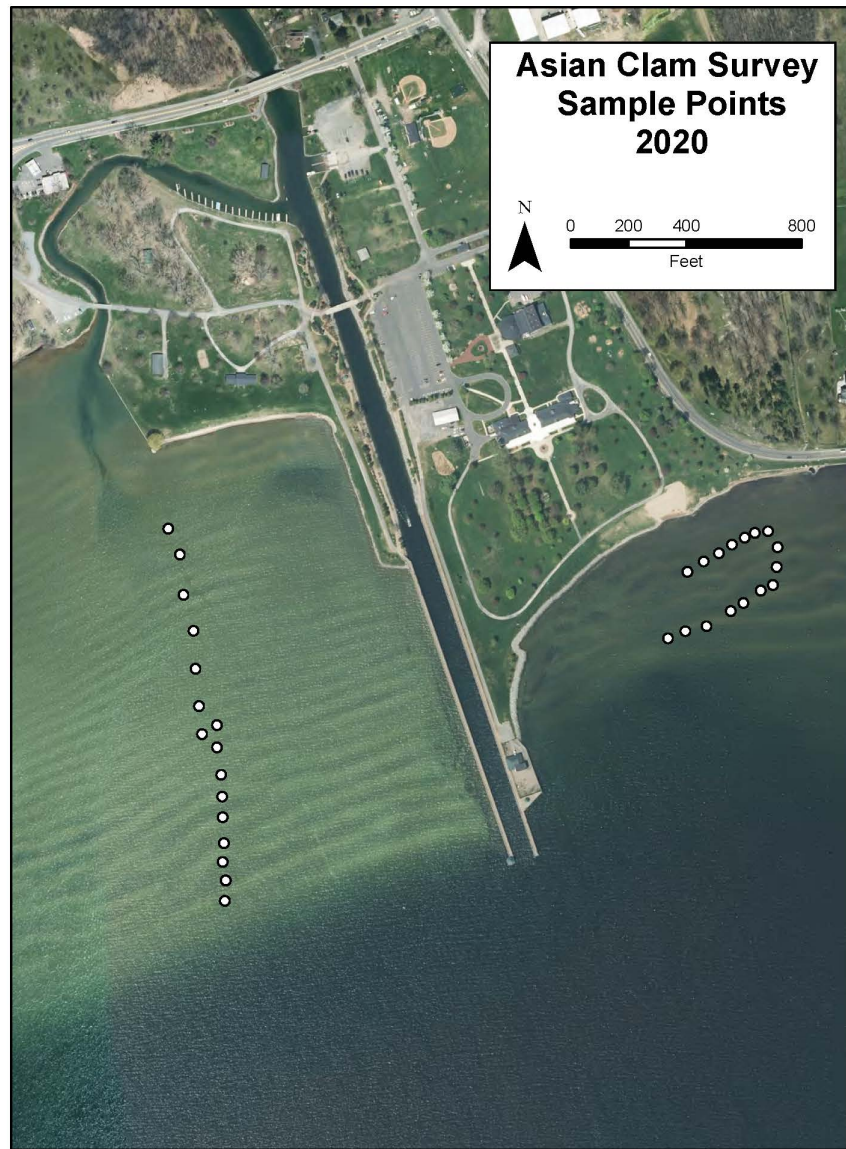
- Can alter food webs.
- Clog raw water intakes with clam shells or by juveniles that are sucked into the intake and grow in the system.
- Release phosphorus and nitrogen into the water through burrowing, feeding from the sediment and their excreta. Elevated nutrients can cause dissolved oxygen depletion or increased algal growth.

Asian Clams

- Lake George researchers have observed that winter ice contact with sediments killed Asian Clams.
- Lowest lake levels during a cold snaps:
 - Owasco Lake was at 709.8 feet (asl) with low temperatures of 6 to 8 degrees F from January 17-18, 2020.
 - Owasco Lake was at 709.7 feet (asl) with low temperatures 4 to 9 degrees F from January 20-21, 2020.
- Lake level the day of the survey was 712.5 feet (asl).
 - Anything in less than 2.75 feet would have been under ice.



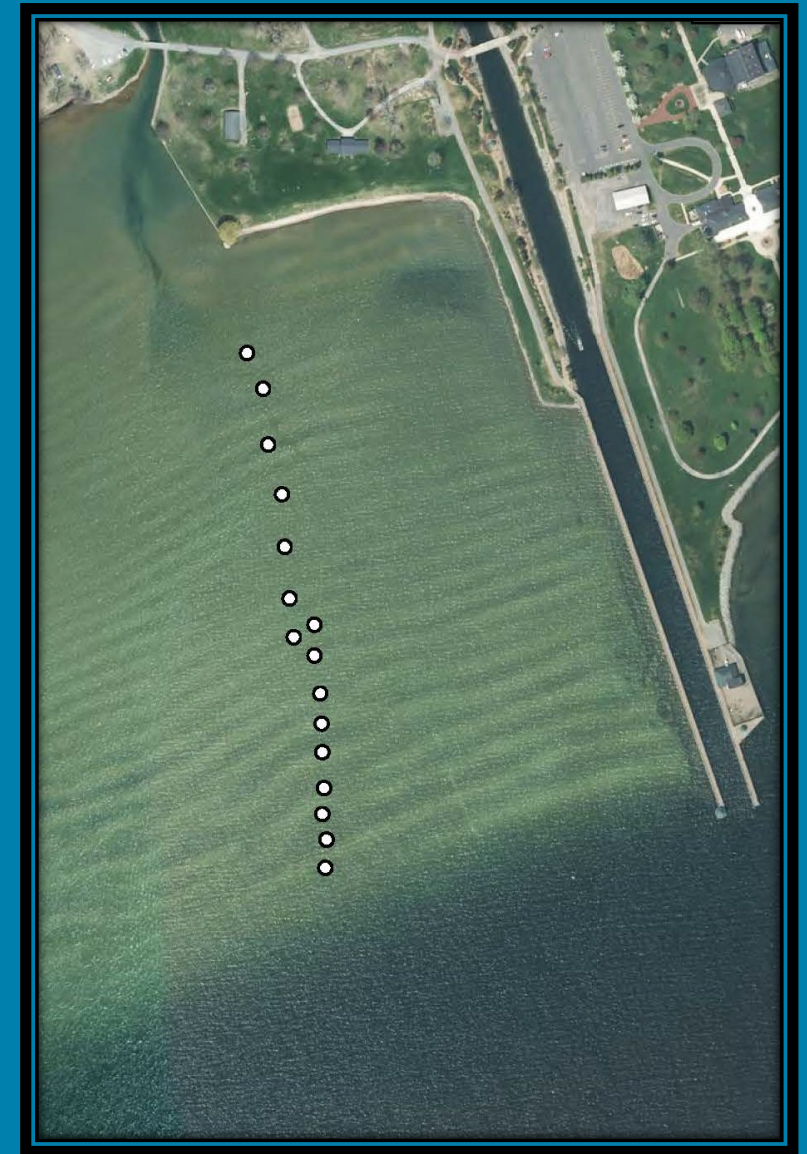
February 2011
Lower 3 clams killed by
freezing in shallow water



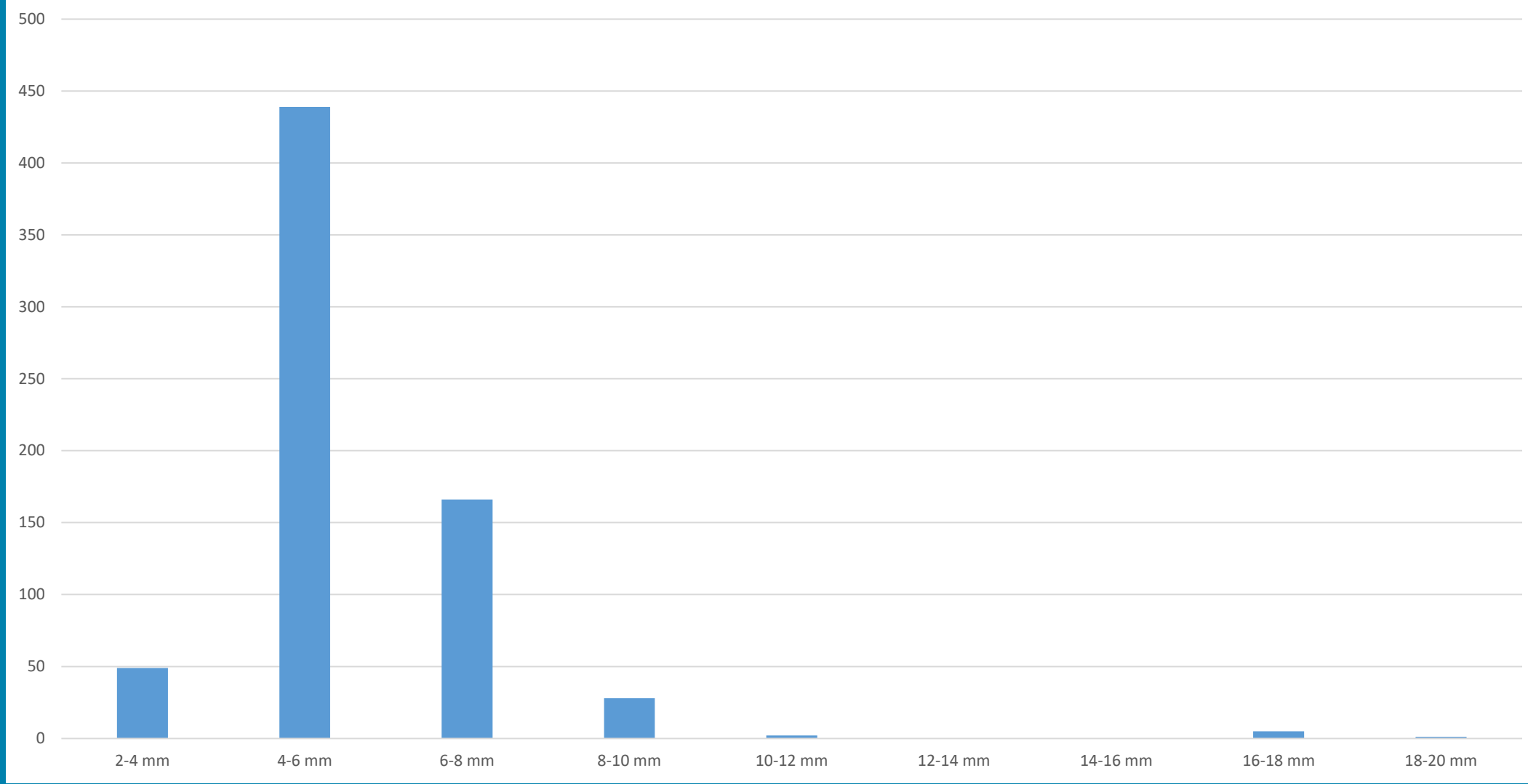


West Side off of Deauville Island, 2020

- Transect from shore toward buoy.
- 654 out of the 690 clams found were smaller than 10 mm (98.8%).
- Six were of reproductive size (0.9% of clams found); found in between 2.5 and 3 feet of water.
- In 2020, 81% of samples had 20 or more clams. In 2018 it was 30%, in 2016 it was 40% and in 2017 it was 11%.
 - In 2019, all samples had three clams or less.
 - All samples in 2015 had less than 7 clams and 90% of samples in 2014 had less than 10 clams.
- 2020 had high numbers of 4-6 mm and 6-8 mm clams; similar to 2018. Most likely young of the year.

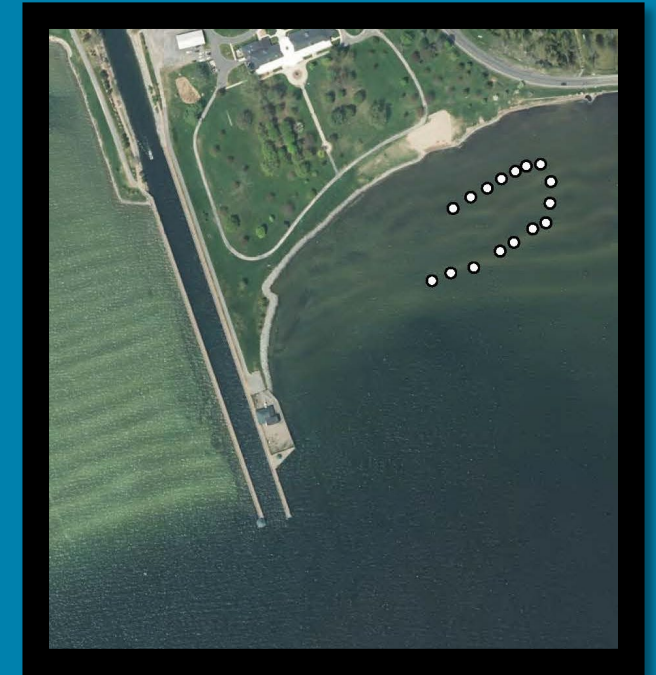


Asian clam sizes along north south line off of Deauville Island

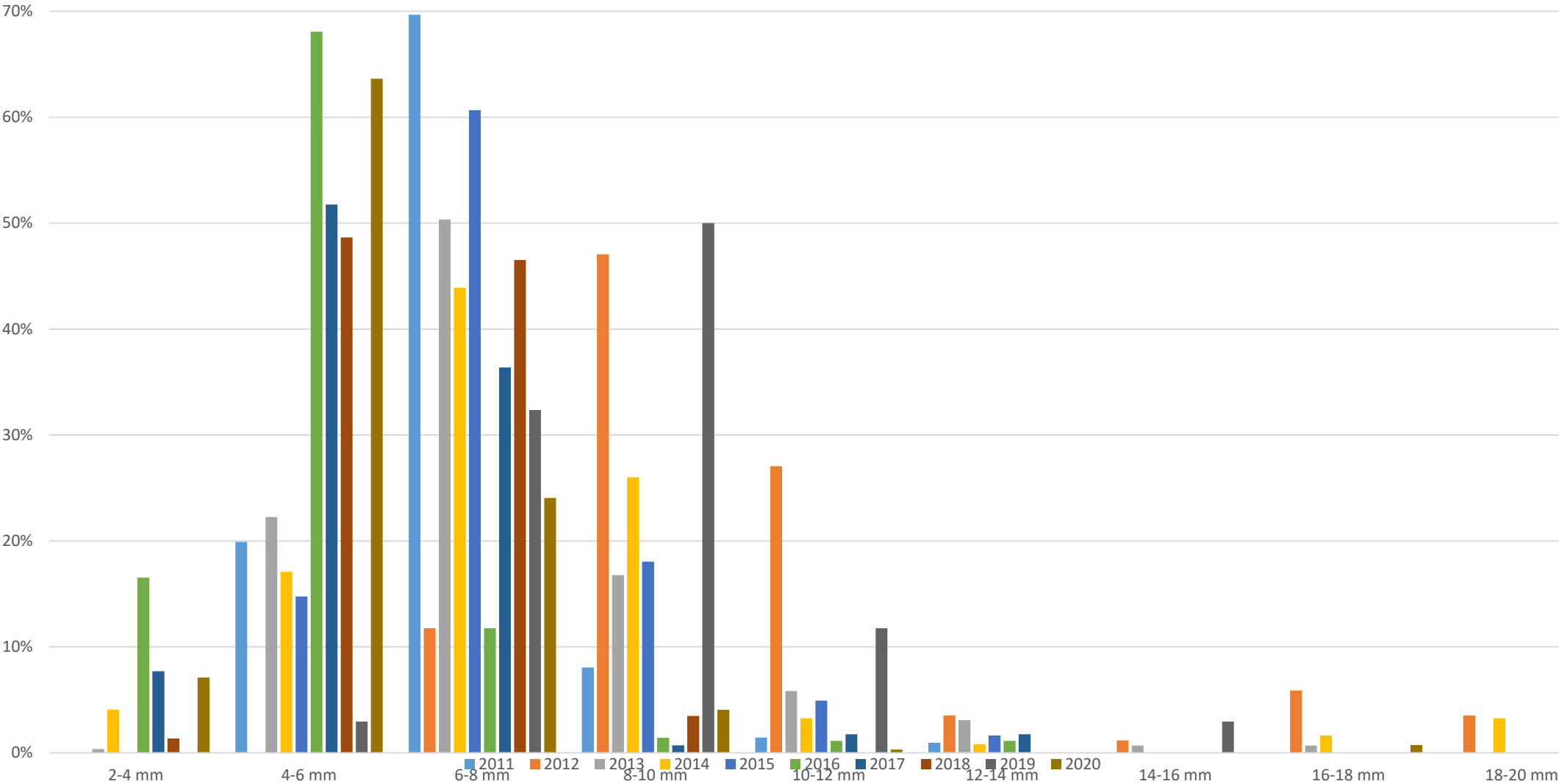


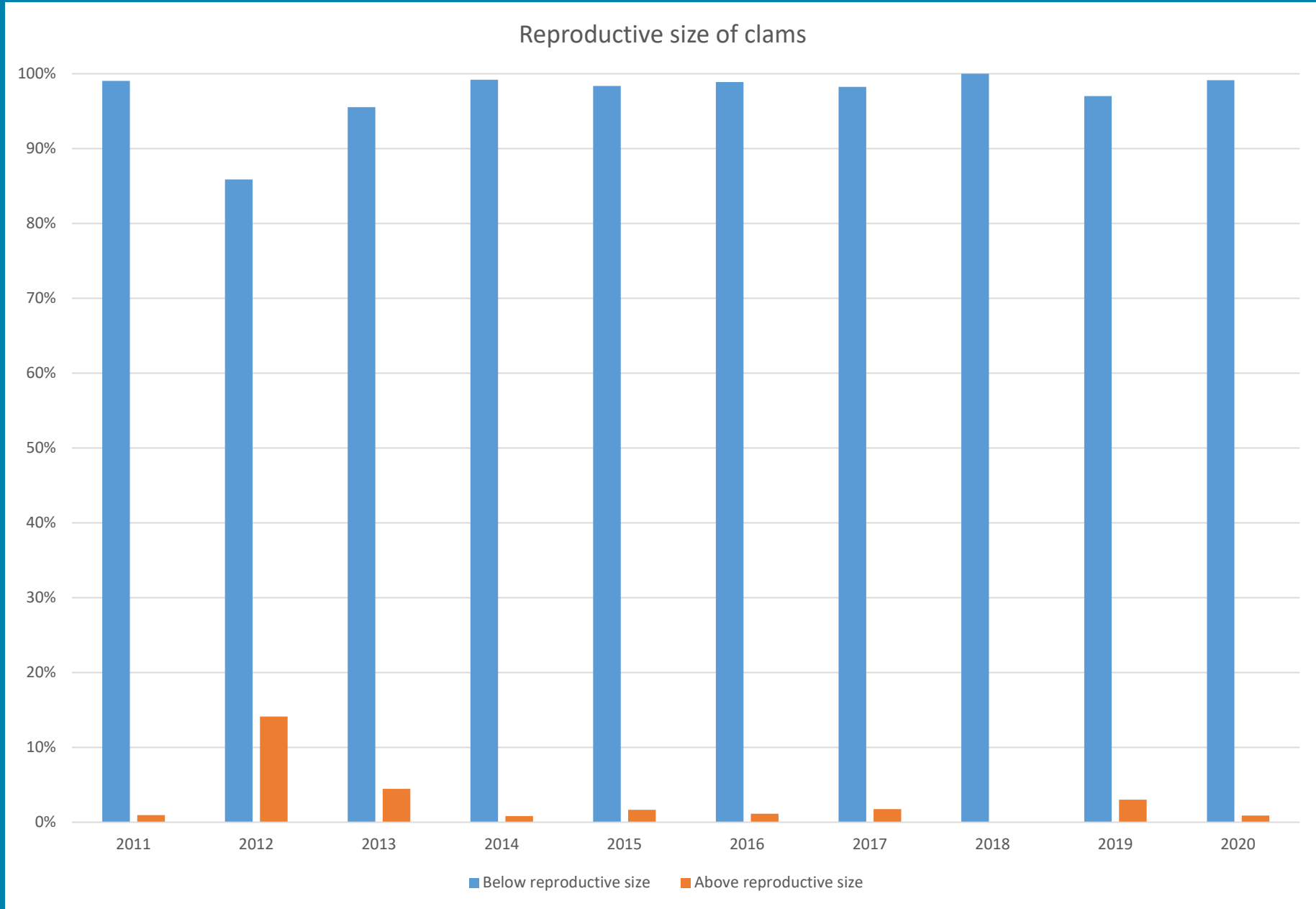
East Side off of Pavilion Beach, 2020:

- Found 11 clams 6 to 8 mm in size and 22 clams 8 to 10 mm in size. All young of the year.
- 94% of samples had one clam or more.
- No reproductive size clams in 2015, 2016, 2018 and 2020.
- One clam found in 2019 that was largest found that year at 18.81 mm.
- Survival is poor on this side of Emerson Park.



Percentage of clams by size by year





*based on Lake George research

Observations:

- The clams found off Deauville Island Beach and the Pavilion Beach were likely young of the year.
- Only the Deauville Island side had clams that were of reproductive size.
- Populations were higher this year than in past years.
- Past surveys have shown that drawdown appears to cause 100% mortality of clams in areas where the substrate was exposed during the winter. Some of these areas this year had some older clams. There was no long cold snap when lake levels were down and it looks like some of the older clams survived.

Questions?