

Commissioned by



HIGH LEVEL PANEL for  
**A SUSTAINABLE  
OCEAN ECONOMY**

**BLUE PAPER**

## Summary for Decision-Makers

# Leveraging Multi-Target Strategies to Address Plastic Pollution in the Context of an Already Stressed Ocean

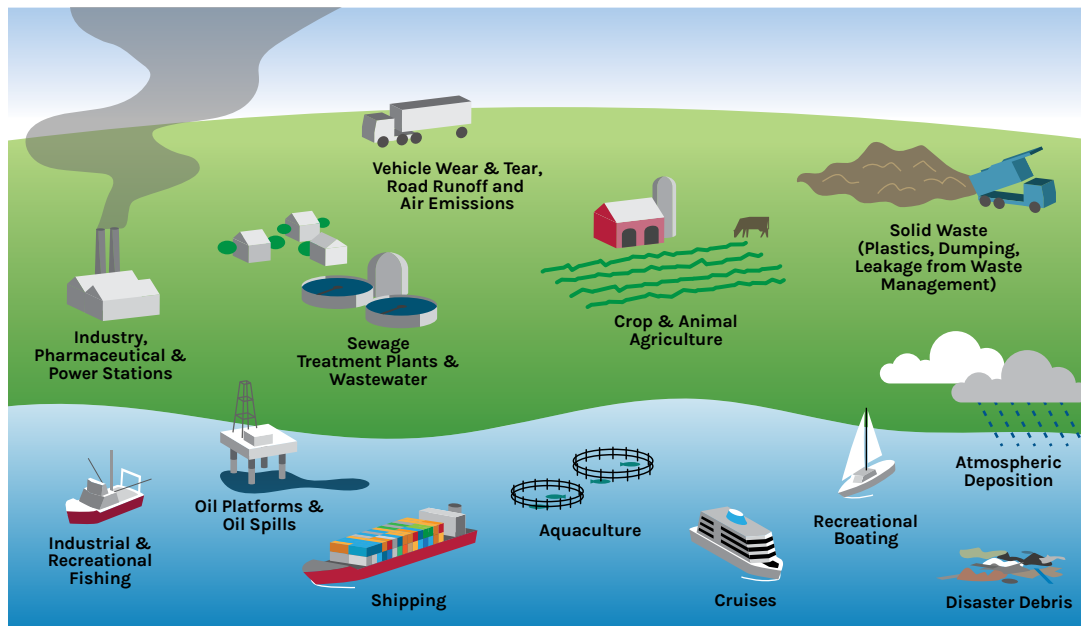
**Over 80 percent of the land mass on Earth is in a watershed that drains directly to the ocean, making it the ultimate sink for anthropogenic pollution.** Pollutants enter the ocean through four main pathways: They may be discharged directly into the ocean; discharged into rivers that flow to the ocean; washed from land by stormwater into rivers or directly into the ocean; or deposited from the air onto land to be washed into waterways or directly into the ocean.

**Plastic is the newest pollutant to be entering the ocean in significant quantities.** It joins nonplastic solid waste; nutrients; antibiotics, parasiticides and other pharmaceuticals; heavy metals; industrial chemicals including persistent organic pollutants; pesticides; and oil and gas, each of which has a longer history of scholarship and greater body of existing research as an ocean pollutant than does plastic.

**The presence of plastic in the ocean in growing quantities is symptomatic of a set of societal challenges that is relevant to the other pollutants and pollution pathways as well:** the lack of access to sanitation and wastewater and stormwater processing for millions of people around the world, the need for safe use and disposal of chemicals, the development and degradation of coastal zones, the need for an efficient use of natural resources, and the need for improved access to safe food and water.

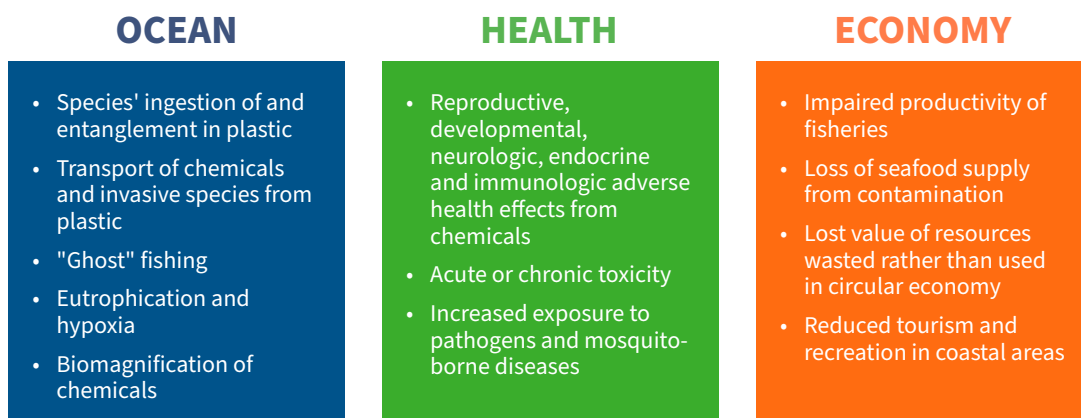
**This paper, commissioned by the High Level Panel for a Sustainable Ocean Economy, leverages the recent global visibility of ocean pollution from plastic to advance a set of impactful interventions that can address significant portions of the current anthropogenic pollution inputs to the ocean.** To do so, the paper first identifies the main sources of anthropogenic pollution inputs to the ocean (see Figure 1) as well as the impacts on the environment, human health and the economy (see Figure 2). It then offers seven opportunities for action to reduce major sources of pollution entering the ocean.

**Figure 1: The Primary Sources of Pollution Inputs to the Marine Environment**



Source: Graphic developed by K. Youngblood.

**Figure 2: Impacts of Pollutants on the Ocean Environment, Human Health and the Economy**



Source: Authors.

**The issue of pollutants leaking into the ocean originates from a complex system.** Individuals, communities, companies and politicians each make decisions based on varying perceptions, goals and values that motivate their behaviours (e.g. using pesticides in farming to increase yields or using plastic microbeads to save money and reduce allergens in cosmetic products).

**A multipronged, integrated approach that targets different actors and motivations at different stages along value chains is needed.** While banning a particular substance can be a powerful tool, some materials, such as plastics, are so widespread that a simple ban would fall short or could be applied only to certain products. Education and public outreach are important to accompany policy change and are powerful instruments in their own right. Ultimately, interventions that are interconnected with co-benefits across sectors can have the most impact in reducing pollution reaching the ocean.

**Change is often subject to high reluctance levels (e.g. introduction of seat belts, smoking bans), but early adopters may forge the path.** Trusted members of a community can trigger wider change and could be empowered as change agents. Change can happen from the bottom up and top down—for instance, there are many examples of community action to combat plastic pollution in addition to examples of national and regional declarations and action plans (e.g. from the G7, G20) aimed at reducing plastic waste. There is also a very active nongovernmental organisation (NGO) sector in this space.

**Governments, together with businesses and investors, citizens, communities and NGOs, can do a lot to change the trajectory of pollution discharges into the ocean.** Solutions will come from innovative policies, support for research and innovation, investment in wastewater and solid waste infrastructure and shifting mindsets and behavioural practices.

**It is important that we don't confuse the minimisation of harmful pollution with a reduction in quality of life, livelihood opportunities or economic success.** Pollution in the ocean is already negatively impacting human health, economic prosperity for ocean-based businesses and marine ecosystems on which humans depend for essential ecosystem services. Solutions to ocean pollution can create jobs, reduce costs to many businesses and governments and improve the health and prosperity of millions of people.

**To turn the tide on ocean pollution in a holistic way, the paper proposes seven approaches, each with a specific set of recommended actions to address ocean pollution through four levers: innovation, infrastructure, policy and mindset.** The seven approaches are to

- improve wastewater management;
- improve stormwater management;
- adopt green chemistry practices and new materials;
- practice radical resource efficiency;
- recover and recycle the materials we use;
- implement coastal zone improvements;
- and build local systems for safe food and water.

These seven approaches were designed to address plastic pollution to the ocean while simultaneously maximizing reductions of other ocean pollutants. Table 1 outlines the recommended set of policy actions for each of the seven approaches. For the complete set of interventions according to each of the four levers, please refer to the full paper.<sup>1</sup>

**In a closed system like Earth's, there is nowhere for damaging pollution to go that won't end up harming the ocean and, ultimately, human life.** Once the economic system starts taking this into account and adopting a no-waste approach, the machinery of the economy itself will be very effective at finding the most efficient ways to stop ocean pollution. The interventions proposed in this paper are aimed at achieving just that.

**Table 1. Policy Actions to Turn the Tide on Ocean Pollution**

<b>1. IMPROVE WASTEWATER MANAGEMENT</b>
Develop and build wastewater infrastructure where needed
Ensure supporting policies for wastewater improvements and sustainability of infrastructure over time are in place
<b>2. IMPROVE STORMWATER MANAGEMENT</b>
Set total maximum daily loads for trash
Impose regulatory limits for discharge
Employ stormwater permitting
Regulate animal waste lagoons with the potential to discharge to the ocean
Regulate use of pesticides, herbicides and nutrients for residential/commercial use
Require Nutrient Management Plans and Pesticide Management Plans
Require reporting of and/or limit usage of nutrients and pesticides
<b>3. ADOPT GREEN CHEMISTRY PRACTICES AND NEW MATERIALS</b>
Ban/limit the use of chemicals of concern or hazardous materials
Ban hard-to-manage materials
Require tracking/manifest of chemicals of concern
Support foundational chemistry and materials research
<b>4. PRACTICE RADICAL RESOURCE EFFICIENCY</b>
Impose fees on single-use or other high leakage items
Encourage industry voluntary contributions to reduce fossil-fuel-based plastics
Support policies that allow personal container use in shopping and dining
Enable treatment and usage of food and human waste in appropriate applications

## **5. RECOVER AND RECYCLE THE MATERIALS WE USE (FORMAL AND INFORMAL SECTORS)**

Implement extended producer responsibility laws

Provide incentives for waste segregation and recycling

Strengthen markets for recycled plastics

Implement Fishing for Litter programmes

## **6. IMPLEMENT COASTAL ZONE IMPROVEMENTS**

Enforce international dumping agreements

Strengthen oil spill prevention policies

Restrict locations and types of coastal and open-ocean aquaculture

Develop waste collection and management systems where needed

## **7. BUILD LOCAL SYSTEMS FOR SAFE FOOD AND WATER**

Develop and build drinking water treatment systems where needed

Support and encourage local and small agriculture initiatives

Ensure adequate drinking water standards

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The High Level Panel for a Sustainable Ocean Economy (Ocean Panel) is a unique initiative by 14 world leaders who are building momentum for a sustainable ocean economy in which effective protection, sustainable production and equitable prosperity go hand in hand.

Co-chaired by Norway and Palau, the Ocean Panel comprises members from Australia, Canada, Chile, Fiji, Ghana, Indonesia, Jamaica, Japan, Kenya, Mexico, Namibia, Norway, Palau and Portugal and is supported by the UN Secretary-General's Special Envoy for the Ocean.

The Ocean Panel gathers input from a wide array of stakeholders, including an Expert Group and an Advisory Network. The Secretariat, based at World Resources Institute, assists with analytical work, communications and stakeholder engagement.

The Blue Paper that this brief summarises is an independent input to the Ocean Panel process and does not necessarily represent the thinking of the Ocean Panel, Sherpas or Secretariat.

For more information, including the full report, visit [www.oceanpanel.org](http://www.oceanpanel.org)

Endnote

- 1 Jambeck, J., E. Moss, B. Dubey, et al. 2020. *Leveraging Multi-Target Strategies to Address Plastic Pollution in the Context of an Already Stressed Ocean*. Washington, DC: World Resources Institute. Available online at: [www.oceanpanel.org/blue-papers/leveraging-target-strategies-to-address-plastic-pollution-in-the-context](http://www.oceanpanel.org/blue-papers/leveraging-target-strategies-to-address-plastic-pollution-in-the-context).