

## Claire Herbert

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**From:** David Barber  
**Sent:** Friday, September 3, 2021 10:14  
**To:** Greg McCullough  
**Cc:** Stephan Pflugmacher Lima; Claire Herbert; Agoston Fischer; Mostafa Fayek  
**Subject:** Re: mooring recovery successful

Thanks for the input folks. My concern was not the free swimming form but rather once they have attached and start to grow. What is weird is I have never seen this before. Perhaps something precipitated with low water levels.

In any case it has got me thinking we should expand our program to include monitoring moorings as in the PDF link i sent.

I have lugal here and will bring back both wet and dry samples.

Best. D.

Sent from my iPhone

On Sep 3, 2021, at 10:00 AM, Greg McCullough <Greg.McCullough@umanitoba.ca> wrote:

Hi David,

Glad to hear that the wipers performed well. Was the conductivity transducer also heavily encrusted?

Are you still planning to set up an over-winter mooring? Did we send two moorings worth of instruments in the spring? Let me know a good time if you want to discuss by phone.

FYI, a pictured of a veliger below—about 0.2 mm dia. They are either floating or free-swimming, but at some point attach and build a shell.

However, I support Stephen's incrustation idea. I have seen whittings in satellite images of LWO; i.e. precipitation of calcite in the water column, that occur when acidity is temporarily reduced during the algal growth/decay cycles. So the lake is fairly carbonate rich. In this case, it could indicate increased concentrations due to changed ratios of dilute surface runoff/higher carbonate-rich groundwater, and/or high evap/low runoff during warm, dry summer.

Please scrape off and bring back a sample. Probably should bring back a wet sample with Lugols and a second dried sample just in case attached algae or other wet sample effects alter the mineralogy. I suggest we ask Mostafa for an analysis and interpretation. (Mostafa: please see DB's picture in the email thread below.) It may be an interesting indicator of water geochemistry in the water column in response to any of the above. We have salinity and temperature data from the mooring. Unfortunately, we don't analyzed water for major ions—but the province will have some data from their station in the Waterhen River.

Best wishes,  
Greg



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**From:** Stephan Pflugmacher Lima <Stephan.PflugmacherLima@umanitoba.ca>  
**Sent:** September 3, 2021 9:28 AM  
**To:** David Barber <David.Barber@umanitoba.ca>; Greg McCullough <Greg.McCullough@umanitoba.ca>  
**Cc:** Claire Herbert <Claire.Herbert@umanitoba.ca>; Agoston Fischer <fischer5@myumanitoba.ca>  
**Subject:** Re: mooring recovery successful

Hi David,

Good job. I think the veligers from zebra mussels are so tiny (in the um range) that you could hardly see them by eyes, maybe some lime incrustation?

Br  
Stephan

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**From:** David Barber <[David.Barber@umanitoba.ca](mailto:David.Barber@umanitoba.ca)>  
**Date:** Friday, September 3, 2021 at 8:55 AM  
**To:** Greg McCullough <[Greg.McCullough@umanitoba.ca](mailto:Greg.McCullough@umanitoba.ca)>  
**Cc:** Claire Herbert <[Claire.Herbert@umanitoba.ca](mailto:Claire.Herbert@umanitoba.ca)>, Agoston Fischer <[fischer5@myumanitoba.ca](mailto:fischer5@myumanitoba.ca)>, Stephan Pflugmacher Lima <[Stephan.PflugmacherLima@umanitoba.ca](mailto:Stephan.PflugmacherLima@umanitoba.ca)>  
**Subject:** mooring recovery successful

Hi folks.

I was able to recover the mooring yesterday and can report that the ecotriplet was still working when I extracted the mooring. Unfortunately though I was unable to get a water sample or CTD from the site as the winds were too high.

I had to take my small Jon boat to the lake as the water levels are extremely low and the big UM jetboat could not travel safely down the river. It took almost the full day to do this recovery but I thought it was worth the effort now as the water levels may continue to go down as the fall progress.

The mooring structure was heavily impacted by attached algae (see photos) but the ecotriplet wipers worked very well and this time series should be good for your work Agoston.

I am however concerned about white hard nodules that remained on the metal rod after I washed off the algae off the mooring - I have not see these nodules before on the mooring hardware and am wondering if these are verigers of the zebra mussel. Do any of you have a perspective to add to this? I certainly hope it is not what I think it is but we will need to check to be sure.

This article has useful information and an image that looks somewhat similar to what I have found on the mooring rod. <https://mn-chisagocounty.civicplus.com/DocumentCenter/View/7726/2016-Zebra-Mussel-Prevention-Early-Detection-Rapid-Response-Plan-PDF>

I can also likely remove some of these nodules and return to to UM for further analysis if that would be useful.

I look forward to your reply.

Best.DB









