



Valuing Coastal and Ocean Ecosystems

Why is habitat conservation important?

Healthy habitats are critical for thriving coastal communities and ecosystems. Beyond the benefits they provide for fish and wildlife, healthy coastal habitats provide many other benefits to society—often referred to as “ecosystem services”—including storm protection, pollution removal, climate regulation, nutrient cycling, and many aesthetic, cultural and recreational values. We conserve habitat to make sure the benefits of our natural resources are available for healthy coastal communities and future generations. Habitat conservation also generates jobs now, and helps to sustain industries such as fishing, recreation, and tourism that rely on healthy and abundant coastal resources.

What is going on with coastal and ocean habitats right now?

However, the nature of the coasts—from the Atlantic, to the Gulf, Pacific, and Great Lakes—is fundamentally changing. We are facing a rapid decline of major coastal and ocean habitats, wetlands, sea grasses, coral reefs, and mangroves. Despite localized successes, habitat trends continue downward due to impacts from development, pollution, coastal storms, sea-level rise and a host of threats, increasing the vulnerability of these important habitats and adversely impacting fisheries, threatened and endangered species, human health and well-being.

From 2004 to 2009, US coastal wetland losses increased from 60,000 to 80,000 acres per year.¹

Between 1980 and 2005, 3.6 million hectares of mangroves were lost, 20% of the worldwide total.²

Sea grass beds in the Chesapeake Bay declined 46% from 2008 to 2012.³

Globally, 60% of coral reefs are already seriously damaged by local sources such as overfishing, destructive fishing, anchor damage, coral bleaching, coral mining, sedimentation, pollution, and disease.⁴

How valuable are healthy coastal and ocean ecosystems?

Our oceans and coasts are an economic powerhouse that relies on healthy ecosystems. In 2011, coastal counties contributed \$6.6 trillion to our nation's GDP (just under half of the total GDP), supporting 51 million jobs and \$2.8 trillion in wages.⁵

In 2011, commercial and recreational marine fisheries contributed \$84 billion to GDP and supported 1.6 million jobs in the fishing sectors and across the broader economy.⁶

Across all national marine sanctuaries, about \$4 billion annually is generated in local economies from diverse activities like commercial fishing, research, recreation and tourism supporting 50,000 jobs.⁷

How does NOAA enhance coastal resource management?

With healthy habitats under threat nationwide, we can no longer take nature's benefits for granted. Our goal is to enhance coastal resource management decisions by demonstrating the social and economic values of healthy habitat to our communities and their economies. There has been considerable progress to advance methodologies to appropriately value ecosystem services, thanks to collaborative efforts between academia, NGOs and government.

In Maine, NOAA scientists are applying an integrated, spatially-explicit framework to characterize and quantify the impact of riparian management on ecosystem services identified as important by Wells National Estuarine Research Reserve stakeholders.

In California, the DOI and NOAA collaborated on the "*Ecosystem Service Valuation of Proposed Klamath River Dam Removal*" to inform decisions of the Secretary of the Interior. (see inset)

Academic, NGO and NOAA scientists have demonstrated the substantial carbon storage capacity of intact wetlands and suggested how these carbon sequestration values could be incorporated into decision processes under existing policies and laws.

Ecosystem Service Valuation of proposed Klamath River Dam Removal
The Klamath River has been the subject of many years of conflict over hydroelectricity production, salmon and endangered species management, and water sharing for agricultural uses. This study estimated the change in economic value and economic impacts (sales and jobs impacts) to a wide range of economic activities. Taking into account all use (hydroelectric power, agriculture, commercial and recreational fishing, waterfowl hunting, whitewater rafting) and non-use benefits (benefits that accrue to the public regardless of whether they visit the Klamath or enjoy one of its ecosystem services), net benefits from removing the dams were \$14 billion. Excluding the non-use values, net benefits favored retaining the dams.

Looking Forward

We must continue work with our partners to integrate the values of our ecosystems into incentive-based strategies designed to harness market forces on behalf of conservation and low-impact development by:

- Helping industry to harness the business value of nature by integrating the values and benefits of ecosystem services into their business models;
- Leveraging trading and offset mechanisms to protect and restore ecosystem services in regulatory environments such as marsh/wetland creation and oyster reef restoration;
- Encouraging conservation groups to provide incentives such as conservation agreements and user fees);
- Providing usable scientific and economic information and taking action to include the values of our coastal and ocean habitats in decision-making and implementing policy.

In the end we only protect what we value.

Without an understanding of the value of the services our coastal and ocean habitats provide, and innovative mechanisms to connect those values to industry and policy- and decision-makers, we will continue to risk the loss and degradation of the coastal habitats that support the health and resiliency of our coastal communities and economies.

¹T.E. Dahl and S. M. Stedman. 2013. *Status and trends of wetlands in the coastal watersheds of the Conterminous United States 2004 to 2009*. U.S. Department of the Interior, Fish and Wildlife Service and National Oceanic and Atmospheric Administration, National Marine Fisheries Service (46 p).

²Conservation International's Ocean Health Index: http://www.oceanhealthindex.org/Goals/Coastal_Protection

³VIMS SAV page: <http://web.vims.edu/bio/sav/BayAreaChart.htm>

⁴Burke, Lauretta, et al. *Reefs at Risk Revisited*. 130 (World Resources Institute: Washington D.C., 2011)

⁵NOAA. 2013. http://stateofthecoast.noaa.gov/coastal_economy/welcome.html

⁶NOAA. 2013. *Fisheries Economics of the United States*. Silver Spring, MD.

⁷Leeworthy, Vernon R. 2011. *National Marine Sanctuaries Socioeconomics Fact Sheet*. Silver Spring, MD: NOAA.

