Town of Stonington
Shellfish Commission
152 Elm Street Stonington, CT 06378

SPECIAL MEETING MINUTES

March 7, 2012

A special meeting of the Stonington Shellfish Commission (SSC) was held on this date at Stonington High School, 176 South Broad Street, Pawcatuck, CT. Voting members present were Mr. Don Raffo, Mr. Alan Banister, Ms. Tessa Getchis, Acting Secretary, and Mr. John Swenarton, Acting Chairman.

1) Call to order - Mr. Swenarton called the meeting to order at 7:05 PM

2) Review and approval of the minutes of the regular meeting of 2 February 2012 – A **motion** made by Mr. Banister and seconded by Mr. Raffo to approve the minutes was approved unanimously.

3) Correspondence

   a) Letter dated 8 February 2012 from Docko to Mr. Murphy re: an application by BROYC, LLC to build a wood pile and timber pier and float in the Pawcatuck River.

   b) Email dated 28 February 2012 from Mr. Casey to Mr. Murphy re: an application by Mr. Peter Kleinknecht to construct a new single family residence and other related improvements at Lord's Point.

4) Business

   a) Conditional Shellfishing Areas - Outer Quiambaug Cove and East Mason's Island – Areas A, B, Outer Quiambaug conditional shellfishing areas were open the entire month of February

   b) New policy regarding shellfishing around Ram Island

      i. A 100 foot perimeter around Ram Island was established by the DA/BA. This was due to the presence of animals on the Island and the potential for water quality impacts. No comment from the Commission.

   c) Review of an application by BROYC, LLC to build a wood pile and timber pier and float in the Pawcatuck River. The Commission had no comment.

   d) Review of an application by Mr. Peter Kleinknecht to construct a new single family residence and other related improvements at Lord's Point. The Commission had no comment.

   e) Summary of commercial activities

      i. Application by Mr. Emery is under review and awaiting Commission approval. The Commission's approval is pending DA/BA authorization.

      ii. Remuneration spreadsheet was reviewed. Mr. Murphy carried Mr. Markow's balance from 2011 into 2012. The work promised by Mr. Markow could not be performed due to adverse weather.

5) Adjournment – There being no further business to discuss, a **motion** by Mr. Banister and seconded by Mr. Raffo to adjourn the meeting was approved unanimously. The meeting adjourned at 7:58 p.m.

Presentation by Pine Point students followed the Special Meeting. (Report attached below)

Respectfully submitted,

Tessa Getchis, Acting Secretary

Survey of Hard Shell Clams (*Mercenaria mercenaria* and Other Abiotic and Biotic Variables in Little Narragansett Bay

Field work conducted:
Fall, 2011

Presentation to Stonington Shellfish Commission:
Stonington High School, March 7th, 2012

Completed by:
Class of 2012
9th Grade Biology
Pine Point School
89 Barnes Road
Stonington, CT 06378

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This project was completed by the Biology class of Pine Point School, Class of 2012 by request of the Stonington Shellfish Commission (SSC). The purpose of this study was to gain a better understanding of the general condition of Little Narragansett Bay (LNB), particularly in regards to hard shell clams (*Mercenaria mercenaria).* This report follows a presentation by the students to the SSC in March, 2012. The hope is that this information will be useful for the SSC and other interested organizations as they work to enhance the condition of LNB and manage the shellfishery.

Along with this written summary, the following items can be downloaded at: www.pinepoint.org/mitchell (click on *LNB Clam Project*).

- digital copies of the raw data in Excel (.xls).
- A GoogleEarth file (.kmz) showing the sampling points with some of the raw data.

Methods

Evenly spaced sampling points within the Connecticut waters of Little Narragansett Bay (LNB) were identified using GoogleEarth. Approximately once a week in September, October, and November 2011 we anchored as close to each previously identified point as possible using the latitude and longitude positions from GoogleEarth and a GPS on board our vessel. At each location, we sampled the clam population, the quantity and type of algae, and the sediment. We also measured levels of dissolved oxygen, temperature, and salinity.

Clam Samples: To sample for clams, we lowered oyster tongs to the substrate. The tongs were opened and partially closed several times to dig them into the substrate, after which the tongs were closed tightly and carefully raised, bringing a sample of epifauna and infauna aboard the vessel. The size and number of living hard shell clams were recorded; sizes were considered as <1", 1-2", 2-3", or >3". In addition, any remnants of hard shell clams were recorded as hinged (whole shells stilled connected), whole, or fragments.

Algae Samples: To sample for algae, we used oyster tongs with a ¼" mesh attached on the inside to minimize the loss of any algae. The tongs were held open, lowered to the substrate, closed tightly (without digging into the substrate) and a sample was brought on board the boat. The types of algae were recorded, as were any other flora and fauna collected. The volume of algae was measured in a 1-L Nalgene bottle or 4-L bucket.

Sediment Samples: To collect and separate the sediments we used a Petite Ponar Grab and sifting trays. After collecting the sample with the grab, we identified by sight and touch the percent by volume of the different grain sizes. We also recorded any organisms or indications of organisms within the sample (shell fragments, algae, worms casings, etc.).

Water Measurements: We measured the salinity, dissolved oxygen, and temperature at the surface, and each meter below the surface using a YSI Salinometer 8525.

Estimating *Mercenaria* Population in LNB: Based upon the location of live clams that were collected (see yellow markers in GoogleEarth file) and the location of sandier substrate (see green delineated polygon), we estimated the population of hard shell clams in LNB. To estimate the population we focused on individual sample points and then extrapolated to the area of the green polygon. At each sample point within the green polygon we calculated the number of clams per grab (there were 5 grads at each site, usually). We then calculated the average number of clams per grab for all sample points within the green polygon—including those points with no clams collected. Using this as the 'average population' for the sample points, we calculated the population density for the sample points as the average population ÷ area of the oyster tongs when open ($0.19m^2$). We extrapolated that population density to the area of the green polygon. We used the website *EarthPoint:Tools for Google Earth* to calculate the area of the polygon.

Results

We sampled 17 locations within LNB. Of those, using our oyster tong method, we collected live hard shell clams at 6 locations (see yellow points on GoogleEarth), totaling 13 live clams; this total does not include live clams captured using the sediment grab or the oyster tongs when collecting algae (see Summary Table, below). Within the green polygon of the Google Earth file (sandier area), there are 10 sample points; with 5 attempts at each sample point, this equals 13 clams in 50 grabs, or 0.26 clams per grab with the oyster tongs. In other words, within the green polygon we found a calculated density of 0.26 clams per $0.19m^2$, which equals 1.3 clams/m^2. The area of the polygon is approximately $800,000m^2$, which leads to a calculated population of 1.1 million clams in that area of Little Narragansett Bay. (However, see discussion below about possible overestimate).

All sample points except one had greater than 500 ml of *Cladophora sp.* (an invasive algae) in at least one of the 3 algae grabs.

Ten of the sample points had sandier sediment (>50% sand by volume), with some gravel-sized pieces as well at a few sample points. Six of the sample points had a muckier sediment, often with a strong anaerobic smell.

The levels of dissolved oxygen at the sample points varied from ~5 g/ml to more than 9 g/ml. However, we do not believe these measurements were correct (improper calibration of instrument).

Discussion

Our estimate of the population is a rough estimate based on a limited survey. Although we did not find clams at some points in the green polygon, we still used this area as the basis for our estimate. For example, we included points H4 and J6 within the area used to estimate the clam population, but no clams were found at those points. We included this because of the sandy substrate at those locations and, based upon our work, other resources, and the preferred substrate habitat of *Mercenaria*, we believe there may be clams in close proximity to those sample points. In addition, the inclusion of the sample points in sandy areas but with clams allowed for us to account for the potential 'patchiness' of clams within the sandy areas due to other variables (e.g., current, dispersal, depth of sandy substrate).

In addition, we combined the 5 grabs for each sample point, which might have improperly biased our estimate by increasing the number of clams caught. We worked to lower the tongs to the same location at each sample point for each of the 5 grabs; the purpose of the 5 grabs was to be certain we had pulled all of the clams from that particular spot. However, with some shift in the vessel or angled lowering of the tongs, we could have sampled an area larger than the opening of the tongs ($0.19m^2$). If so, our estimate for clams should be significantly lower. If we consider that we sampled an area more than twice that size ($0.5m^2$),

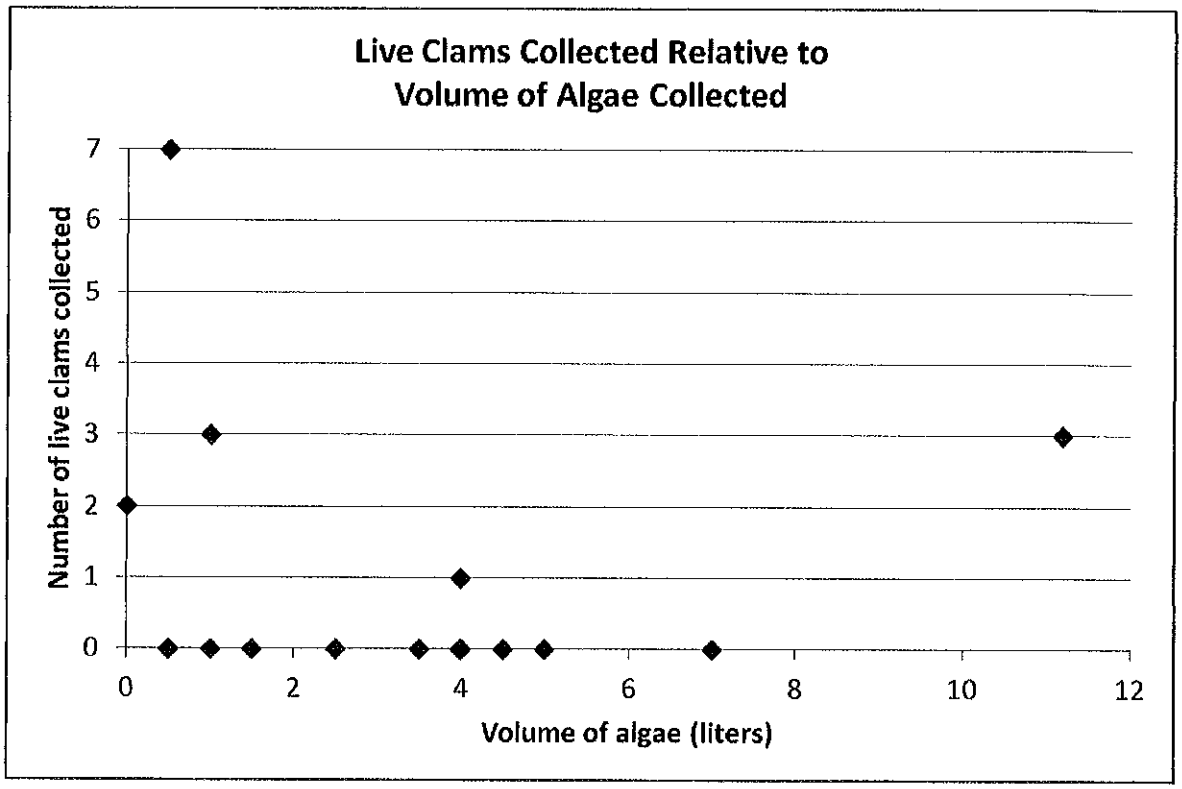
then a more accurate estimate of the clam population would be closer to 0.52 clams^2, for a total of 410,000 clams in the delineated green polygon in the GoogleEarth file.

Generally, we collected live clams in areas with sandier sediments. However, the reverse was not always the case; sandier sediments did not necessarily indicate we would find live clams (e.g., see points J6, I5, J4). We never found live clams in sediments that were very mucky (G3 was mucky, but not relatively less so).

From our study, there seems to be no clear relationship between the quantity of algae and the number of clams collected (see graph, below). However, with only 6 points at which we collected clams, a greater study with a greater sample size would offer a more complete picture.

Although we measured dissolved oxygen levels, we believe our instrument was not used properly (incorrect readings, recordings, and improper calibration), so it is difficult to draw conclusions from that data.

Finally, we noticed that most of the clams and shells found were larger than 2 inches. Although the size of the opening on the oyster tongs was 1-inch, we very rarely caught a whole shell or living clam that was less than 2-inches. Whether this was an issue of our sampling method or representative of the population, we aren't sure, but we have no reason to believe that we would not have collected some smaller clams if they were present.



Clams and Algae: Based upon our results, we do not see a strong relationship between the number of clams collected and the volume of algae collected at a sample point. However, with only 5 points at which clams were caught, more data points would allow for a stronger conclusion.

Summary of Data: Geographic location of points can be seen in the GoogleEarth file. The algae measurements recorded here are the maximum amount of algae collected at that sample point in one grab. The dissolved oxygen measurements are for the deepest point measured (usually, within 0.5 meters of the bottom). However, we are not confident in the DO measurements due to poor calibration of the instrument. The sediment type listed here is based upon the type of sediment that is more than 50% by volume of the sample collected. Live clams listed here are only those caught when sampling for clams (as opposed to collecting a live clam when collecting sediment or algae).

Point	max algae	DO bottom	sediment (mostly)	live clams	*Notes
B2	1500	6.6	*silt/muck*	0	
C1	1000	6.25	*silt/muck*	0	
C3	2500	9.4	*silt/muck*	0	
D4	4000	7.5	*silt/muck*	0	
E3	11200		sand/silt	3	
F4	4000	6.77	*silt/muck*	0	
G3	4000	7.4	*silt/muck*	1	
G5	1000	5.95	sand	3	
H2A	500	6.52	sand	7	
H4	3500	5.6	sand	0	
I3	4000	5.39	sand*	0*	*clam in sediment grab
I5	4510	8.71	sand	0	
J2	500	5.16	sand	0	
J4	500	5.87	sand	0	
J6	7000	6.25	sand	0	
K3	0*	9.01	sand	2	*clams in algae grab
L6	5000	6.72	sand*	0	*and silt, 2nd grab

underlined, yellow highlight indicates live clams present
italicized, blue font indicates silt/muck sediment