

Blue Carbon Co-Benefits

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Tidal marsh, seagrass, and mangrove
all do more than fix and store carbon



The ecosystem processes that contribute to blue carbon also:

- * Support wider biodiversity
- * Sustain life on the planet
- * Supply other ecosystem services to maintain human well-being

This implies that measures taken to maximize carbon sequestration in blue carbon ecosystems will also maintain or even enhance other very valuable services

Ecologically most important co-benefit of blue carbon habitats:

Supporting wider ecosystems of value...



... as the vital organs of the ocean system

THE IMPORTANCE OF MANGROVES TO PEOPLE: A CALL TO ACTION



Mangroves and saltmarshes act as **natural filters**, trapping harmful sediments and excessive nutrients.

Scenic coastlines, islands, and coral reefs offer **recreational opportunities**, such as SCUBA diving, sea kayaking, and sailing.

Estuarine seagrasses and mangroves provide **nursery habitat** for commercial targeted fish and crustacean species.

Healthy rivers provide **drinking water** for communities and water for agriculture.

Streamside vegetation **reduces erosion** and traps pollutants.



Offshore reefs **create sand** and **protect the shoreline** from severe storms.

Healthy coral reefs are hotspots of **marine biodiversity** and can be a source for new medicines and health care products

Sustainable fisheries provide food, create jobs, and support local economies.

Offshore energy provides power to support coastal development.

Marine ecosystems including seagrasses, mangroves, and saltmarshes act as **carbon sinks**, reducing greenhouse gases.

ES provided by blue carbon habitats = BC co-benefits

- * Coastal hazard mitigation: high range of values but easily determined by assessing losses when habitat is destroyed
- * Shoreline stabilization and erosion control
- * Safe harbors and sites for maritime industry at shore and offshore
- * Beach production: mangrove/ reef/ seagrass complexes supporting beaches greatly valued in coastal tourism
- * Fisheries production: e.g. 75% of commercial fish stocks in tropics dependent on mangroves as nursery areas
- * Pollution assimilation, water filtration, maintenance of water quality and hydrological balances, including ocean acidification(?)

Another value: providing marketable goods and services to generate revenues needed for management

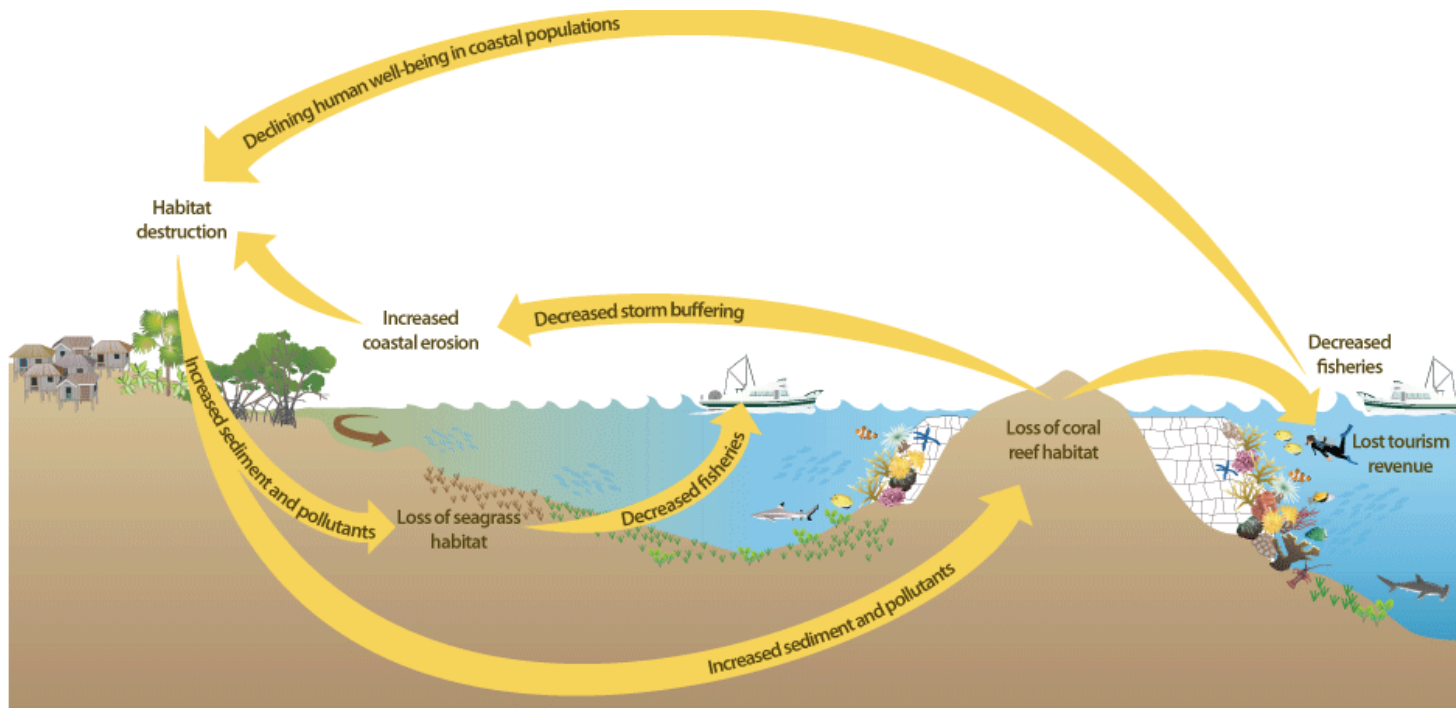
- * Carbon credit generation and offsetting carbon emissions
- * Payments for Ecosystem Services (PES) to safeguard habitats providing multiple services
- * Payments for watershed services (PWS) to assure water quality and flows
- * Biodiversity offsets

These financing tools can be useful in supporting Blue Carbon protection for both mitigation and adaptation

Valuation of Marine Ecosystem Services

- * Recent WWF report estimates ocean goods and services at \$2.5 trillion, making the ocean economy the seventh largest in the world
- * Some of the most important values cannot be monetized, however: including cultural and spiritual values, and options for future opportunities
- * Important to consider not only potential values that are today being realized or could be capitalized in the future, but also costs over time for losing services, including removal of future opportunities

To keep these values safe: Recognize and maintain connections



Requires a holistic approach



Most Important

Invest in protection,
to avoid costs of restoration

- Note costs include not only expense of restoration, but also costs in terms of lost services that restored ecosystems generally cannot provide

Tools

- * Small marine protected areas (MPAs) / community-managed areas
- * Large, multi-use MPAs and MPA networks
- * MSP and Ocean Zoning
- * Integrated watershed, coastal, marine planning and management: watershed management, land and agricultural use, coastal management, fisheries, tourism development
- * Carbon policies that consider all ecosystem service values

Avoid ecological dead ends and points of no return: know your enemy and choose your tools wisely to maintain valuable services!

Reduce risk by prioritizing

* **Three kinds of risk:**

- * Increases in costs of losing ecosystem services are borne by users and also the wider public (Linwood's social costs included)
- * Risks to government investments in resource management and in conservation when coastal habitats are lost or degraded
- * Vulnerability of private sector investments in tourism and coastal development

- * **Priorities can be identified** – geographically or in terms of types of investment – by focusing on BC habitats that provide not only the most carbon but also the most co-benefits

Merci

