

## Valuing the Benefits of the Nearshore in Clallam County, WA

Clallam County is home to some of the most valuable and productive working and natural landscapes in the country. Over one third of the 2,670 square mile county is shoreline, featuring salmon-spawning streams, dramatic sea stacks, beaches and towering coastal cliffs called feeder bluffs. These natural assets provide direct input into the economy of the county and region. By identifying and valuing them, their value can more adequately inform sustainable land-use planning policy – most notably the Shoreline Master Program, practices and investment decisions.

Earth Economics quantified the economic value of the nearshore's natural capital by putting a dollar value on habitat creation, commercial and recreational fishing, carbon storage and a first ever value of feeder bluffs for their sediment transfer services. **The value of Clallam County's nearshore ecosystems is conservatively estimated at \$103 million dollars per year.**

Functioning nearshore ecosystems deliver a particularly valuable suite of benefits to the county. Marine waters off the coast are abundant in fish and invertebrates that support commercial and recreational fishing industries, and provide habitat to marine mammals and birds. Intertidal areas, for example, provide bank stabilization, water purification, food provisioning, habitat for fish and Dungeness crab, and nursery areas for juvenile crab and fish species.

Clallam County Nearshore Ecosystem Service (200 ft shoreline buffer)	Total Annual Value \$/year (2012 U.S. dollars)
Carbon Storage and Sequestration	\$2.6 million
Creation of Habitat	\$11 million
Forage Fish Supportive Value (kelp & seagrass)	\$20,000
Feeder Bluff Beach Sediment Transfer (Elwha and Dungeness drift cells)	\$99,000 to \$506,000
Commercial and Recreational fishing	\$20 million



The nearshore is defined as extending from the area of tidal influence in lower rivers and extending offshore to a depth of 30 m MLLW (Mean Lower Low Water). It includes the riparian zone.

## Bluff Erosion: Economic, Ecologic and Public Safety Risks

Recent heavy storm surges such as those experienced along the eastern seaboard in October 2012, and the threat of climate change, have focused attention on the issue of bluff erosion along Washington shorelines. County officials and landowners are concerned not only about environmental degradation due to increased development but also about the safety and value of their homes along the coast. Many property owners have lost acres of land due to natural erosion and struggle with expensive installation and maintenance costs of the very bulkheads and seawalls that are increasing erosion of their neighbor's bluffs. Analysis of the Port Angeles landfill site showed the armored section of bluff (seawall) provides up to \$5.94 per foot in economic benefits, compared to unarmored sections, which provide \$18.90 per foot, over three times the value.



## Investing in Natural Infrastructure

Investing in and conserving natural landscapes can diminish the risk posed by future erosion and climate instability; as well as help avoid mitigation expenses for cities, counties and ultimately tax payers. Clallam County is seizing the opportunity of the Shoreline Master Program update to work with landowners and community members to increase protection of economically valuable nearshore areas, safeguarding private property, reducing public safety risks. A summary of the recommendations found in the Earth Economics report is below:

## Recommendations

- 1 Clallam County, Washington state and federal agencies should consider the value of feeder bluffs in local regulatory policies, environmental impact assessment, and best land management practices.
- 2 State and local agencies should incorporate the values for the nearshore ecosystem services provided in this report in the designation of shoreline protective regulations.
- 3 Counties should consider adopting policies to create a new approach to shoreline protection and restoration by reducing the number of permits issued for the building bulkheads, using mitigation sequencing in the review of permits for bulk heading and providing incentives for property owners to encourage conservation of shorelines.
- 4 Clallam County's municipalities should invest in green infrastructure alternatives to levees and revetments to enhance flood protection, improve salmon habitat and water quality and contribute to climate stability.

\* Detailed information on this valuation can be found in the complete text, Nature's Value in Clallam County: Policy Implications of the Economic Benefits of Feeder Bluffs and 12 Other Ecosystems. <http://www.eartheconomics.org/Page12.aspx>