Wildlife Survey & Photo Service
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REPORT 4855
Craig Morton Watercraft

August 18, 2014

To: Mr Chris Lee
Solano County Water Agency

Subject: **Report of Mussel-like organisms on boat moored in Lake Berryessa**

Background: On 8/14/14, I received a report that described barnacle or mussel-like organisms on a boat that has only been moored in Lake Berryessa. The e-mail claimed:

> *"The organisms were described as being the size of half a nail (finger) and were attached to the entire hull of the boat."*

The sketchy report claimed the boat was owned by a man named "Morton" and moored on the beach used by residents of "Lake Berryessa Pines" a community on the west side of the lake. Contact was made with the owner and permission granted to examine the watercraft. On the evening of 8/14/14 I made an intial survey of the area around the watercraft and did not see anything of concern. I returned on 8/15/14 and conducted a complete survey with considerations listed below. All images in this report were taken on 8/15/2014.

Survey Considerations:
Considering that one of the initial reports I received was that the hull of Mr. Morton's boat was entirely covered with mussel-like organisms, I have followed what might be considered an emergency and intense protocol survey. The following survey questions / protocols were considered:

1. Is it feasible that the area could have a major mussel infestation?
2. Is it possible to survey 600 yards of shoreline in the area where the boat is moored?
3. Are infrastructure such as pipes, chains, and ropes in the area to be surveyed?
4. Are natural substrates - that were recently submerged - in the area to be surveyed?
5. Can watercraft in the area be examined?
6. Can plankton samples - for macroscopic examination - be collected at the site?

Boat moored near the Lake Berryessa Pines Community. Note tree trunk that was recently submerged.

1. Is it feasible that the area could have a major mussel infestation?

Comment: Yes, the area is comprised of substrate ideal for mussel settlement. That includes rocky beaches, thick aquatic weed beds, and sandy areas used as beaches and watercraft landing. In addition, Lake Berryessa has a healthy plankton community that would support Eurasian mussels.

Beach used by residents of Lake Berryessa Pines community to moor boats.

2. Is it possible to survey 600 yards of shoreline in the area where the boat is moored?

Comment: Yes. More than 600 yards of shoreline was closely examined for adult Eurasian Mussels. The survey was negative for adult mussels.

Note: The original description was a boat hull, at this site, that was entirely covered by mussel-like organisms. If that was accurate, I suspect that cobble, pipes and other structures would also be covered with mussels. The survey on 8/15/2014 was negative for adult Eurasian mussels.

Conveyance pipes on shoreline near boats

3. Are infrastructure such as pipes, chains, and ropes in the area to be surveyed?

Comment: Yes. Existing infrastructure are routinely used for mussel surveys because they are attractive substrate for mussel attachment. The pipes shown on the left, chains used to anchor buoys, and boat mooring ropes were all negative for adult mussels.

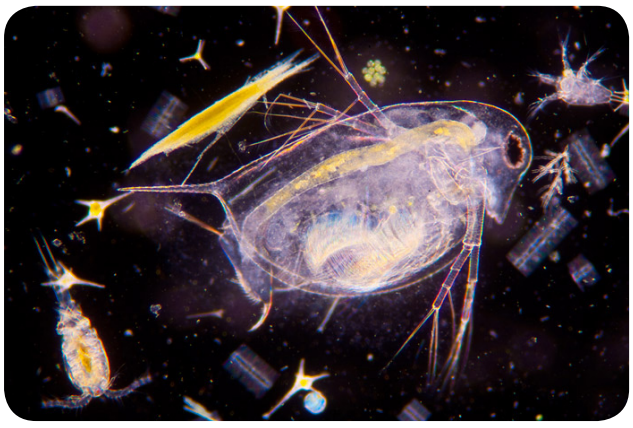
Boulder that was recently submerged in area near boats moored at the "Pines Beach."

4. Are natural substrates - that were recently submerged - in the area to be surveyed?

Comment: Yes. Natural-occurring structures such as the boulder shown on left are ideal substrate for mussel infestations. The boulder photographed on the left is near the mooring area used by "The Pines" residents. It and other structures were examined for adult mussels. No adult mussels were found on natural substrates. .

5. Can watercraft in the area be examined?

Comment: Yes. A simple visual survey was conducted on eight watercraft moored at the site. None of the watercraft in the area were touched or boarded. In the near future, I plan on getting subsurface video footage of the submerged hulls of several of the boats on site. That task can be accomplished with a video tool recently purchased specifically for this project. Video can be captured without touching the moored watercraft.



Plankton sample collected from Lake Berryessa at the "Pines Beach". Sample shows typical denizens of Lake Berryessa including a water flea, copepods and several species of algae. Sample negative for mussel veligers.

6. Can plankton samples for - macroscopic examination - be collected at the site?

Comment: Yes. I have a 64 micron EPA-approved "throw net" that can be used from the bank. Over 4000 liters of lake water was filtered through the net to have an excellent sample to process and look for mussel veligers. The samples was collected on 8/15/14 and processed on the same day using a cross-polarized microscope. Microscopic sample was NEGATIVE for Eurasian mussel veligers.

CONCLUSIONS

1. All surveys for adult Eurasian Mussels (including dead shells) and at the Lake Barryessa Pines beach were NEGATIVE.
2. An intensive plankton survey for mussel veligers was NEGATIVE. The plankton survey consisted of a microscopic examination of plankton filtered from 4082 Liters of lake water using a 64 micron EPA-approved tow net.

PLANNED ACTIONS:

1. Take subsurface video of the hull of the boat in question ASAP.
2. Survey the area around the Lake Berryessa Pines on a regular basis for at least six months. Those surveys will include visual and plankton surveys.
3. There was a report that "Samples were put into a bag and given to a sheriff." I will continue to investigate if specimens were indeed removed from the Morton watercraft and given to a sheriff or DFW Warden. To date, that claim remains questionable.

Submitted via e-mail on 8/23/14

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Additional Information:

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Mooring Site GPS: N: 38.60778
W: 122.27293