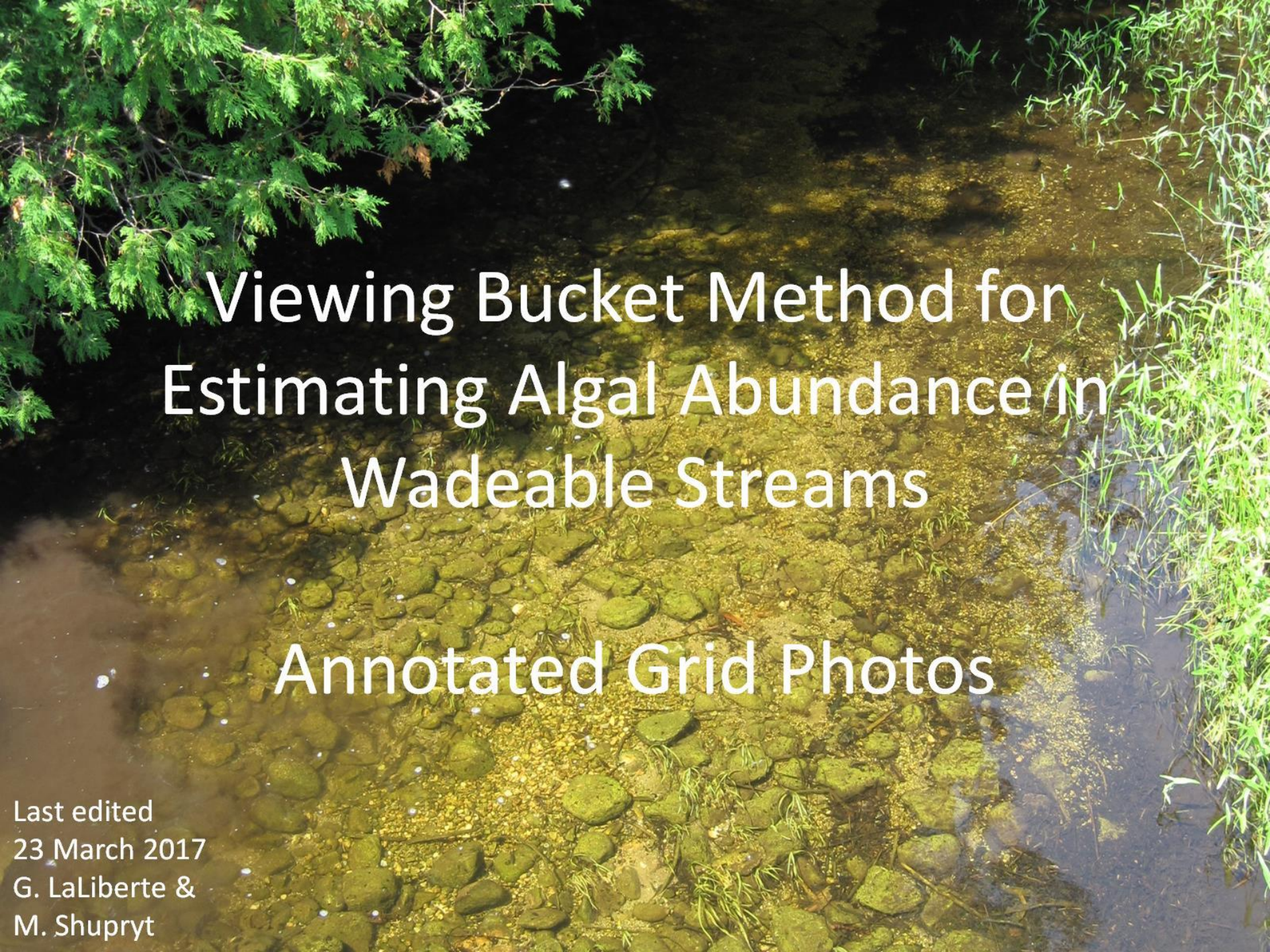

Viewing Bucket Method for Estimating Algal Abundance in Wadeable Streams

Annotated Grid Photos

Last edited
23 March 2017
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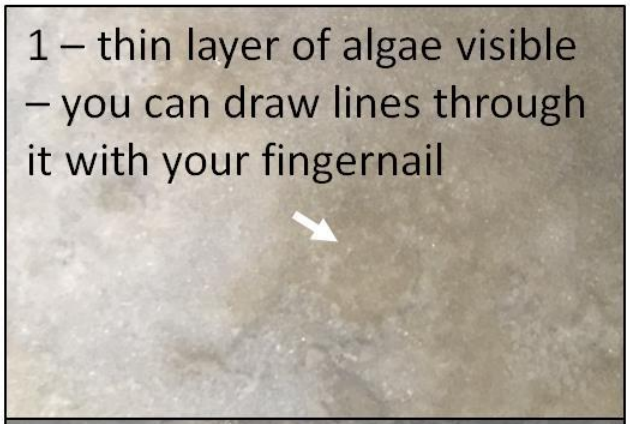
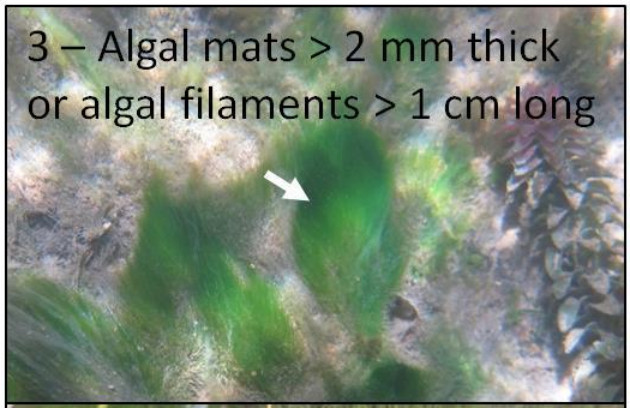
M. Shupryt

SCORING CRITERIA EXAMPLES

NA – substrate unstable & unsuitable for algal growth (not pictured)

0 – Almost no algal growth visible. Substrates feel rough or only slightly slimy (not pictured)



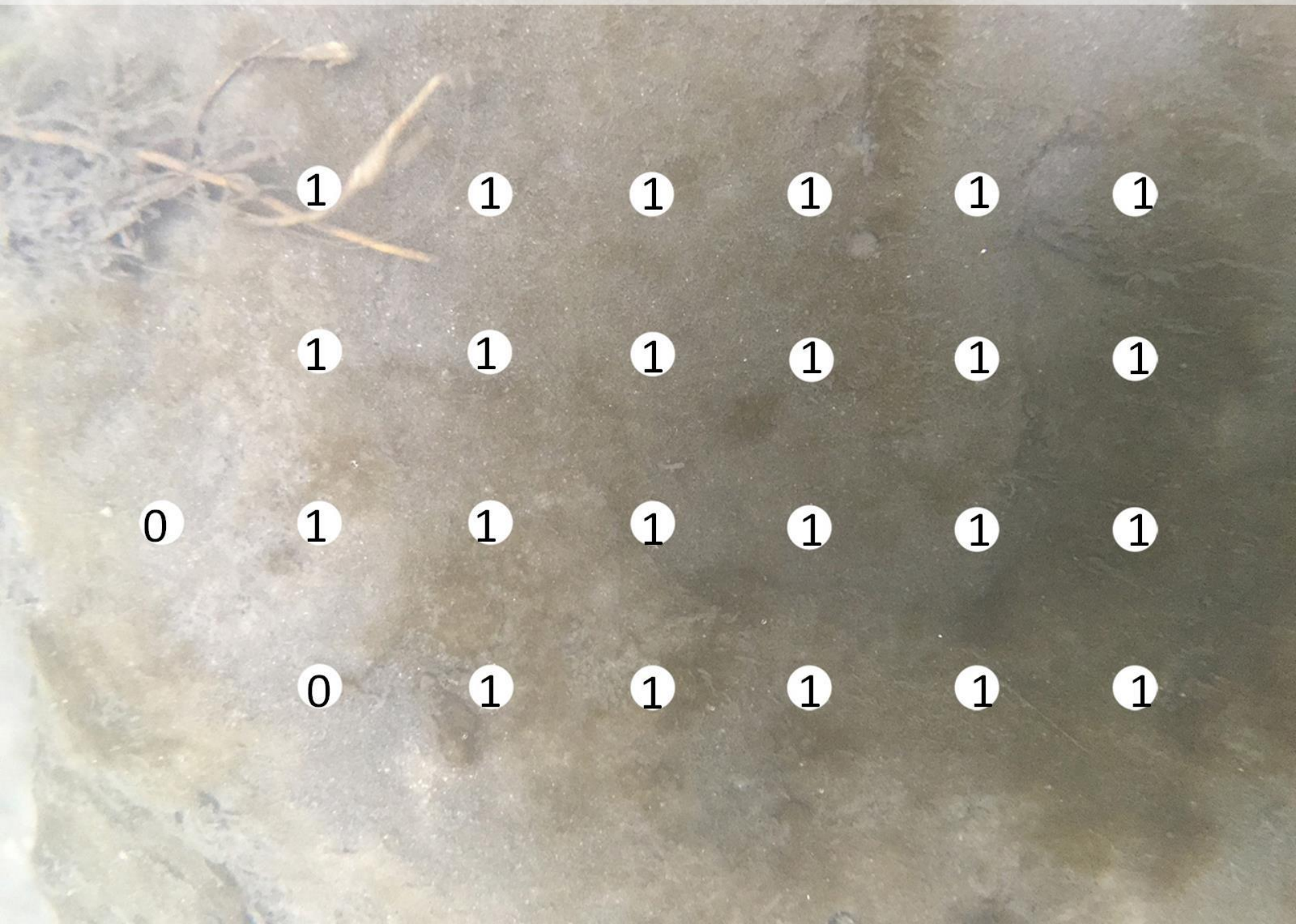


Keep in mind…

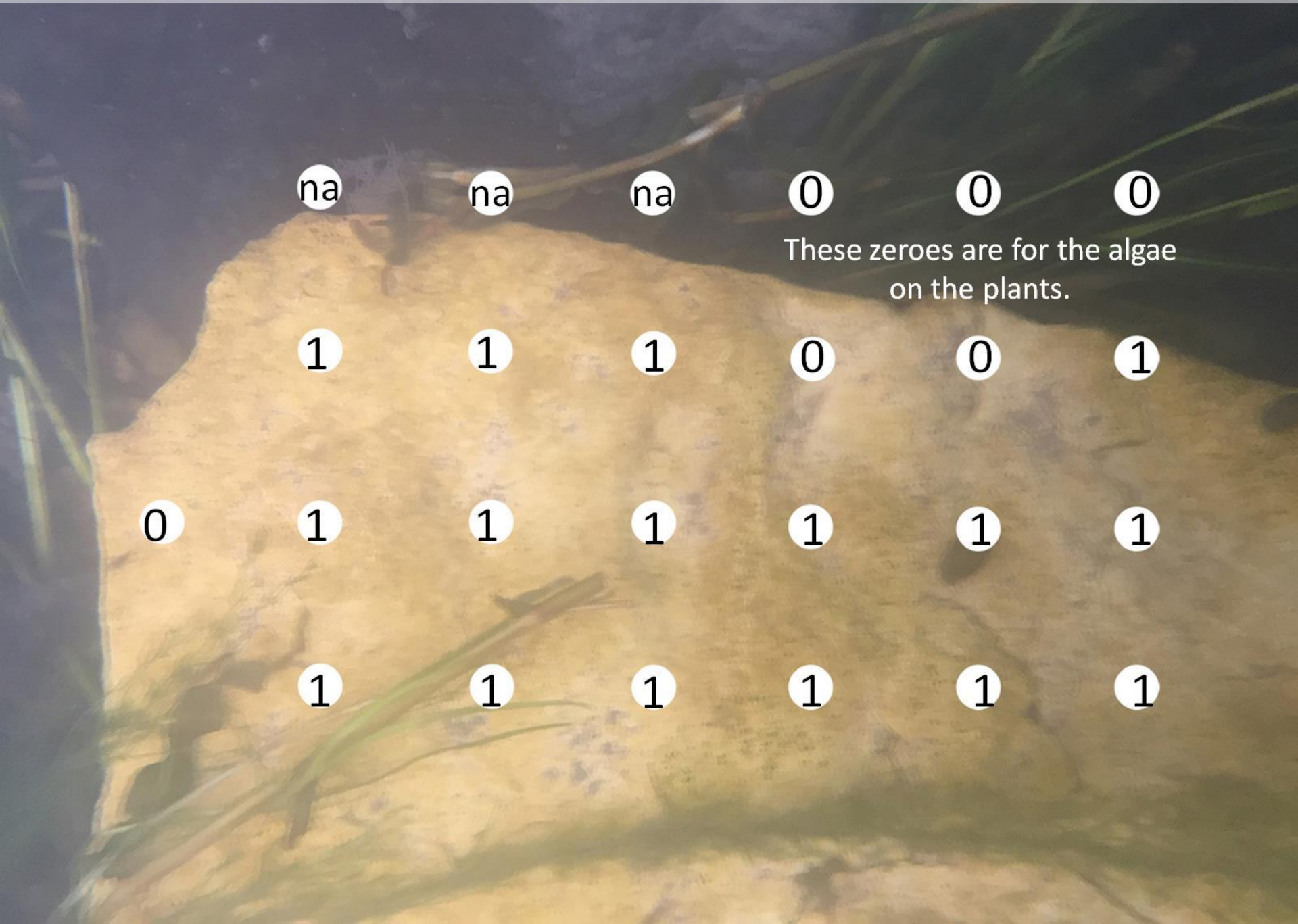
It's a little difficult to view these photos and say with absolute certainty that a given point is a 0, 1, or 2. You will be able to see the biomass better in the field, and you can touch the rocks to feel for slimy films and scratch them to see if your fingernail leaves a track in the coating.

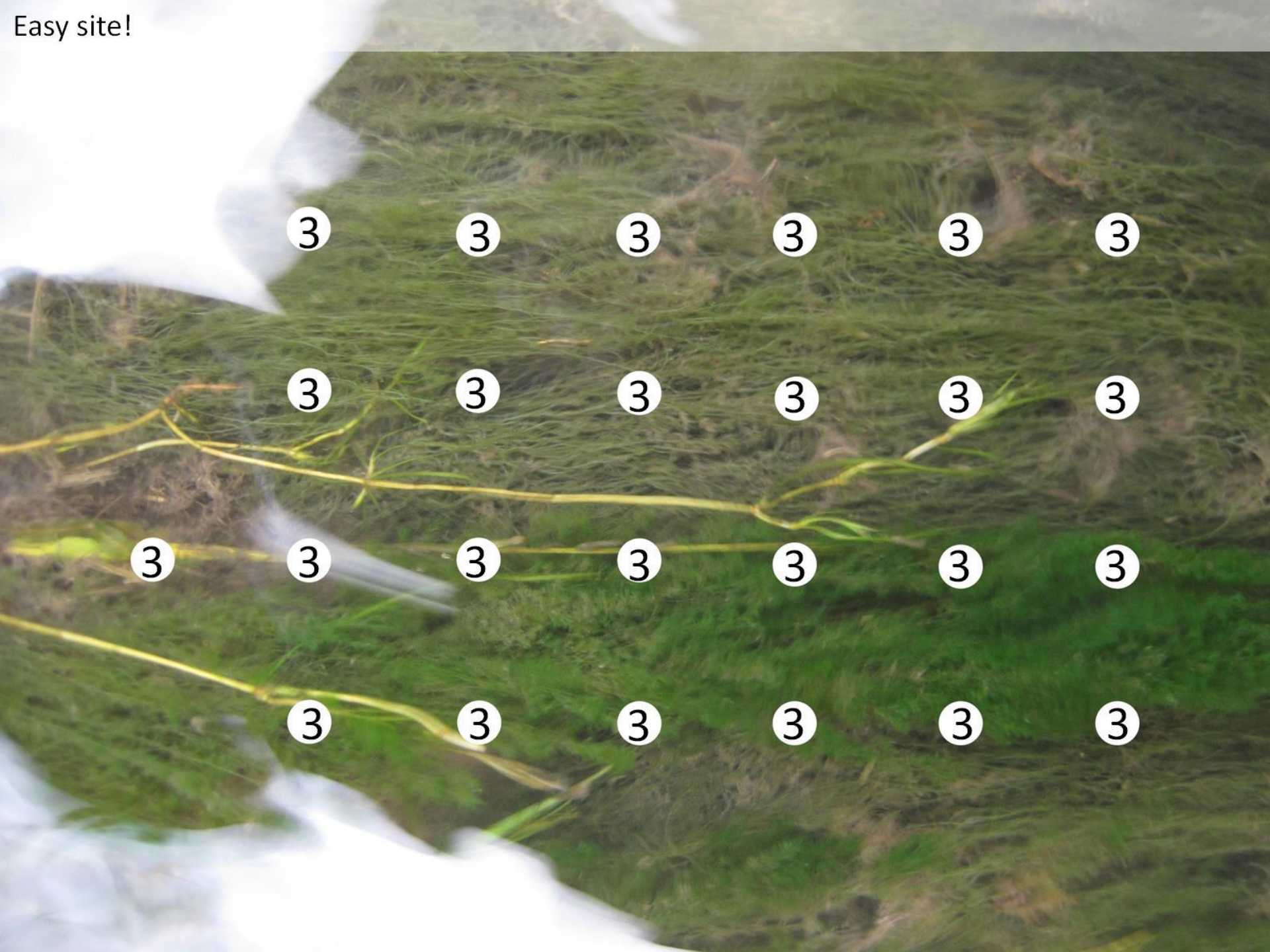
The aim of this method is to get a rapid assessment of algal biomass. For instances where it's not clear if biomass is responding to phosphorus, we will see what the diatoms have to say via the DPI.

The sediment appears to be stable enough for the growth of a diatom film.



Let's assume it's all loose sand or sediment at the top of the photo, beyond the boulder.




Easy site!
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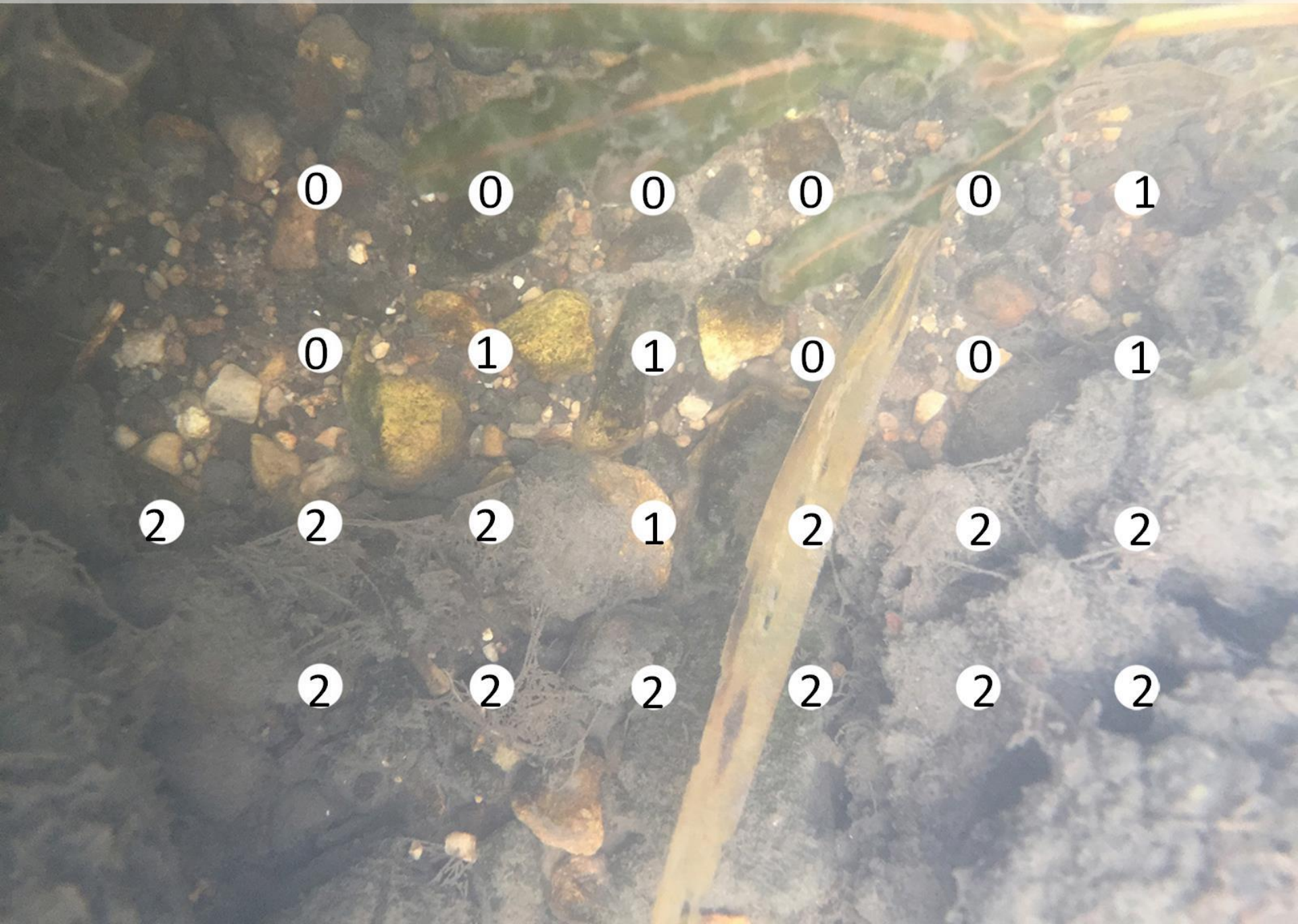
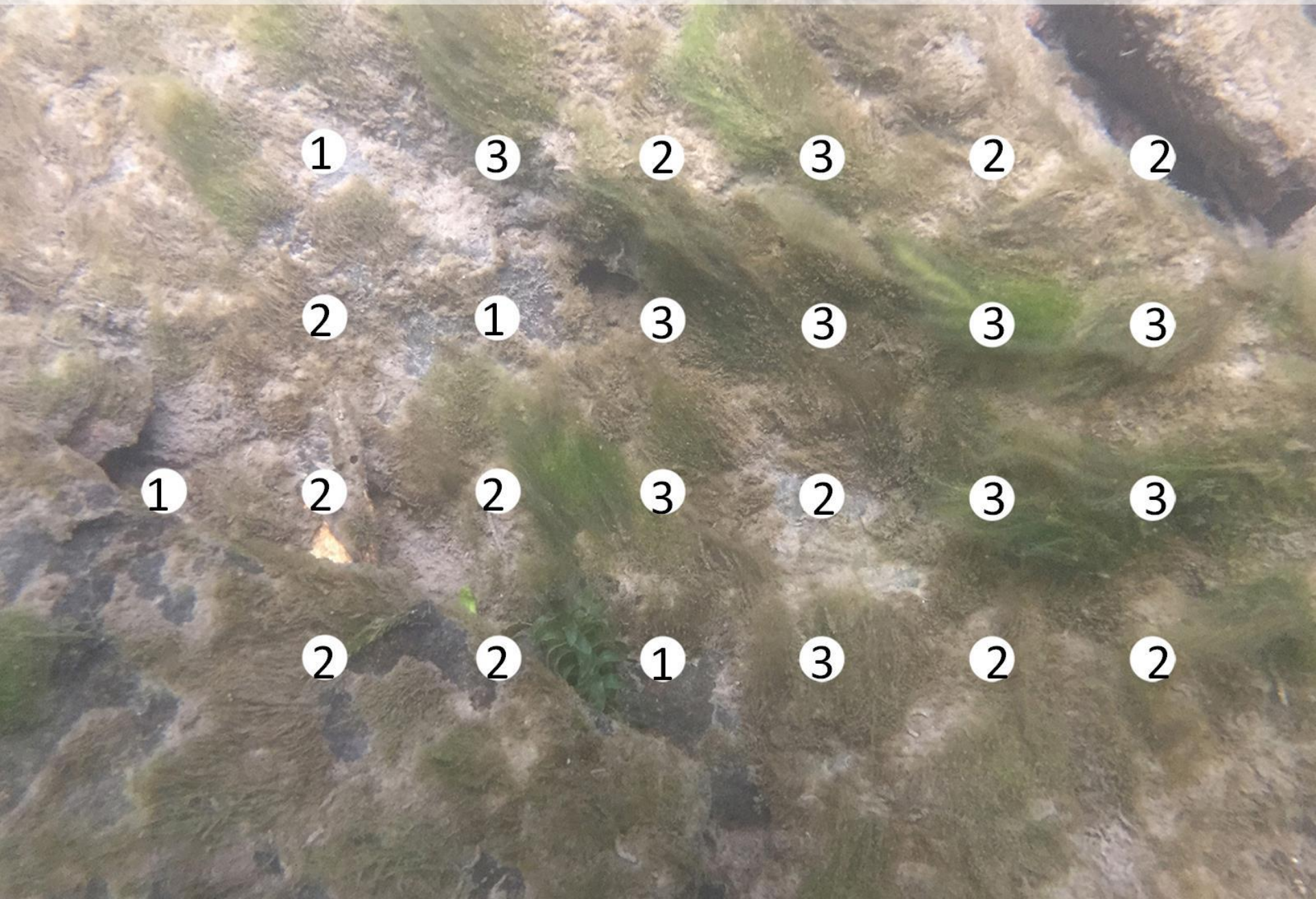
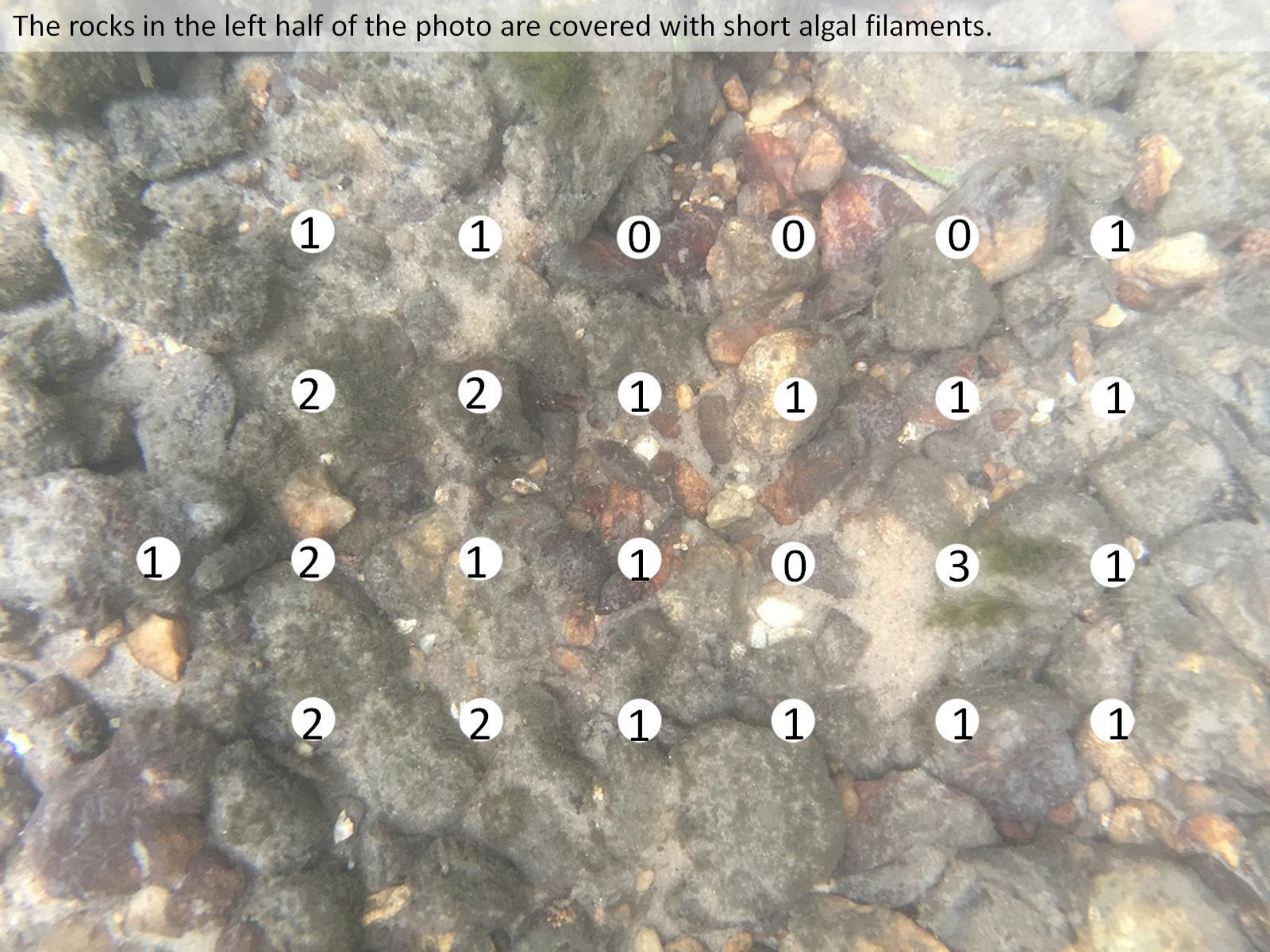
Substrate in the bottom half of the photo has short algal filaments covered in sediment.



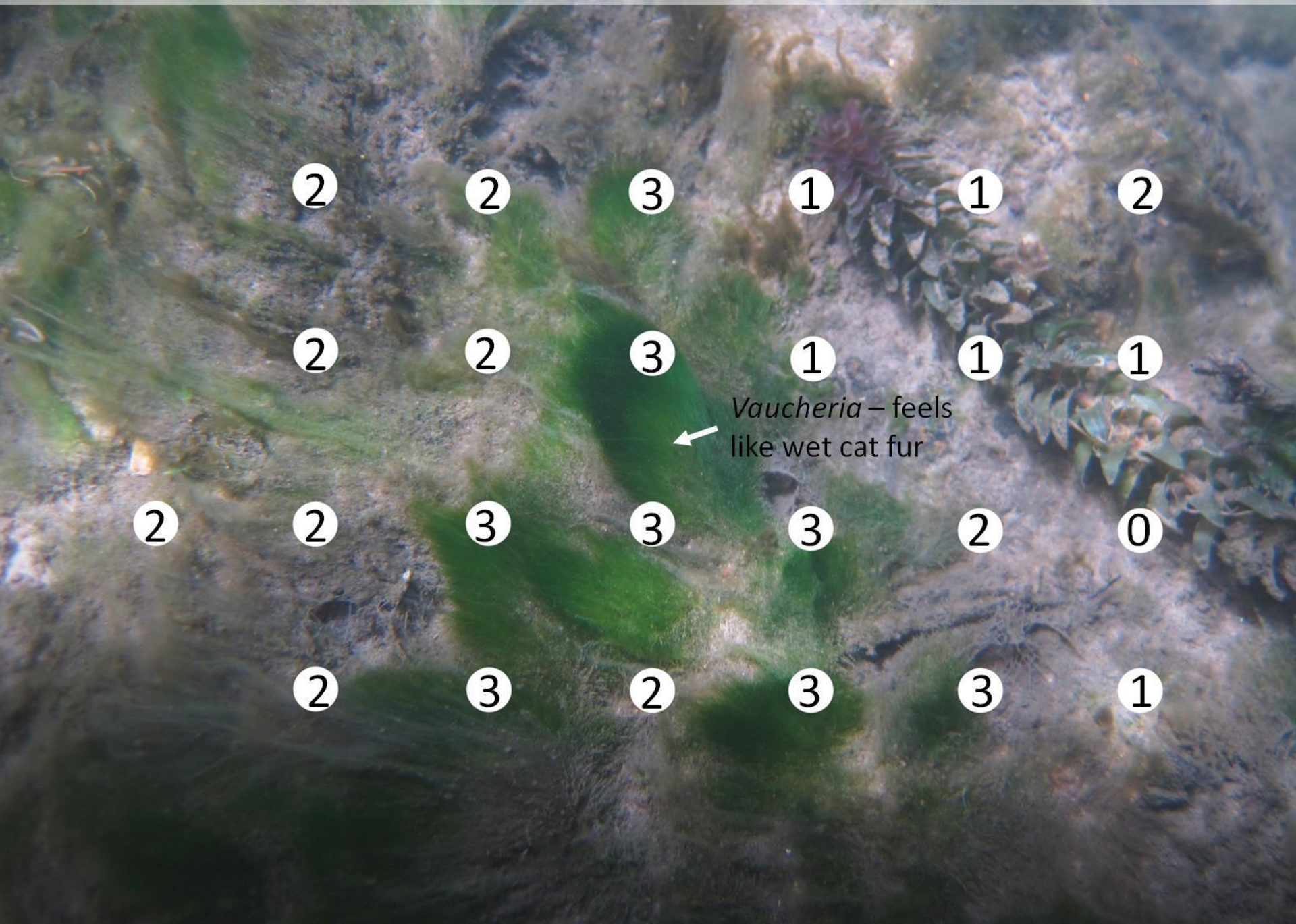
You may want to start with the easiest category, e.g., long filaments or unsuitable substrate, and fill in the remaining scores based on what is left. The green filaments are 2 to 4 cm long.



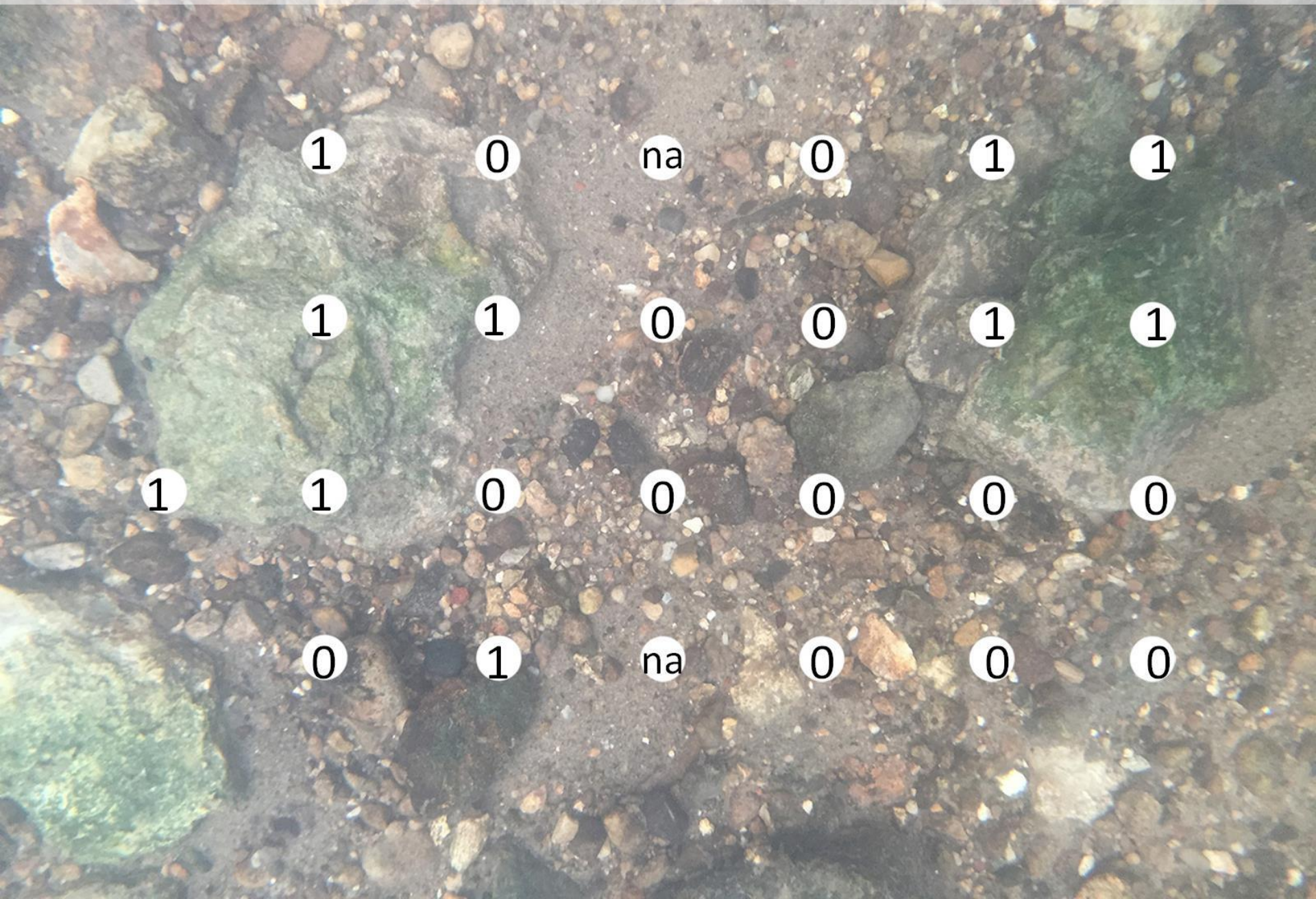
The rocks in the left half of the photo are covered with short algal filaments.



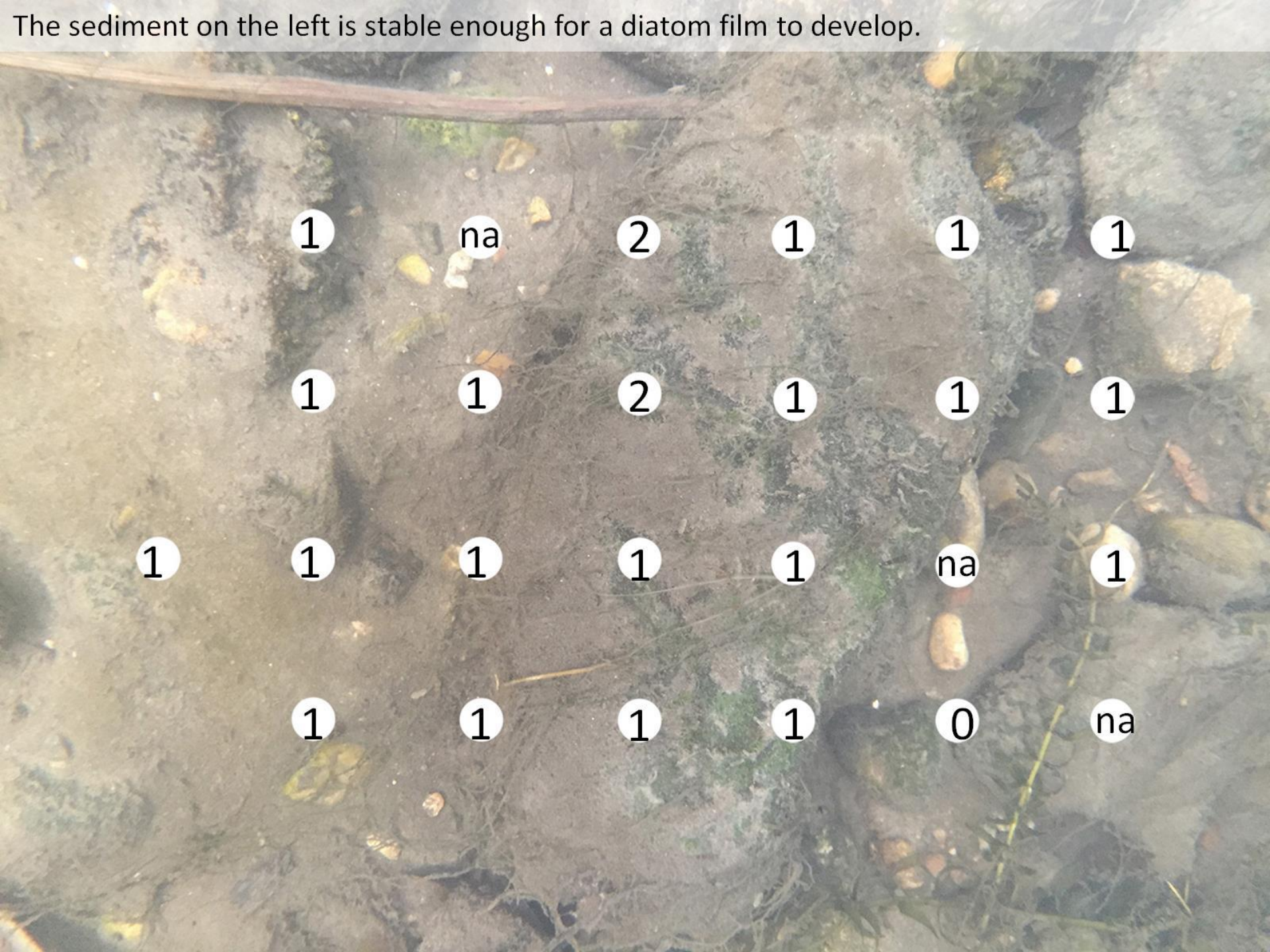
Plants aren't scored, but any algae growing on them is scored.

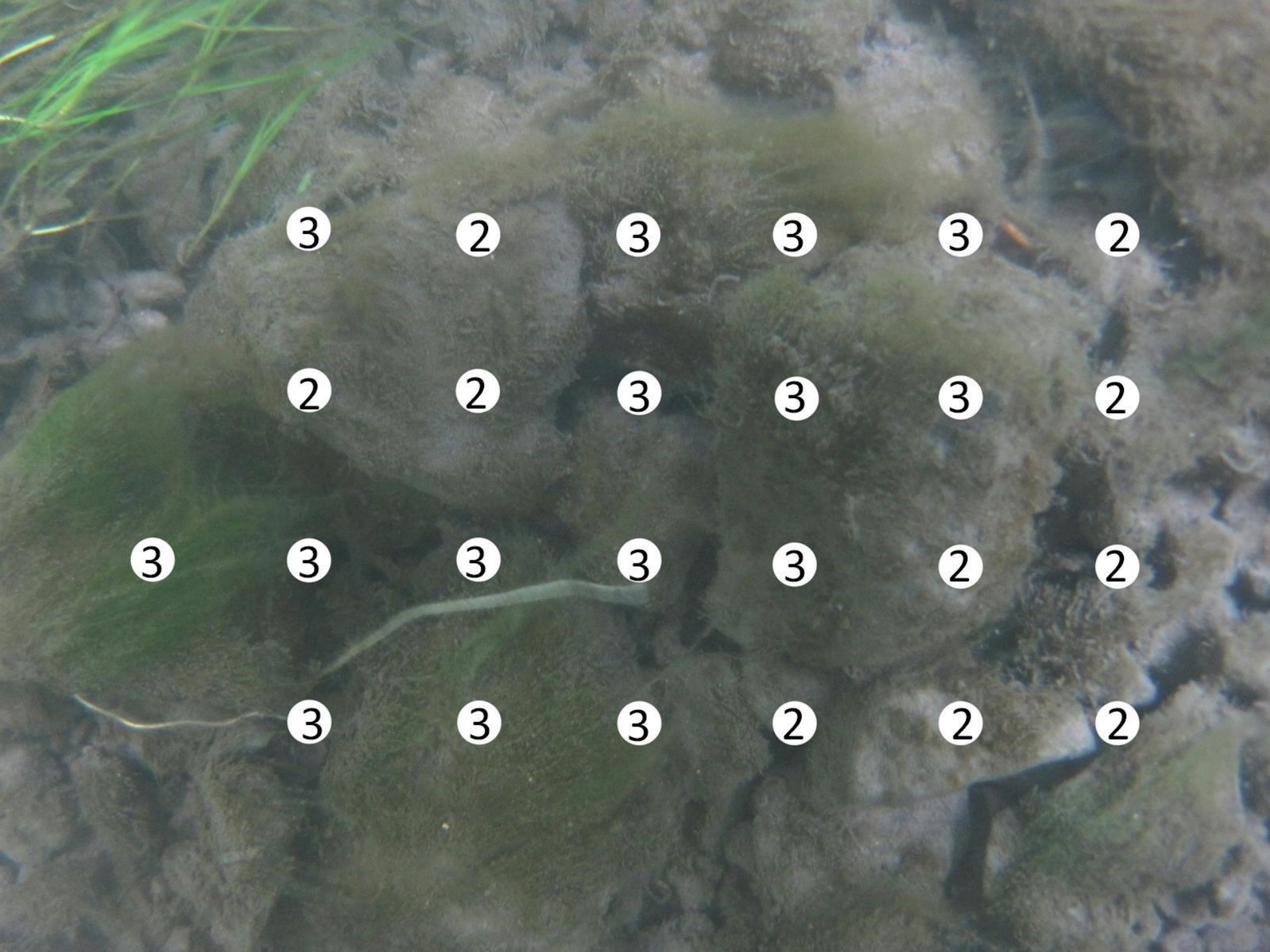


That’s a thin layer of cyanobacterial crust on the larger rocks. Algae can grow on the smaller pebbles provided they are somewhat embedded – assume that is the case in this photo.



The sediment on the left is stable enough for a diatom film to develop.




3 2 3 3 3 2
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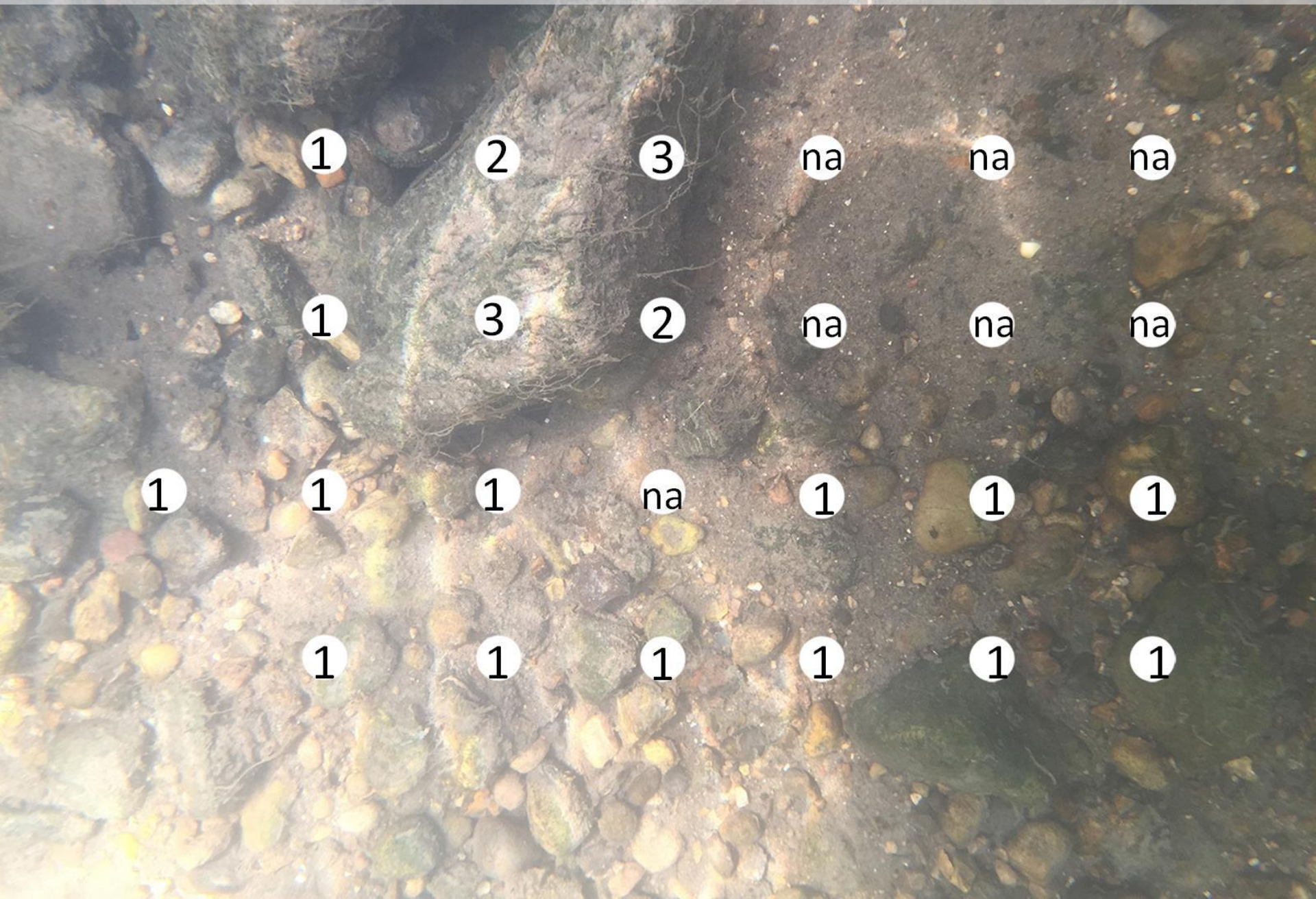
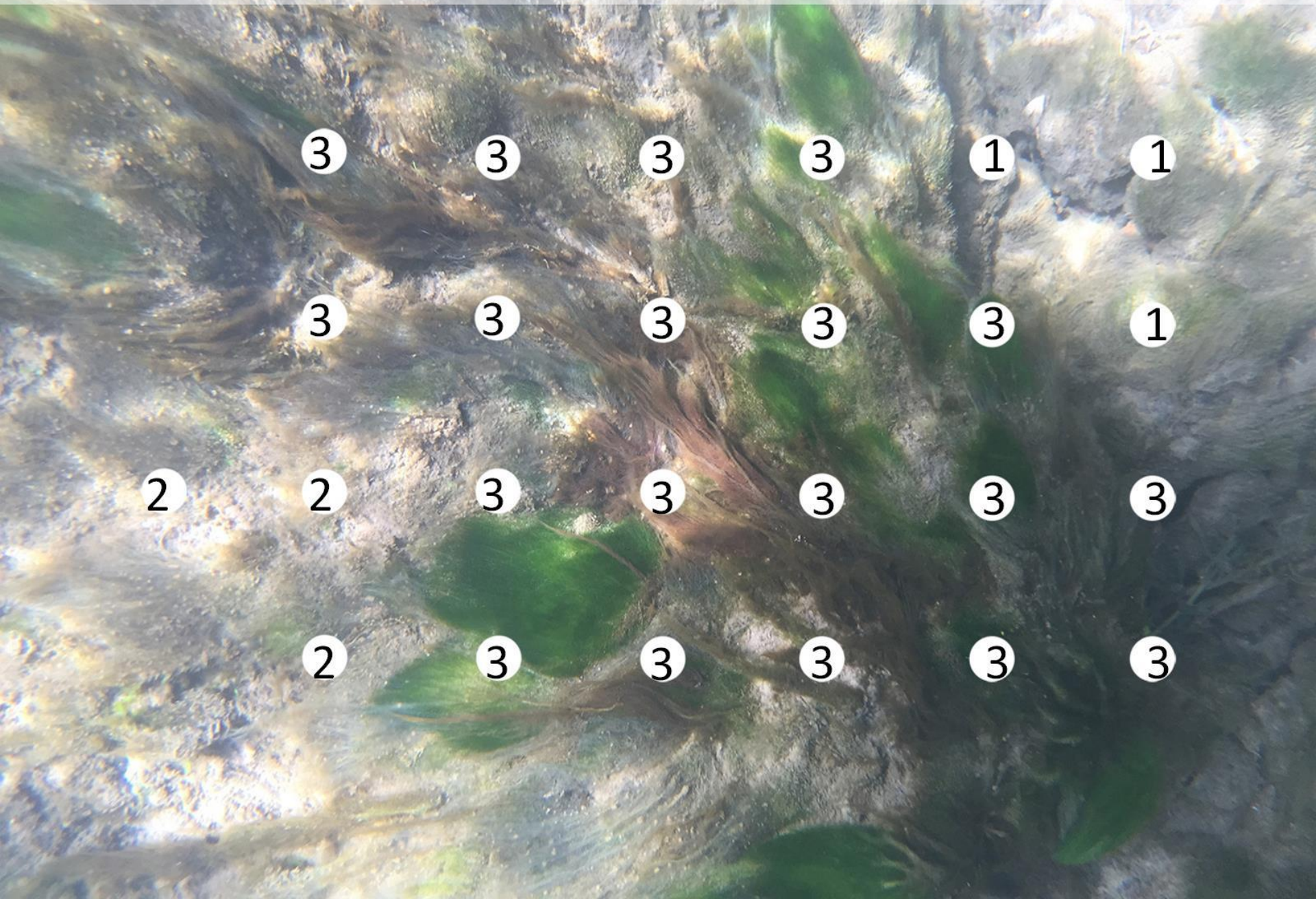
3 3 3 3 3 2 2
3 3 3 2 2 2

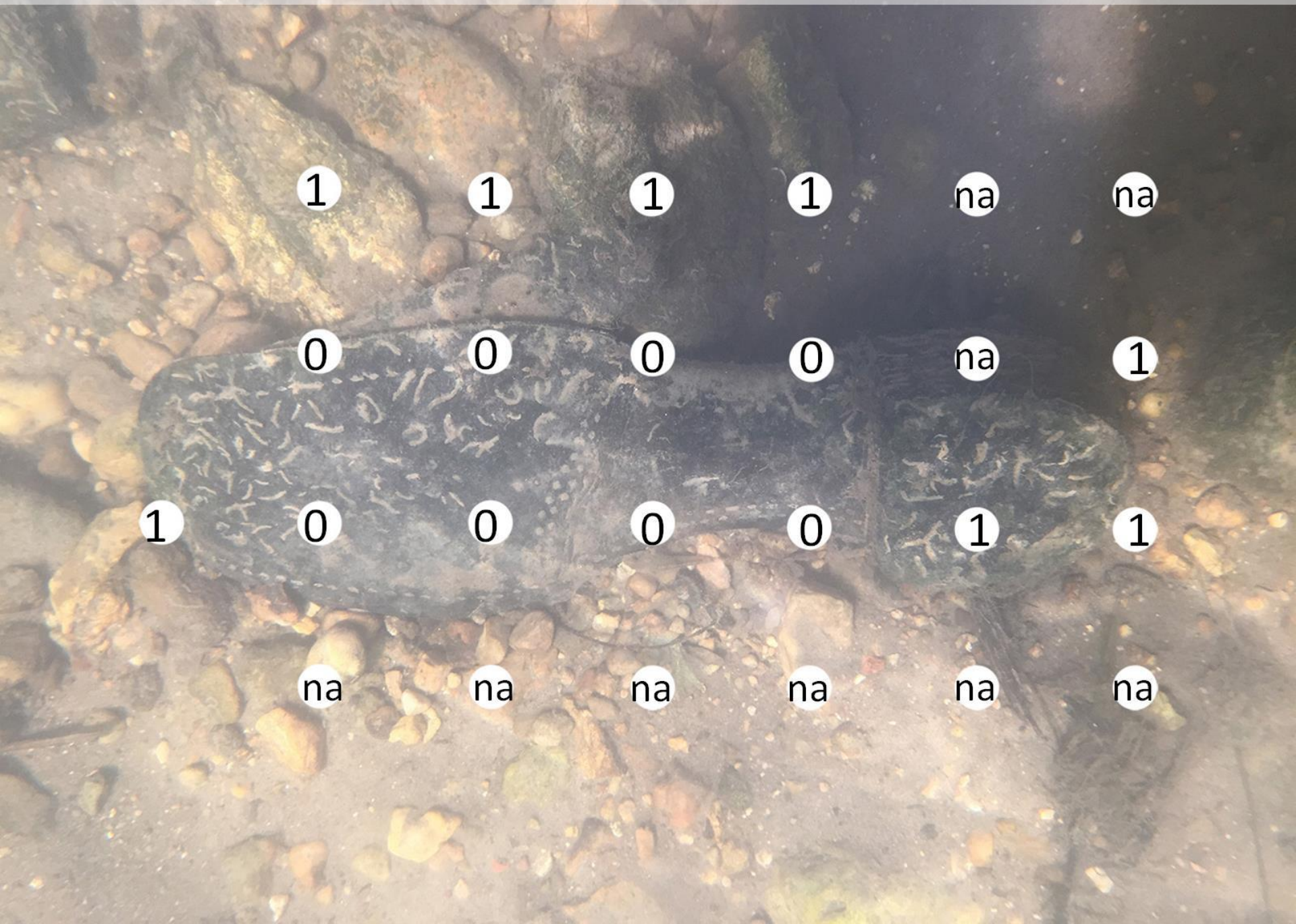
The sand at the right does not appear to have any algal coverage, so is probably unstable. There are some long filaments on the largest rock.



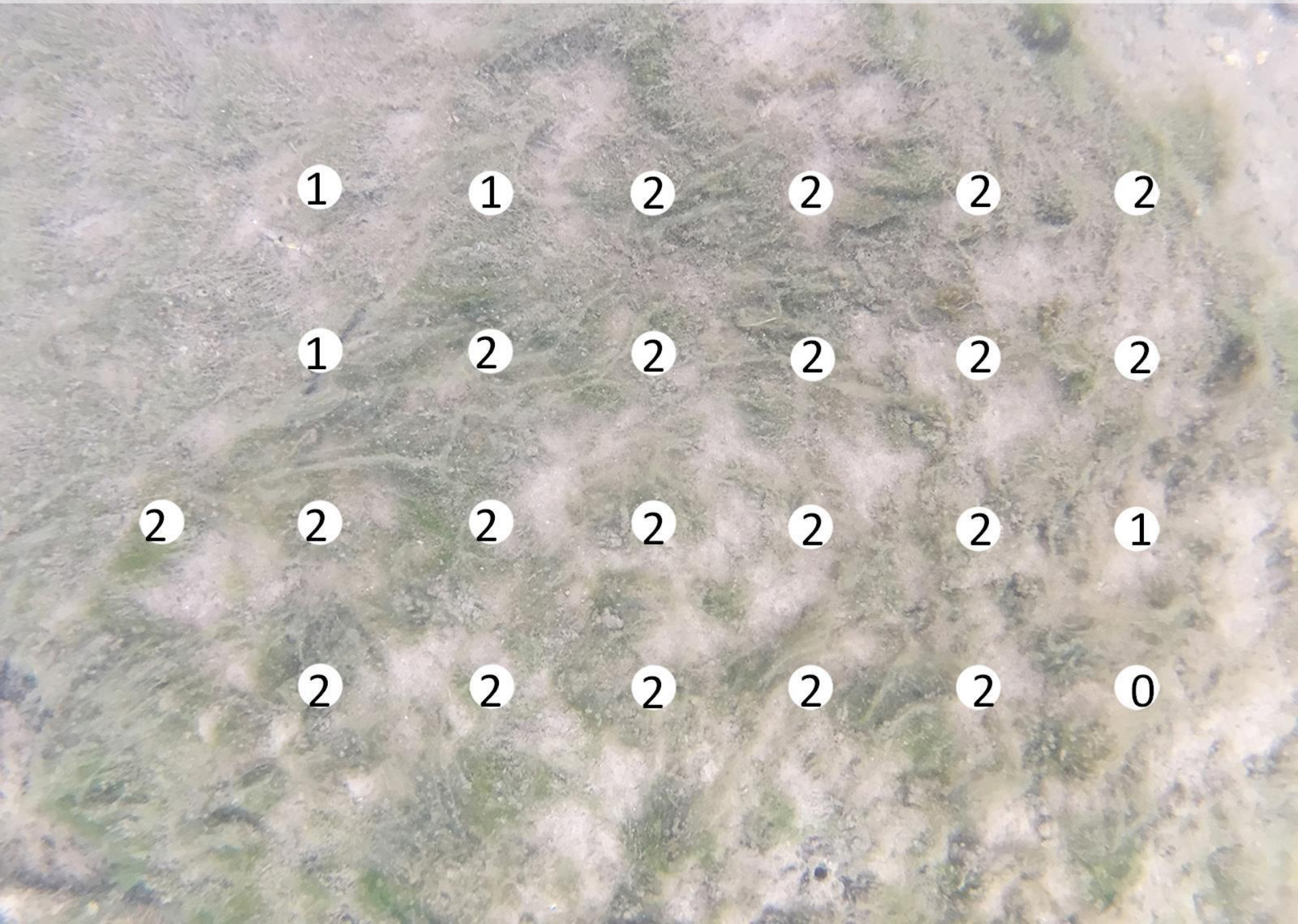
The brown stuff is probably diatoms growing in filaments, or diatoms coating senesced filamentous green algae or *Vaucheria*.

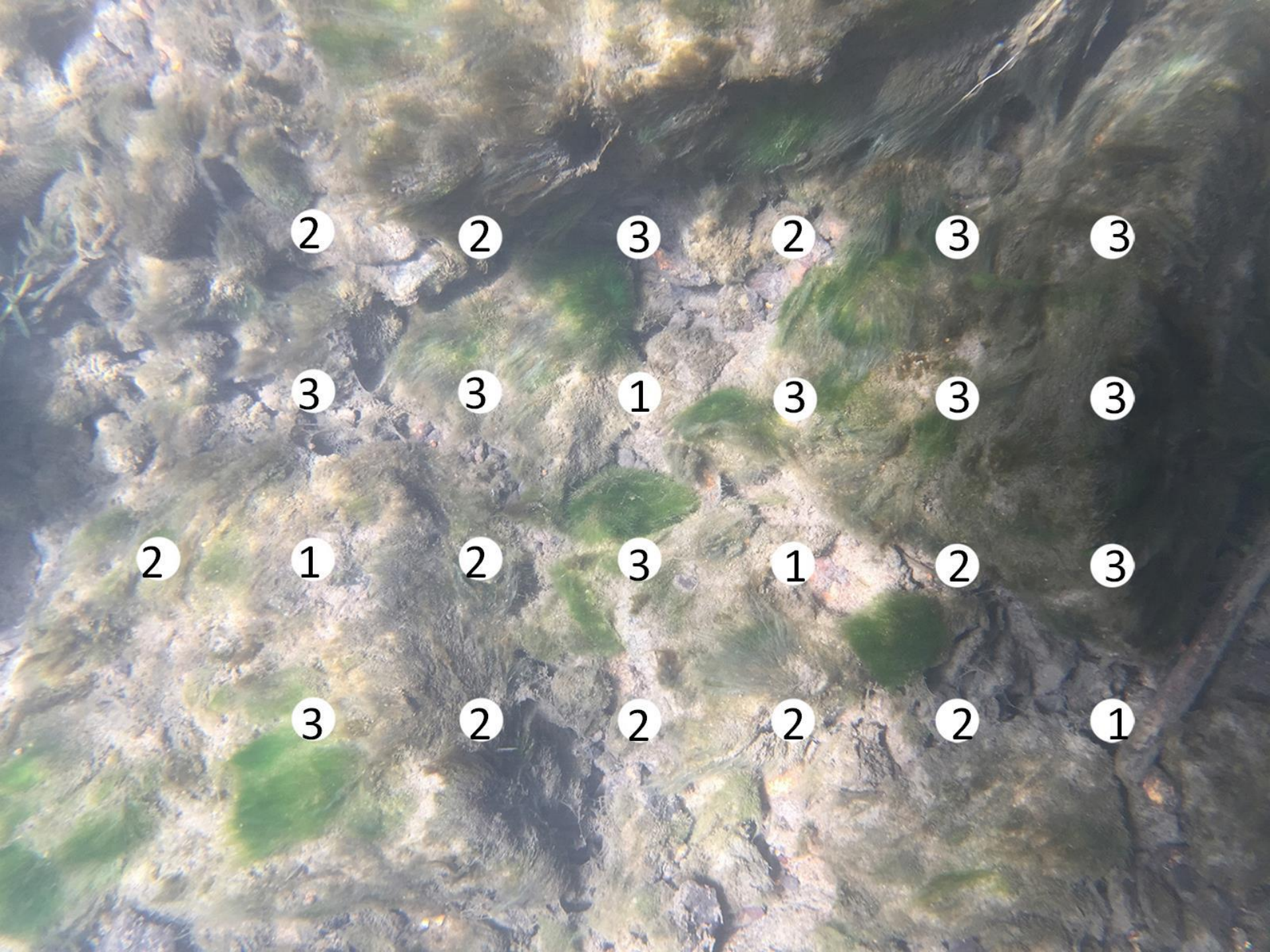


Perhaps not an optimal substrate for algae.

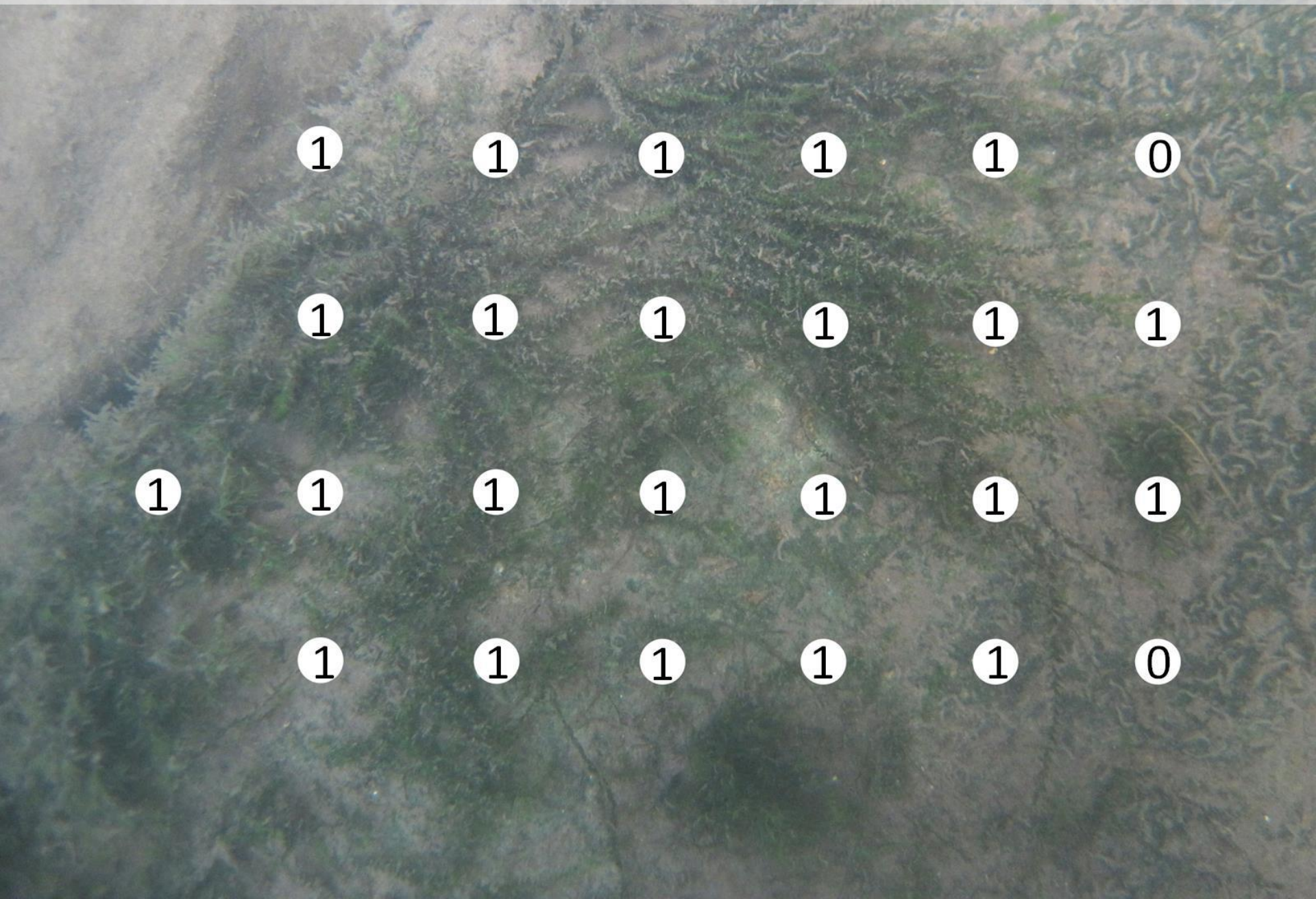


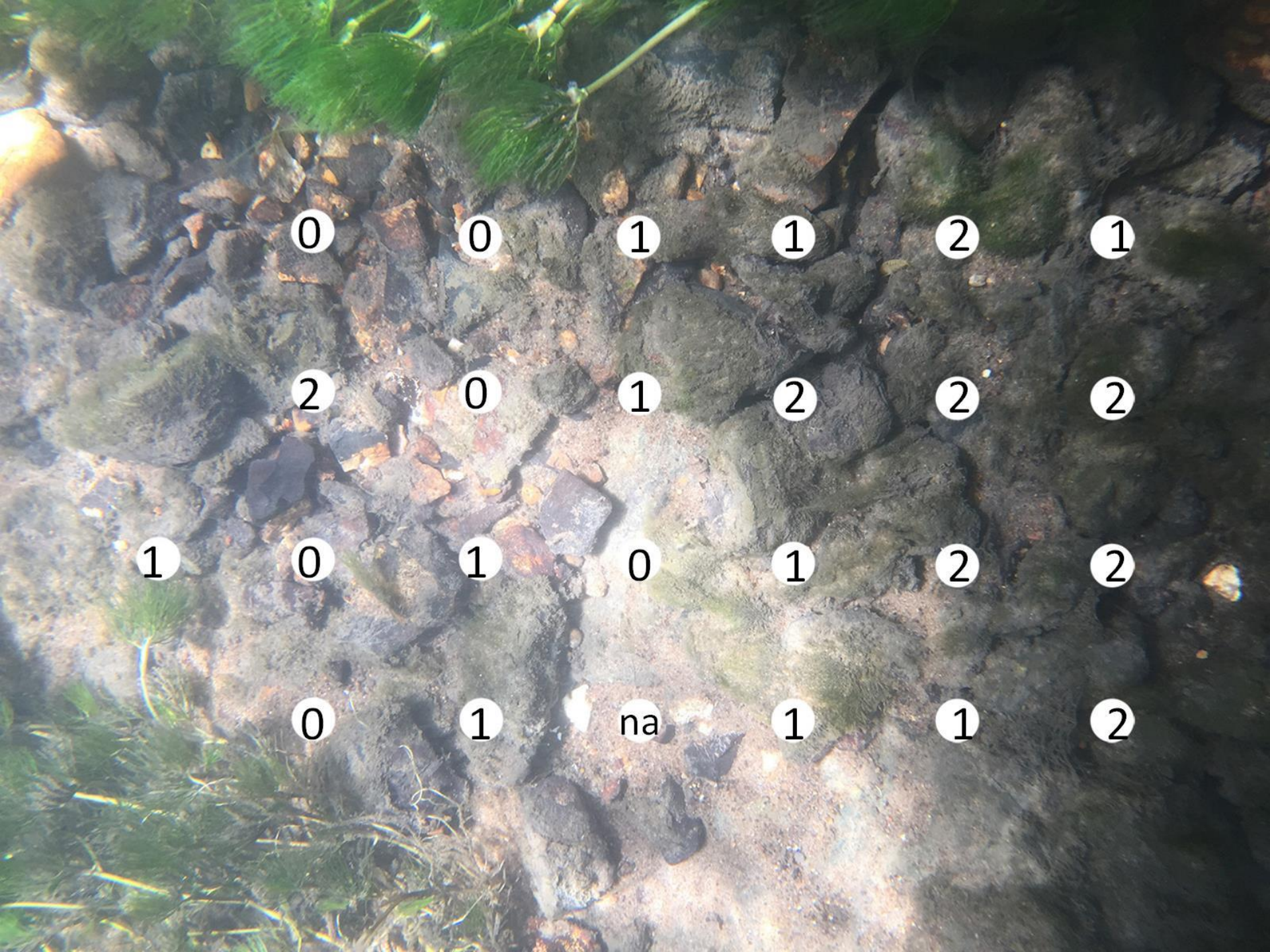
No unsuitable substrate – sediments are stable enough for algal growth.



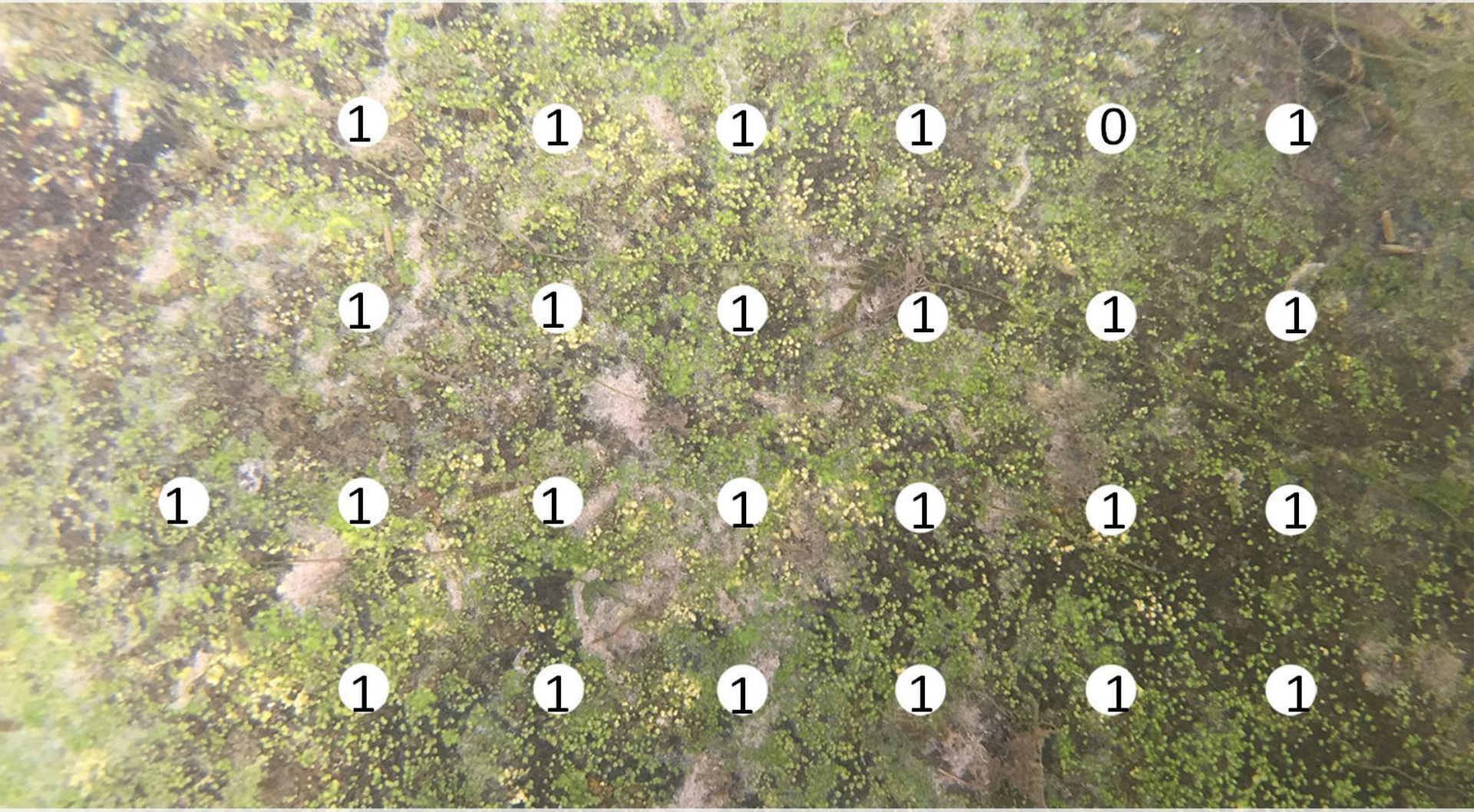

2 2 3 2 3 3
3 3 1 3 3 3
2 1 2 3 1 2 3
3 2 2 2 2 1

Bryophytes aren't scored, but they are suitable substrate so any algae growing on them is scored. Most plants and bryophytes will have a thin coat of diatoms on them.




0 0 1 1 2 1
2 0 1 2 2 2
1 0 1 0 1 2 2
0 1 na 1 1 2

This might not be algae. The green patches look like lichen. If you see similar coverage on unsubmerged stones, choose a different VB location with substrate that appears to have been submerged for a longer time and has not fallen or been thrown into the stream.



You might find that all of the substrate has patches of lichen if the stream is intermittently dry. In that case, assess the algae as best as you can (here, the points are 0 or 1).
(And yes, lichen = algae + fungi but we are not assessing the algae in this symbiosis.)