

Reducing the Destructive Effects of Eutrophication Through Filter Ecosystems

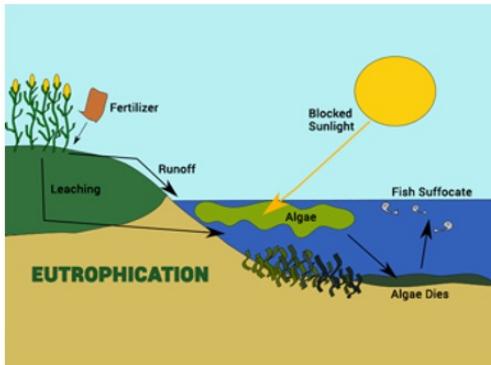
Scott Claflin, Jessica Fliess,
Jaelyn Floyd, and Faith Nevin
Hicks Honors College,
University of North Florida,
Jacksonville, Florida



(Stevens, Joshua. *Satellite image of Eutrophication*. 1 August 2017, NASA, EarthObservatory, <https://www.princeton.edu/news/2017/08/01/projected-precipitation-increases-are-bad-news-water-quality>)

How Did We Get Here?

The excess of nutrients added to soils is the main reason why these waterways have led to extensive eutrophication. The nutrients in the soils flow with runoff into tributaries that eventually meet at a river or chokepoint. This is the zone in which much of large-scale eutrophication takes place. Both personal and large-scale agriculture can lead to this nutrient excess.



"How Does Eutrophication Work? Causes, Process and Examples." Earth How, 17 May 2020, earthhow.com/eutrophication-causes-process-examples/.



Sachin. *The Effects of Eutrophication*, sachinkbiology11.weebly.com/.

Gaba, Eric. "USA Florida Location Map", 1 December 2009, *National Atlas of the United States of America*, https://en.wikipedia.org/wiki/Palm_River_Florida#/media/File:USA_Florida_location_map.svg.



Spear, Kevin, and Kevin Spear. "Florida Water Credits Would Fight Pollution." *Orlando Sentinel*, 17 June 2018, www.orlandosentinel.com/business/os-cfb-cover-water-credits-20150111-story.html.



A Solution: Filter Ecosystems

- Our goal is to implement natural filter ecosystems by planting buffer plants near waterways.
- This plan will make the biggest difference because it reduces the total amount of nutrients and prevents nutrients from entering the said body of water, thus reversing the damage already done from years of nutrient pollution.
- A study in the UK, USA, and Canada showed that 99% of subsurface nutrients from fertilizers can be removed through the planting of tree and plant buffers.
- Reducing nutrient pollution and preventing eutrophication contributes to sustainable cities and communities as well as responsible consumption and production.

Spread The Word!

- One Tree Planted allows you to pick which location across the globe where you would like to plant a tree, for the cost of one dollar each (*Florida*).
- They support the UN Sustainable Development Goals: Life of Land, Climate Action, and Clean Water and Sanitation (*Florida*).
- However, if someone wanted to be involved directly, tree saplings are cheap and can be purchased for just a few dollars.
- If a majority of people were able to donate or plant their own trees in these high nutrient areas, the causes of eutrophication would be reduced, thus it would not be as harmful.
- Ecosia.org is a search engine that plants a tree every time it is used and has planted over 70 million trees since 2009.

Wong, Martine. "Pick a Tree, Plant a Tree: an Arbor Day Workshop with Ranger Jean." *Cambridge Community Television*, 2015, Accessed 17 Nov, 2020. www.cctvcambri.dge.org/node/316987.



Ikona, Anna, et al. "Growing Trees For Profit In Your Backyard: Homesteading." *Homesteading Simple Self Sufficient Off-The-Grid* | Homesteading.com, 23 Oct. 2019, Accessed 17 Nov 2020. homesteading.com/growing-trees-profit-backyard/.

Conclusion

By planting buffer plants in areas with high nutrient levels, the nutrients would be absorbed and used before they have the opportunity to reach the aquatic environment, thus reversing the effect caused by dumping and farming. By taking part in this solution, together we can work to ensure that these nutrients will not have the ability to cause harm to the environment, thus helping the ecosystem and all animals and humans who live in it. Together, we can reverse the effects of eutrophication.

How to Sell

- Partner with Disney, for they are well known and support environmental causes such as conserving water and reducing waste (*Disney Expands*).
- Our pitch to them: eutrophication is a threat to tourism, no tourism means no business, no business means no money
- What we ask for: support in a reducing eutrophication/plating tree initiative campaign, either through promotion in parks or through television networks



Eutrophication of Water Bodies." *BYJU'S*, byjus.com/chemistry/eutrophication/. Accessed 16 Nov, 2020.

REFERENCES

