

THE OCEAN POLLUTION-BERG

PLASTIC WASTE IS JUST THE TIP OF A LARGER PROBLEM

Pollution of the oceans is widespread, worsening, and in most countries poorly controlled. Human activities result in a complex mixture of substances entering the aquatic environment.

More than 80% arises from land-based sources

It reaches the oceans through rivers, runoff, atmospheric deposition and direct discharges. Ocean pollution has multiple negative impacts on ecosystems and human health, particularly in vulnerable populations

1 PLASTIC WASTE

THE TIP OF THE POLLUTION-BERG

Plastic is a rapidly increasing and highly visible component of ocean pollution. An estimated 10 million metric tons enter the seas each year. Plastic pollution threatens marine mammals, fish and seabirds. It breaks down into microplastic and nanoplastic particles containing multiple manufactured chemicals that can enter marine organisms, including species consumed by humans

2 OIL SPILLS

AN AQUATIC KILLER

Oil spills have occurred with increasing frequency in recent years as the result of growing global demand for petroleum. These spills have resulted in direct release of millions of tons of crude oil and other petroleum products into the oceans. Petroleum-based pollutants reduce photosynthesis in marine microorganisms that generate oxygen. They also disrupt food sources, destroy fragile habitats such as estuaries and coral reefs, and foul beaches

4 MANUFACTURED CHEMICALS

A HEADY COCKTAIL

Manufactured chemicals – phthalates, bisphenol A, flame retardants, perfluorinated chemicals and pharmaceutical waste, can disrupt endocrine signaling, reduce male fertility, damage the nervous system, and increase risk of cancer. They can also damage coral reefs

6 NUTRIENTS

FEEDING FRENZY

Industrial releases, runoff from animal feedlots and human sewage increase frequency and severity of harmful algal blooms (HABs), bacterial pollution and anti-microbial resistance.

3 MERCURY

QUICKSILVER BULLETS

Mercury is released from two main sources – coal combustion and small-scale gold mining. Exposures of infants in utero when pregnant mothers eat contaminated seafood can cause IQ loss and serious developmental disorders. In adults, mercury increases risks for dementia and cardiovascular disease

5 PESTICIDES

COLLATERAL DAMAGE

pesticides are specifically designed to have biological effects, and thus even low-dose exposures can affect living organisms, including humans. Pesticides contribute to global declines in fish stocks, and can also reduce human fertility

THE WAY FORWARD

World leaders who take bold, evidence-based action to stop pollution at source will be critical to preventing ocean pollution and safeguarding human health. Measures such as these could help with the six problems:

1

Better management of plastic waste
Bans on single-use plastic

2

Wide-scale transition to renewable fuels

3

Banning mercury use
Eliminating coal combustion

4

Chemical control policies
Mandatory premarket toxicity testing

5

Bans on persistent organic pollutants (POPs)
Control of industrial discharges

6

Better treatment of sewage
Reduced applications of fertilizers

ALL

Transition to a circular economy
Building scientific capacity
Embracing green chemistry
Designation of Marine Protected Areas (MPAs)

FOR MORE INFORMATION,
SEE THE FULL PAPER AT:

<http://bit.ly/pollutionberg>



BOSTON COLLEGE



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