

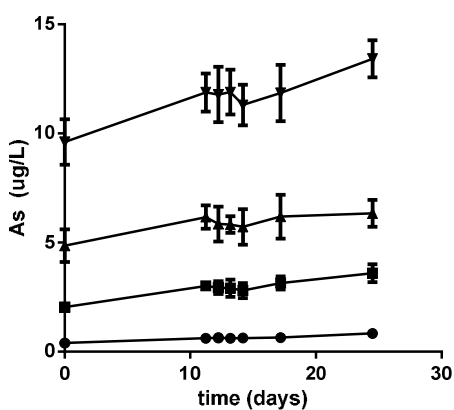
# Supporting Information: Bioaccumulation dynamics of arsenate at the base of aquatic food webs

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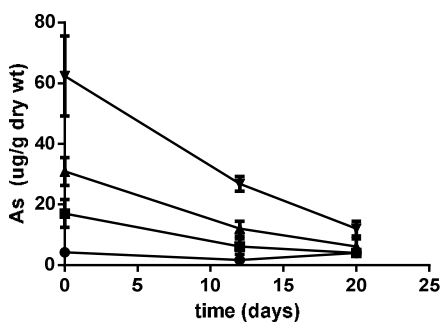
- 1 Supporting information is 4 pages in length and includes one figure, one table, and description of
- 2 methods for aqueous uptake in *Neocloeon triangulifer*.

### 3 Supplemental Information

A



B



Supplemental Figure 1. Aqueous (A) and dietary (B) exposure conditions for *N. triangulifer* larvae reared for a full lifecycle. Values plotted are mean  $\pm$ SEM; n=3 for each treatment at each time point. Symbols represent initial nominal dissolved As concentrations of 1, 5, 10, and 20  $\mu\text{g L}^{-1}$  arsenate, respectively.

Supplemental Table 1. Species composition of periphyton plates evaluated  
June 2009 – December 2009

	Month		
	June–July	October	December
<b>Diatoms<sup>1</sup></b>	<i>Melosira varians</i>	<i>Melosira varians</i>	<i>Melosira varians</i>
	<i>Diatoma vulgaris</i>	<i>Cymbella sp.</i>	<i>Gomphonema sp.</i>
	<i>Synedra sp.</i>	<i>Synedra sp.</i>	<i>Nitzschia sp.</i>
	<i>Nitzschia sp.</i>	<i>Nitzschia sp.</i>	<i>Synedra sp.</i>
	<i>Cymbella sp.</i>	<i>Navicula sp.</i>	<i>Fragilaria sp.</i>
	<i>Gomphonema sp.</i>	<i>Achnantheidium sp.</i>	<i>Cymbella sp.</i>
	<i>Fragilaria sp.</i>	<i>Planothidium sp.</i>	<i>Navicula sp.</i>
	<i>Navicula sp.</i>	<i>Frustulia sp.</i>	<i>Diatoma sp.</i>
	<i>Achnantheidium sp.</i>	<i>Cocconeis sp.</i>	<i>Achnantheidium sp.</i>
	<i>Diademesmis sp.</i>	<i>Fragilaria sp.</i>	<i>Asterionella sp.</i>
	<i>Diatoma sp.</i>	<i>Diatoma sp.</i>	<i>Meridion sp.</i>
	<i>Brachysira sp.</i>	<i>Gomphonema sp.</i>	<i>Cyclotella sp.</i>
	<i>Rhoicosphenia sp.</i>	<i>Rhoicosphenia sp.</i>	<i>Planothidium sp.</i>
	<i>Nedium sp.</i>		<i>Cocconeis sp.</i>
	<i>Cyclotella sp.</i>		
<b>Green Algae</b>	<i>Gongrosira</i> or <i>Apatococcus sp.</i>	<i>Spirogyra</i>	<i>Stigeoclonium</i>
	<i>Scenedesmus sp.</i>		
	<i>Monoraphidium sp.</i>		
	<i>Ankistrodesmus sp.</i>		
	<i>Unidentified colonial sp.</i>		
<b>Blue-green Algae</b>	<i>Oscillatoria sp.</i>	<i>Oscillatoria sp.</i>	<i>Oscillatoria sp.</i>
	<i>Pseudanabaena sp.</i>		<i>Pseudanabaena sp.</i>
	<i>Leptolyngbya sp.</i>		
	<i>Phormidium sp.</i>		

	<i>Merismopedia sp.</i>		
	<i>Small unidentified colonial sp.</i>		
<b>Desmids</b>	<i>Staurastrum sp.</i>	<i>Cosmarium sp.</i>	<i>Cosmarium sp.</i>
		<i>Closterium sp.</i>	<i>Closterium sp.</i>
			<i>Staurastrum sp.</i>

<sup>1</sup> diatoms listed generally from most abundant to least abundant

Note: Species composition included in this table is for reference only. Taxonomy was not conducted on periphyton plates used in the experiments presented here, however these compositions are fairly stable by season when periphyton plates of are similar gestation period.

5

6 Supplemental information on methods for ancillary aqueous uptake experiments with *N.*  
7 *triangulifer*:

8 For aqueous uptake and efflux experiments, *N. triangulifer larvae* were transferred to individual  
9 acid-washed exposure cups (n=5) with a small square PTFE substrate, filled with 25 mL pH-  
10 adjusted (7.2±0.2) ASW at nominal concentration of 10 µg L<sup>-1</sup> arsenate along with <sup>73</sup>As as a  
11 radiotracer (0.005 µCi mL<sup>-1</sup>). To obtain initial uptake rates from solutions, animals were  
12 analyzed *in vivo* for radioactivity at 24, 48, and 72 hours following a rinse with concentration-  
13 matched stable As (no radioisotope) solution to remove any superficially adsorbed radiotracer.  
14 After the final time point, animals were returned to their exposure solutions for an additional 4-5  
15 days of loading before being transferred to clean water to measure efflux. Individuals lost all  
16 measureable radioactivity within the first 24 hours and therefore efflux could not be quantified.