

Agriculture and Marine Pollution

Key Points

- Eighty percent of marine pollution comes from land-based sources. Intensive agriculture, including both livestock and aquaculture, is a key source of sea and ocean pollution.
- It is time for agricultural corporations to be held responsible for their environmental impacts. Precautionary solutions are needed, including effective regulation and financial penalties. Measures should include action to ensure that products reflect the full costs of production, including fees for any allowable resource usage and wastes and disincentives/penalties for deleterious actions.
- Food policy and agricultural strategies must be reviewed and strengthened in order to move away from polluting and unsustainable foods and towards healthier and more environmentally-friendly options. These should be supported by best practice promotion; education and awareness for consumers, including informative product labelling; and retargeting incentives and support towards agro-ecological production.

Background Information

General

Eighty percent of marine pollution comes from land-based sources. It is not possible to protect marine ecosystems without accepting planetary boundaries and a comprehensive circular economy. The NGO Major Group position paper for the High Level Political Forum examined, inter alia, nutrient contamination and the discharge of toxins, and stated that to reduce negative impacts environmental policy must focus on precautionary solutions, effective regulation and taxation of unsustainable practices.ⁱ

Impacts of Intensive Agriculture

Intensive agriculture is a key source of sea and ocean pollution. Studies using satellite imagery have shown direct evidence that large-scale coastal farming is linked to massive algal blooms in the ocean, with scientists concluding that key regions of the ocean are much more vulnerable to agricultural runoff than was previously assumed. They stated, "Inarguably, the effects of marine nitrogen pollution are becoming extremely widespread and severe as a consequence of the global expansion of industrialized agriculture and the intensification of certain practices."ⁱⁱ

The introduction of excess nitrogen, phosphorous and other nutrients into waterways, including streams, rivers and oceans, causes eutrophication. Eutrophication encourages algal growth, resulting in algal blooms. Algal blooms can be dangerous to humans and some marine species. Species that produce toxins can sicken and kill shellfish, fish, turtles, birds, marine mammals and other animals in the region. They can also harm people who come into contact with the bloom or an affected drinking supply. As the algae dies, bacterial decomposition uses the water's oxygen, leading to hypoxic and dead zones. Dead zones can move with the tides and fluctuate in size seasonally, but their presence is common in areas where excess nutrients from conventional agricultural operations enter waterways.ⁱⁱⁱ

The largest recorded dead zone is in the Gulf of Mexico and, as of July 2017, spanned over 8,200 square miles—roughly the size of New Jersey. The dead zone is fed by the Mississippi River, which transports pollution from agricultural operations in the Midwestern U.S. to the Gulf of Mexico. Much of the nitrogen and phosphorous causing this dead zone comes from soy and corn production—not for direct human consumption, but rather to feed livestock.^{iv}

Pollution from Aquaculture

There is additional pollution from industrial aquaculture. The Food and Agriculture Organization of the United Nations (FAO) projects that by 2030, aquaculture, one of the fastest growing methods of food production globally, will be responsible for almost two-thirds of the fish we eat.

Aquaculture has significant detrimental impacts on oceans and marine environments. The most common method of aquaculture uses net pens or cages anchored to the sea floor in the ocean near the coast. Alternative methods use closed systems of tanks or ponds that float on water. Fish waste and left-over food spill out from nets and tanks into the ocean, causing nutrient pollution, eutrophication and hypoxia which can stress or kill aquatic creatures. Also, antibiotics or pesticides used on farmed fish can affect other marine life or human health. These nutrients and chemicals impact the biodiversity on the ocean floor when they sink, and have made potentially toxic algae even more poisonous.^v

Importance of Marine Protected Areas

Studies have shown that the establishment of Marine Protected Areas (MPAs) has a strong positive effect. However, a very small proportion of the world's seas are protected, when compared to the area of land protected.^{vi} The IUCN stated that just under 3% of oceans were protected in 2013,^{vii} whereas Target 11 of the Convention on Biological Diversity states:

“By 2020, at least 17 per cent of terrestrial and inland water areas and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascape.”

References

ⁱ NGO Major Group Position Paper for the 2017 HLPF. Downloadable from: <http://www.ngomg.org/>

ⁱⁱ Mark Shwartz. Stanford Report, March 10, 2005. Ocean ecosystems plagued by agricultural runoff. <http://news.stanford.edu/news/2005/march16/gulf-030905.html>. Accessed 11 April 2017.

ⁱⁱⁱ Scientific American. What Causes Ocean “Dead Zones”? <https://www.scientificamerican.com/article/ocean-dead-zones/>

^{iv} Milman Oliver, the Guardian. Meat industry blamed for largest-ever 'dead zone' in Gulf of Mexico (August 1, 2017). A new report shows toxins from suppliers to companies like Tyson Foods are pouring into waterways, causing marine life to leave or die. <https://www.theguardian.com/environment/2017/aug/01/meat-industry-dead-zone-gulf-of-mexico-environment-pollution>

^v Scottish Government. Review and Synthesis of the Environmental Impacts of Aquaculture 2002). <http://www.gov.scot/Publications/2002/08/15170/9406>

^{vi} Bruce Barcott. Yale Environment. 16 June 2011. The Unfulfilled Promise of the World's Marine Protected Areas. http://e360.yale.edu/features/fulfilling_the_great_promise_of_worlds_marine_protected_areas

^{vii} IUCN website. 24 Oct 2013. World nearing 3% of ocean protection <https://www.iucn.org/content/world-nearing-3-ocean-protection>