



Environmental Updates

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Designed for use with the Global Development And Environment Institute's *Environmental and Natural Resource Economics* textbook

The Economic Value of the World's Oceans

The world's oceans are a common property resource that provide humans with numerous economic benefits including food supplies, waste assimilation, and climate regulation. But as discussed in the text, the health of ocean ecosystems are subject to degradation by factors such as overfishing (Chapter 18) and climate change (Chapter 12). Information on the economic benefits humans obtain from the oceans can help formulate efficient policies to address threats to ocean ecosystems.

Recognizing these threats, a 2012 paper by the Stockholm Environment Institute (SEI) estimated the economic damages that would occur to oceans in the future in the absence of new regulations. The analysis considers damages due to acidification, warming, pollution, overfishing, and hypoxia (low-oxygen 'dead' zones). The current global value of fishing, for example, is estimated to be about \$230 billion per year, and more than 200 million people in low-income countries are dependent

on small-scale fishing. However, 85% of the world's fish stocks are fully exploited, over-exploited, or depleted.

SEI's results indicate that without new policies, the damages to the world's oceans would amount to about \$400 billion per year by 2050, and \$2 trillion per year by 2100. While some damages are inevitable, the analysis indicates that policies could be instituted that reduce these future damages by about 70%. According to the conclusions of the paper:

The services provided by the ocean are immensely valuable but inadequately integrated in national, regional and global economic analyses and plans. The ocean is the victim of a massive market failure and dilution of political will, with devastating consequences for its ecosystems and the billions of people dependent on them. ... Much can and must be done now. We cannot afford to wait for perfect information and

perfect political circumstances; they may never materialise. The absence of total understanding and global agreement must not delay the implementation of proven techniques to enhance ocean ecosystem resilience and the effectiveness of governance strategies. (SEI, 2012, p. 13)

A 2015 analysis by WWF takes a more comprehensive approach to valuing the world's oceans, using two different approaches. First, the WWF report estimates the annual contribution of the world's oceans to the global economy. Considering the market value of the goods and services produced by marine industries, the annual "gross marine product" is estimated to be \$2.5 trillion, which would make the oceans the world's seventh largest economy. This value does not include the many non-marketed benefits humans receive from the oceans, such as water filtration, carbon storage, and cultural values.

Table 1: Asset Value of the World's Oceans

Asset Category	Value (trillion \$)
Marine Fisheries	2.9
Mangroves	1.0
Coral Reefs	0.9
Seagrasses	2.1
Shipping Lanes	5.2
Productive Coastlines	7.8
Carbon Absorption	4.3
TOTAL	24.2

Source: WWF/BCG, 2015.

The WWF analysis also considers the economic value of the oceans as an asset base.

As shown in the table above, the world's oceans represent a natural capital asset worth over \$24 trillion. Again, these estimates do not consider all the ways that oceans are valuable to humans, and thus omit other valuable categories of natural capital.

Similar to the SEI paper, the WWF report notes that the asset base of the world's oceans is being degraded, but that conservation policies can be quite effective at halting the decline:

If we consider the analogy of the ocean as a “shared wealth fund”, our principal capital is being eroded at a rate that undermines the ocean’s value for future generations. It is time to push the reset button before we drive our shared wealth fund to collapse. The good news is that rapid action on a number of key issues will deliver real change and benefits for ocean systems and the people who depend on them. Some of the benefits could be reinstated in a relatively short period of time. Central to this is conserving habitat that is critical to the restoration of healthy and productive natural systems: the core assets of the ocean. (Hoegh-Guldberg, et al., 2015, p. 8)

Eight policy recommendations are provided, including:

- World leaders must address the problems of ocean acidification and warming by making deep cuts in carbon emissions.
- Coastal nations should commit to setting aside as protected reserves at least 10%

of coastal area by 2020, with a target of 30% protected by 2030.

- An integrated approach is needed to manage the world’s oceans – an approach that considers economic well-being, but also social well-being and ecosystem resilience and function.
- Given the transboundary nature of the world’s oceans, national-level policies are not sufficient. International solutions are needed, including a global fund to help poorer coastal nations preserve marine resources and respond to threats from degraded ocean resources.

The report concludes that instituting these policy recommendations “will result in a sustainable future for the hundreds of millions of people who depend directly on the ocean for their food and jobs, and for all humanity, which relies on the ocean for life as we know it on this blue planet.” (Hoegh-Guldberg, et al., 2015, p. 53)

Sources:

Stockholm Environment Institute (SEI). 2012. “Valuing the Ocean, Draft Executive Summary.”
 WWF/Boston Consulting Group (BCG). 2015. “BCG Economic Valuation: Methodology and Sources; Reviving the Ocean Economy,” Gland, Switzerland
 Hoegh-Guldberg, et al. 2015. “Reviving the Ocean Economy: The Case for Action – 2015,” WWF International, Gland, Switzerland