

# My Trip with the Great Plants of Lake Michigan



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Last summer my dad took me on a tour of Lake Michigan!  
He told me that there's a special mystery we need to solve together.



My dad is a boat captain and he told me that a mysterious green ooze was appearing in certain parts of the lake. It was our job to figure out what this green stuff was.



As we started our journey, I started to see patches of green floating on the water. My dad could see that I was curious. "I'm an expert navigating this lake, so if you have any questions about the plant-life you see, I'll be happy to tell you all about them!"



Along a small island surrounded by clear water, I saw something bright yellow with a black patch in the center. Could it be the eye-patch of a pirate sailing these waters?



“That’s Black Eyed Susan,” said my Dad, “a plant we can find here around Lake Michigan and the other Great Lakes!”  
I asked him to get closer so I could get a better look.

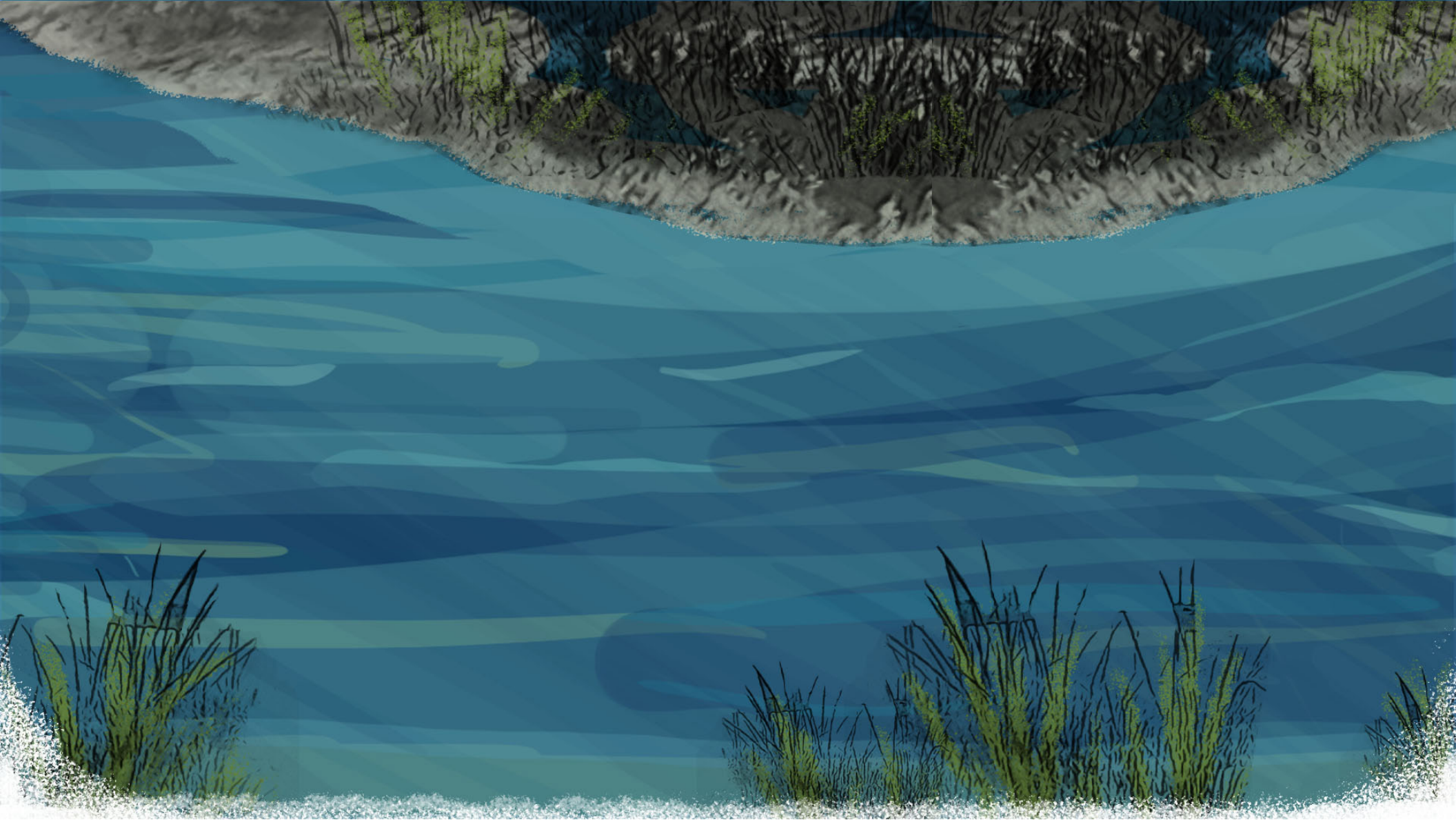


My dad told me how Black Eyed Susan helps keep the lakes pure. She has long, long roots that dig deep underground and help divide up nutrients so all the plants have the food they need. Their food is called **phosphorus**."

"Aye, matey!" growled Black Eyed Susan, "But that green monster has been stealing all the food for itself."



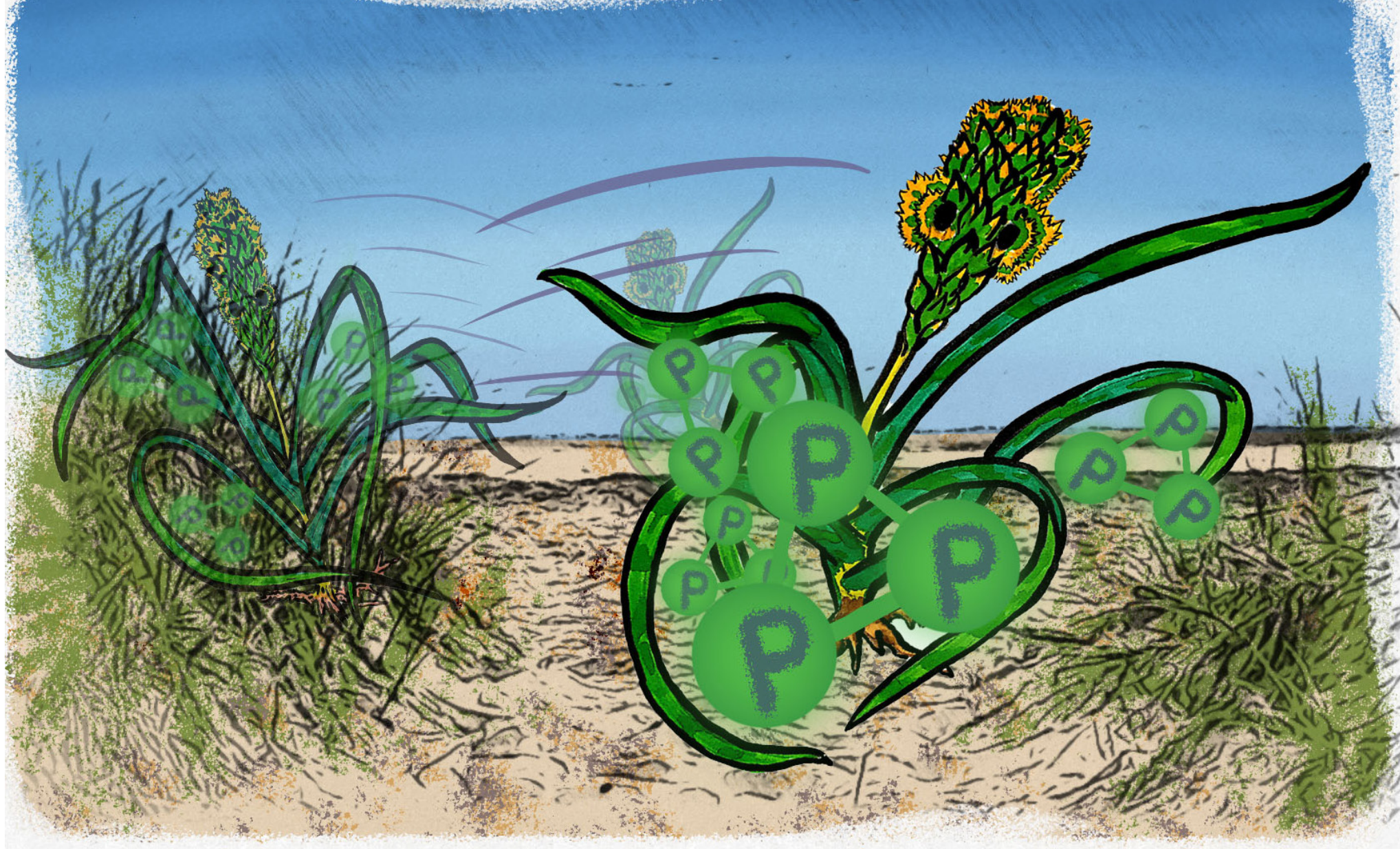
If even the pirate Black Eyed Susan can share her food, why is this green stuff being so greedy? I was excited to learn more on my journey. “Thank you Susan!” I said, and waved her goodbye.



Further along the shore my dad pointed out another plant waving to us  
in the wind. “Look, son! Over there!”



“Hi there! “I’m American Beach Grass – Amy for short!  
My long leaves help me catch and eat phosphorus,  
so that it won’t make Lake Michigan dirty.”



Amy snatched up all the phosphorus. She cleaned up the beach and the green in the water started to disappear once again.



We said goodbye and continued on. As the water got bluer, something else caught my eye. “What’s that pretty bush over there?”



A dog was the last thing I was expecting to see in the middle of the lake, but there was Ninebark! It seemed excited but stayed very still.

“Hi! Hi!” he barked.



“How do you help the ecosystem? I asked. “I patiently sit wherever I’m planted and grow very, very fast! My long tangling roots grow deep underground, and I eat up lots of phosphorus to keep the lake clean!



Wow, all these friendly plants play an important role in helping to keep the lakes clean! We learned a lot, but I still didn't know why the lake was turning green.

Dad told me that the green stuff is called Algal Bloom. "He's not from Lake Michigan, but he's stealing food from the nice plants who live here."

The Algal Bloom has grown so big that the lake became cramped. He spreads so far over the lake's surface that the fish and underwater plants die because they can't see or breathe.



I saw many tiny green things swimming to the front of the boat.

“What’s happening?” I shouted.

The cells formed together, building a giant mass that rose over the boat.

Then, suddenly -



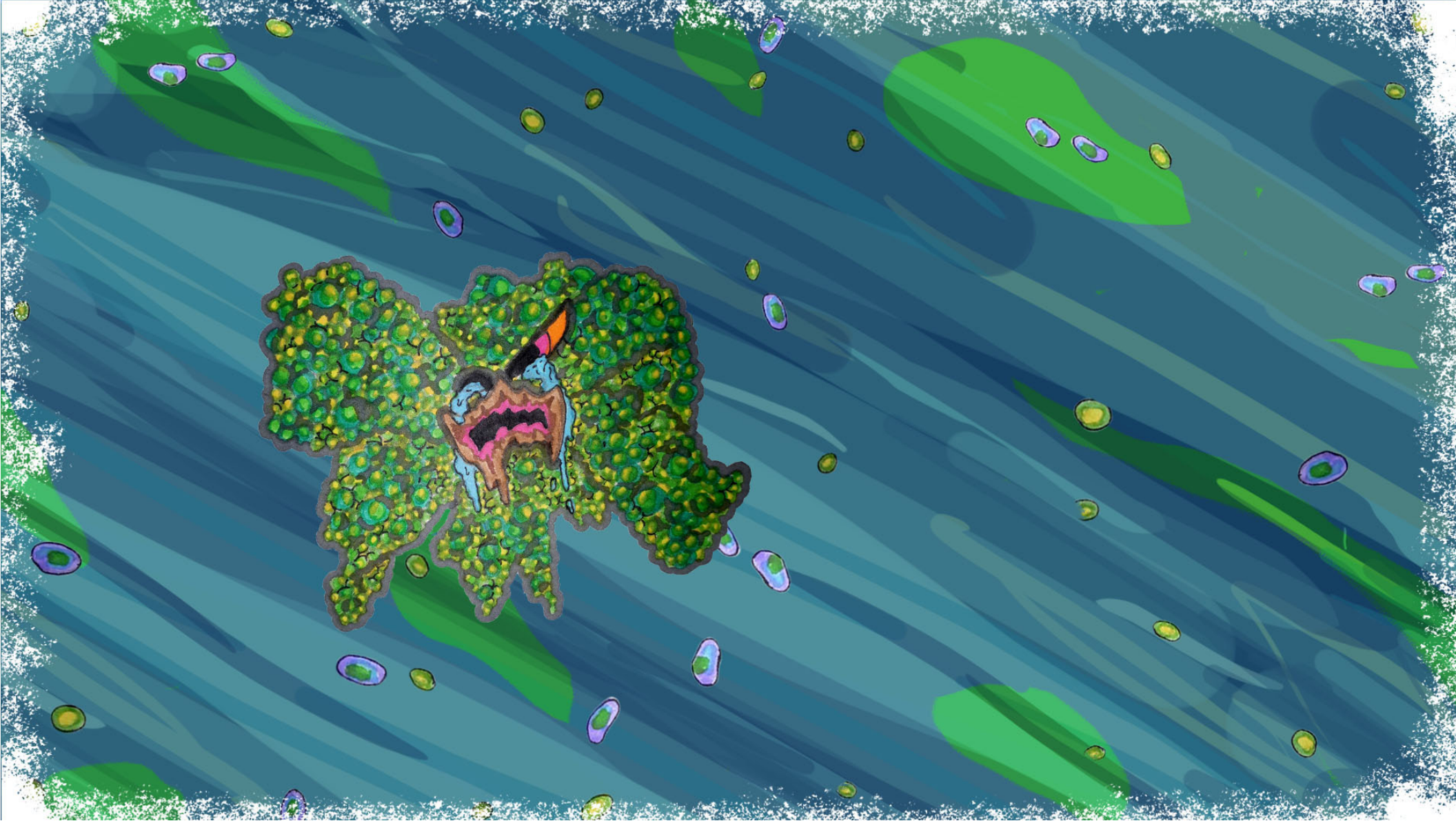
“Mwahahaha! Now you’re trapped here!” the Algal Bloom roared.  
They rose up from the water, revealing their monstrous mass.



“If you don’t keep me in check, I’ll grow all over your little boat too!”  
they bullied. How could we get past the Algal Bloom and get back to  
shore to start cleaning up the lake? We’d need some help.



Suddenly, all of the plants we'd become friends with came to our aid!  
Using their roots they started to gather the phosphorus around the  
monster.



“Nooo!” the Algal Bloom cried! “Without phosphorus to eat, I can’t keep this size! I won’t be able to spread across the lake!”  
And they shrank and they shrank until they were no more.



Hurray! We defeated the Algal Bloom! The water became clear and blue again and all of the plants seemed happy.



Thank you Black Eyed Susan! Thank you Amy the American Beach  
Grass! Thank you Ninebark! I'll always remember to take care of plants  
like you and keep my lakes safe.

My father also mentioned that we can help those plants  
by doing a couple of other things:

We can make a rain garden in a depression or basin around our house  
to reduce the amount of water running off with phosphorus.

We can also use products that have less phosphorus,  
such as fertilizers and soaps.

Let's keep the Great Lakes clean!

# GET TO KNOW YOUR NATIVE PLANTS

Unlike plants that come from other places, these plants have unique root feature that allows them to absorb more nutrients. More nutrients absorbed by plants means less nutrients going to the lake and cause algal bloom. Algal bloom happens when algae covers water surface and prevent sunlight and oxygen to get into the water for the fishes and other living things.



## Black Eyed Susan

*Rudbeckia hirta L. var. hirta*

It can grow as tall as 1-3 feet. It has a very long root and it can grow with moist to dry soil. It can grow in many places, from prairies to roadsides.

[https://www.nrcs.usda.gov/Internet/FSE\\_PLANTMATERIALS/publications/etpmcpg13467.pdf](https://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/etpmcpg13467.pdf)



## American Beach Grass

*Ammophila breviligulata Fern.*

It can grow as tall as 2-3 feet. In late July or August you can see its yellow seed head. Its root can go deep into sand unlike other plants that grow on soil.

<https://www.flickr.com/photos/35027905@N04/3607414430>  
<https://www.flickr.com/photos/60107315@N00/3557793284>



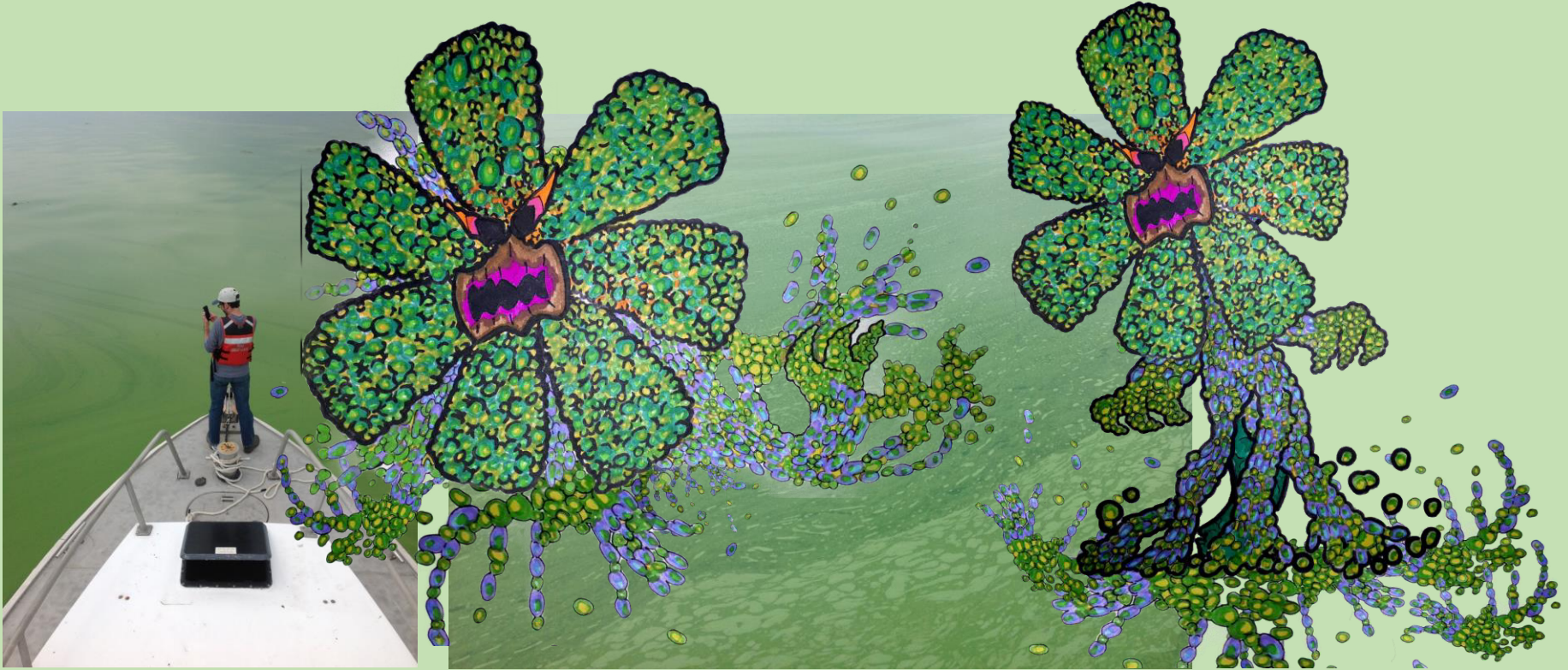
## Ninebark

*Physocarpus opulifolius*

It can grow as tall as 4-9 feet. It got the name from the multiple layers of barks which peel. It can actively reproduce for a long time with its long bloom period.

<https://www.flickr.com/photos/23326361@N04/2972882399>  
<https://www.flickr.com/photos/86953562@N00/48152283636>

# GET TO KNOW THE HARMFUL ALGAL BLOOM



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The monster in this book might look like a flower in bloom, but **harmful algal bloom is a very real problem**. The algae that can be found in the Great Lakes are **blue and green algae**, which are actually a really small creature called **cyanobacteria**. Usually they are not visible to the naked eye, but, we can see it clearly covering the lakes when it overgrows as seen in above photos.

You can see this situation in **Lake Michigan's Green Bay, Lake Huron's Saginaw Bay, and Lake Erie's shallow western basin**. It is caused by **too much phosphorus or nitrogen** coming from malfunctioning septic systems, household or industrial detergents, lawn fertilizers, and urban and agricultural runoff.

Algal bloom become **harmful** when the **toxic** it produces get in contact (e.g. swimming) or consumed (e.g. drunk, cooking) by people and other living beings in and around the lake. Moreover it can **reduce the sunlight and oxygen** other living beings need to make food and breath in the lake.

# Further Resources

You can go to these link to learn more about the native plants of the Great Lakes region and it's role in tackling Algal Bloom.

For the kids:

[https://kids.kiddle.co/Algal\\_bloom](https://kids.kiddle.co/Algal_bloom)

For the parents:

<https://www.michiganseagrant.org/topics/coastal-hazards-and-safety/harmful-algal-blooms/>

[https://www.michiganseagrant.org/wp-content/uploads/2018/10/bluegreenalgae\\_2009factsheet.pdf](https://www.michiganseagrant.org/wp-content/uploads/2018/10/bluegreenalgae_2009factsheet.pdf)

[https://www.canr.msu.edu/news/protecting\\_michigans\\_waters\\_what\\_can\\_you\\_do](https://www.canr.msu.edu/news/protecting_michigans_waters_what_can_you_do)

## GET TO KNOW THE AUTHORS OF THIS BOOK

This book was created as a completion of a course assignment in the University of Michigan School for Environment and Sustainability. The course was titled Nature, Culture, and Landscape, which was taught by Professor Sara Adlerstein Gonzales.



### Jacob Napier

I'm studying Art & Design at the University of Michigan. I like to work in a variety of mediums. I am focusing primarily on drawing and printmaking. I love biking around to find plants and places in nature to paint!



### Aditya Benyamin

I'm a dual degree student in Environment & Sustainability and Public Policy at the University of Michigan. I am focusing in environmental education policy. I love trying out new foods and planting my own food.