Scientists Single Out a Suspect in Starfish Carnage: Warming Oceans

A Review

Kathryn Atherton
February 26, 2019
FNR 22310
Newspaper/Magazine Article Review

Reference

Pierre-Louis, K. (2019, February 5). Warmer Seas Appear To Be Killing Starfish. *The New York Times*, p. D3. Retrieved February 25, 2019

A concerned group of Arkansas schoolchildren's fundraiser sparked research into the cause of the disappearance of the sunflower starfish from the Pacific Ocean, which started in 2013. The starfish were suffering from a disease that causes them to lose their limbs and then die. The $400 donation from the children caused the recipient, Dr. Harvell of Cornell, to put her own money into the project before another large donation was received. The donations lead to a paper published in the *Science Advances* journal.

The paper found that the Pacific Ocean has become unusually warm due to man-made climate change. However, the warming did not occur evenly. When the pattern of warming was compared to that of the sunflower star death, a correlation was found. While many starfish species were affected, the sunflower star was selected for this study because there was a lot of data available on its population before they started to die out. The data showed that wherever the warming of the ocean traveled, so did the sunflower star epidemic. This correlation supported the researchers' hypothesis that the heat is not necessarily directly affecting the starfish, but a virus which causes the loss of limbs prior to death. While the virus shows up in healthy sunflower stars, the addition of heat causes the stars to die out rapidly. Heat is also triggering the development of other diseases that are killing off frogs, toads, and coral.

Researchers claim that the only way to truly solve this problem is to stop climate change, though some temporary fixes, such as replanting seagrass beds and protecting mangroves can help marine life in general. Recently, some sea stars affected by the virus have returned to the West Coast and some small sunflower stars have been spotted off the coast of Alaska, but it is unknown whether they will survive.

I believe that the national general public should pay attention to this issue because it is one of the first known examples of the direct effect of global warming on organisms. The dying

of the sunflower star and other sea stars could have a ripple effect on their ecosystems, causing those organisms that interact with the sea stars to also begin to die out, organisms that interact with the new set of dying organisms to die, etc. The loss of these organisms could lead to problems for the fishing industry on the West Coast, including popular species of fish for human consumption becoming endangered and thus becoming protected by the Endangered Species Act. If actions to combat or even reverse man-made climate change are not done quickly, the story of the sunflower star could become all too common for other organisms, both of land and sea.

To address this issue, two policy actions were recommended in the article: replanting seagrass beds and protecting mangroves. These actions, however, would simply be a temporary fix for a devastating issue. To truly address the root of the problem, policies would need to be enacted to stop climate change. Ideally, these policies would include a combination of public education programs, research funding, and tax incentives to encourage people and businesses to turn to green energy alternatives.

The public education programs would target common practices of American society that are the most damaging to the climate and offer alternatives that are feasible to transition into today, within the next year, and within the next decade. The education programs should also provide information about the specific species that we know are dying because of climate change, like the sunflower star, and encourage people to look out for them and report any potential sightings to researchers who are studying their survival. Organisms as aesthetically interesting as starfish should especially be included in the education program because many people might see the starfish and try to disturb it so as to take photos with it.

Research funding would go toward projects like Dr. Harvell's that are looking to understand and solve the problems that organisms face due to man-made climate change as well

as projects which make green energy alternatives more affordable and efficient. The research projects should ideally be paired with a policy expert such that once conclusions are drawn, the policy expert can help the researchers draft a policy to bring to the respective institution to make feasible changes based upon the conclusions brought about by the research.

Finally, the tax incentives would encourage people and businesses to make changes in their daily lifestyles to cut down on their carbon emissions to help slow the warming of the planet rather than accelerate it. These tax incentives could be related to buying a product that is a green alternative to another product on the market or buying a product from a company that uses environmentally-friendly manufacturing practices.