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Pratt Institute Spring 2012
MS-270-02 Ecology
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Final Assignment Project Summary

My digital illustration of a “dead zone” stems from my interest in the process of eutrophication. At first, i had been enthralled by the idea of iron fertilization of waters to promote algal blooms in order to sequester carbon deep in the ocean waters. When the possible formations of “dead zones” were mentioned, I moved my interests from iron fertilization to the process of eutrophication by drawing similarities between both of them.

I believed that iron fertilization was an unnatural process in which we were playing God. However, I realized that iron fertilization was not really a problem as I made it out to be. Iron fertilization is only an introduction of a limited amount of nutrients into the environment whereas nutrient runoffs are not.

Our reliance on certain habits, from agricultural methods to waste disposal, constantly introduces phosphorus and nitrogen into the ocean. This overload of nutrients encourages algal blooms that in turn begins the process of eutrophication.

The “dead zones”, formed by the process of eutrophication, are not completely devoid of life. Some invasive species such as the jellyfish thrive in these conditions where predators are limited (through a mixture of both eutrophication and overfishing) and feast on microorganisms. They quickly multiply and inhibit the revival of these “dead zones” with their presence. Their excessive numbers make it difficult for other species to repopulate the area.

Many of the reasons why eutrophication happens could have been prevented with a bit of intervention. Nutrient runoffs could be better managed with new and more updated means of agriculture, more efficient and recyclable waste disposal, and stricter policies on industrialization. Overfishing could be prevented with the instatement of regulations.

I found this particular topic interesting because all the reasons for which eutrophication and the overpopulation of potentially harmfull jellyfish could be prevented if people took the time and put in the effort.

Bibliography

Mee, Laurence. “Reviving Dead Zones.” Scientific American 2006: 78-85. Web.

After hypoxia has left the bottom waters with little to no life and heavy fishing has removed the natural predators of this area, other species begin to move in. Rather than leave the waters void of any life, jellyfish, an opportunistic invading species multiply in great numbers. In order to prevent these conditions, many things must be prevented. Overexploitation of fisheries should be avoided and nutrient runoff should also be lessened.

Stone, Richard. “Massive Outbreak of Jellyfish Could Spell Trouble for Fisheries.” By Richard Stone: Yale Environment 360. Yale Environment 360. Web. <http://e360.yale.edu/feature/massive_outbreak_of_jellyfish_could_spell_trouble_for_fisheries/2359/>.

Overfishing and deteriorating coatal waters provide the perfect environment for jellyfish. They can tolerate the low-oxygen areas and the nutrient runoffs that human habits provide increases phytoplankton growth. Jellyfish feed on the massive amounts of phytoplankton and can populate what seems to be a “dead zone” of fish.

Lo, Wen-Tseng. “ICES Journal of Marine Science.” Enhancement of Jellyfish (Aurelia Aurita) Populations by Extensive Aquaculture Rafts in a Coastal Lagoon in Taiwan. Web. <http://icesjms.oxfordjournals.org/content/65/3/453.full>.

Although nutrient runoffs and overfishing are some of the causes for eutrophication, simply poor circulation along with continuous inputs of organic matter and nutrients (from dying fish, etc) can cause eutrophication. Jellyfish find these conditions beneficial and will inhabit these highly eutrophic waters while eating microplankton using a complex surface-cilary feeding method.