



Photo: <https://deepblueoceanss.blogspot.com/2018/08/dugong.html>

An action plan for the conservation of dugongs (*Dugong dugon*) and their habitat

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Photo: kobeemanatee.com

ABOUT THE DUGONG

The dugong is a marine neritic and intertidal species that is extant in the Indian Ocean and Western (central and north) Pacific, and inhabits areas such as Australia, Southeast Asia, and East Africa. Dugongs are complete herbivores [6], preferring seagrasses that are easily digestible for their slow metabolism, and when seagrass is scarce, they may supplement their diet with marine algae. Dugongs are not considered migratory, but are semi-nomadic and may travel great distances within their habitat range in search of food [6]. They are often found in groups of two to five, rarely greater than 100 as seagrass beds often cannot support large groups. They are slow-growing, long-lived mammals and thus do not have much opportunity to combat certain threats and is listed as “Vulnerable” by the IUCN [7]. Their current population is estimated around 7,500 and is believed to be greatly decreasing [7]. The major threats concerning the dugong include habitat loss and degradation due to pollution, sedimentation, and eutrophication, as well as boat contact injuries and aquatic resource use [1,2,6,7].

Important Considerations

Economic: Dugongs do not play a major part in the global economy, but can be important for some local economies. While they were once sources of food, they are now mainly hunted for their oil which can be used in massages, or body parts like tusks which can serve ornamental purposes.

Cultural: The dugong is an important figure in many people's beliefs. Small islands of the coast of Malaysia believe the animals are descendants of humans and may even be reincarnations of deceased women.

Social: The dugong is an easily romanticized species. Tourists are especially interested in capturing a glimpse of the unique animal.

THREATS

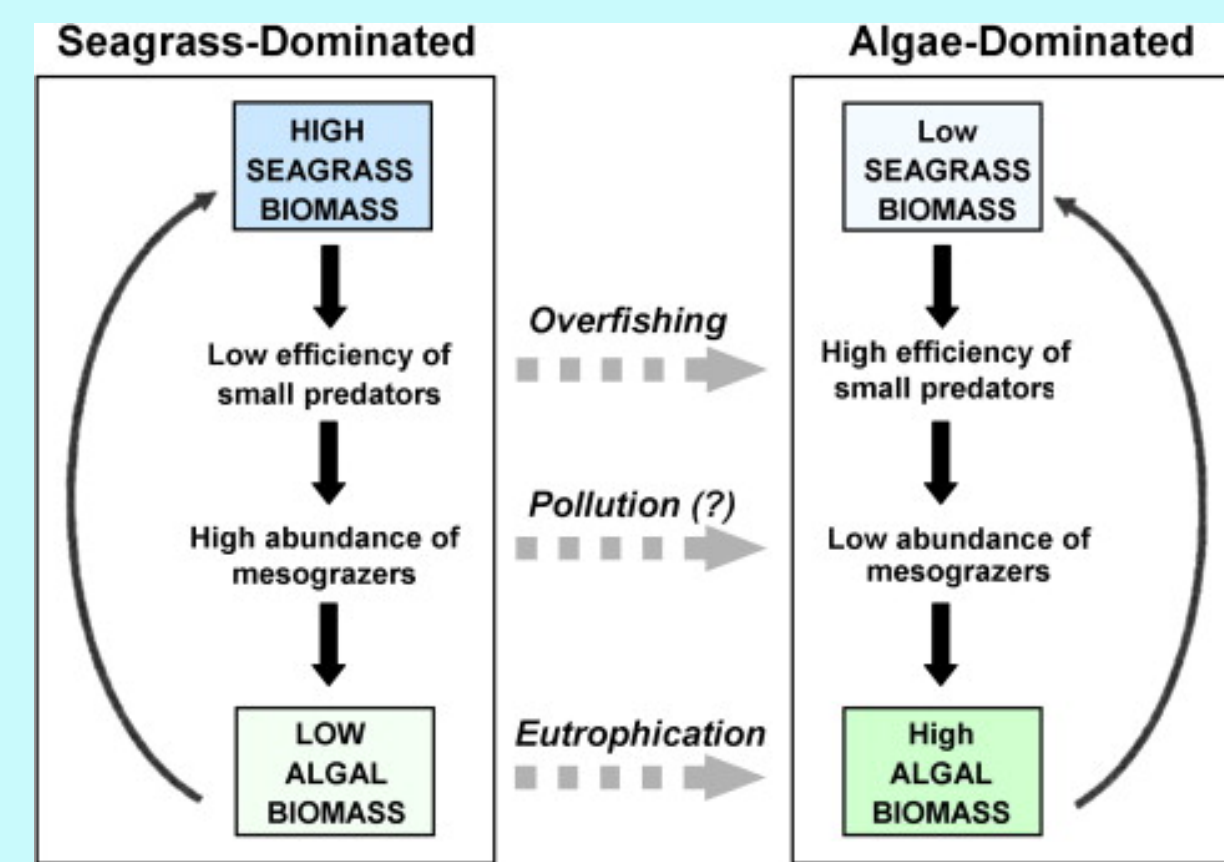


Figure 1. Diagram depicting the influence of eutrophication (i.e. the increase in epiphyte and macroalgal nutrients) on seagrass meadows and mesograzers (Dugongs and other organisms). (Source: Burkholder et al., 2007).

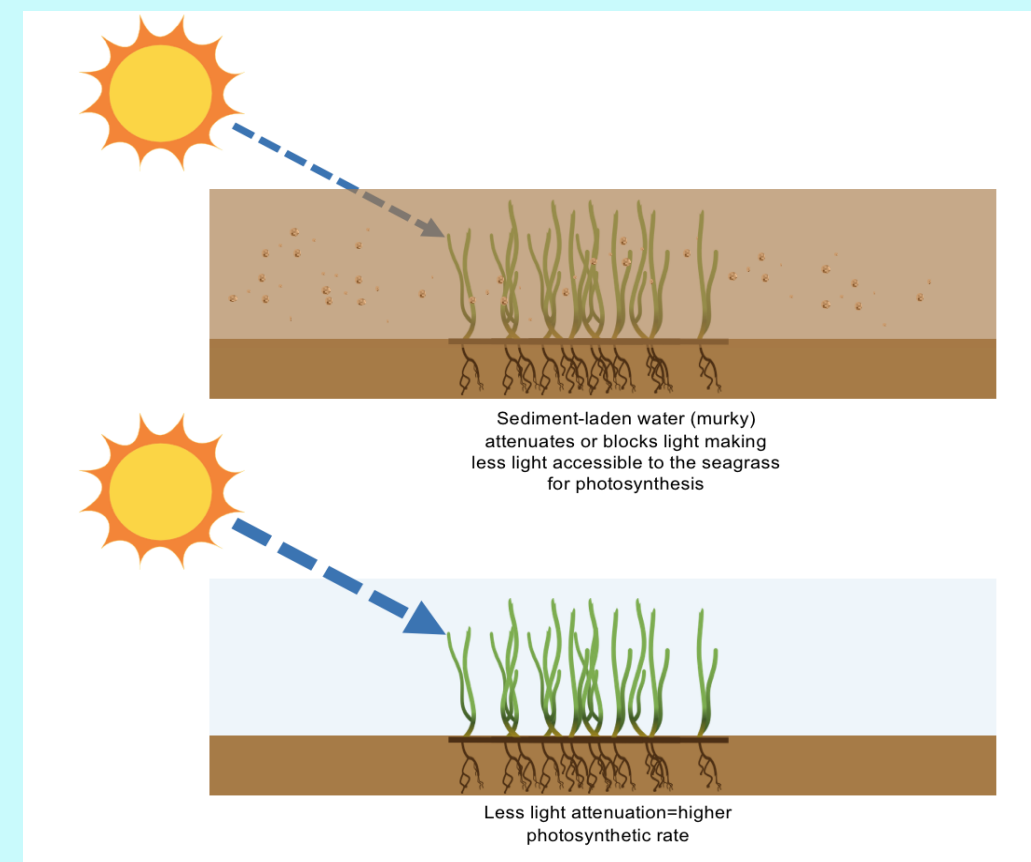


Figure 3. Influence of sediments on the growth of seagrass in. When sedimentation is drastically increased, it can lead to the smothering of seagrasses and less light in the seagrass canopy, reducing their ability to photosynthesize. (Source: The Ocean Foundation).

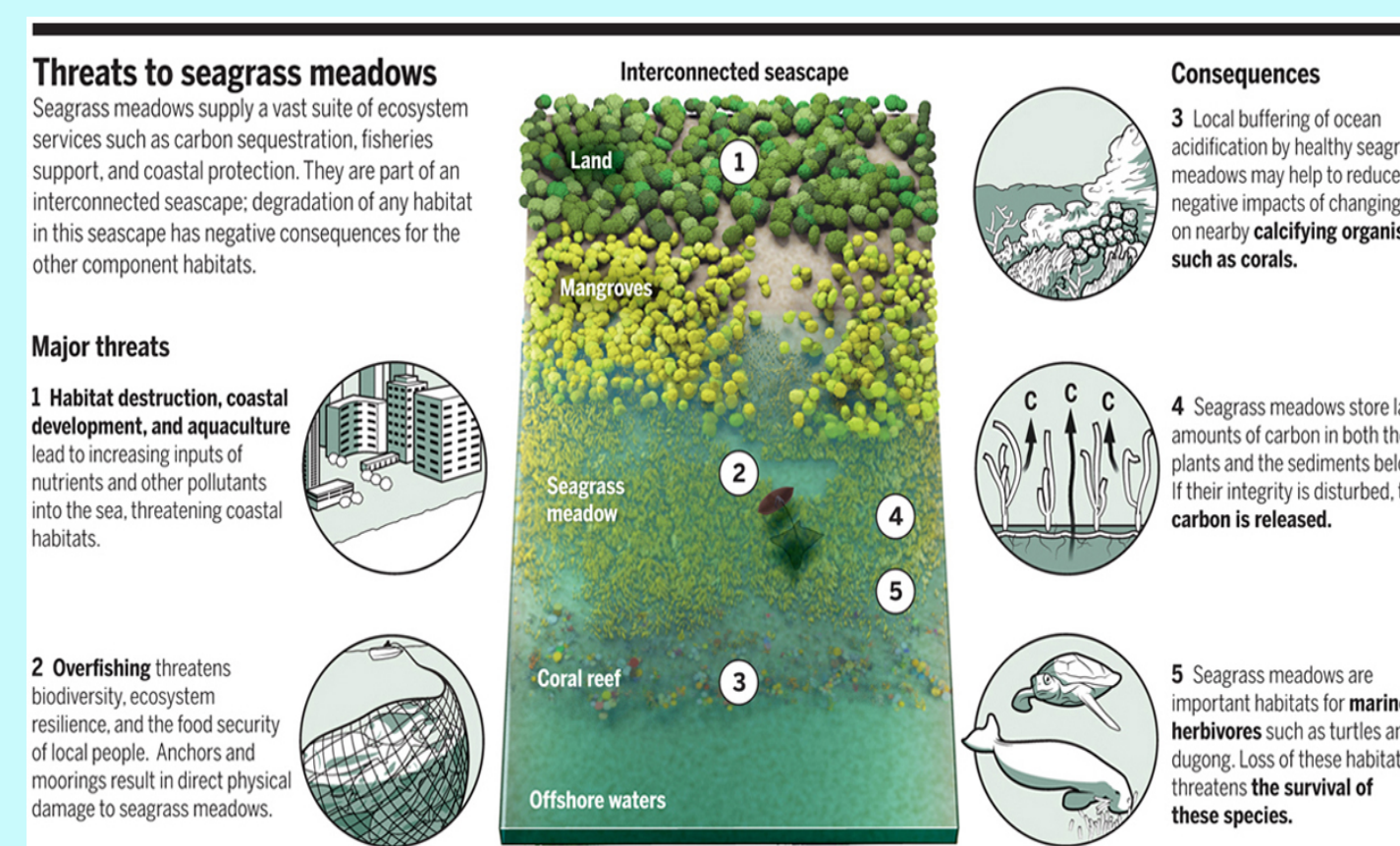


Figure 2. Infographic on the various threats to and importance of seagrass meadows. (Source: Cullen-Unsworth & Unsworth, 2018).

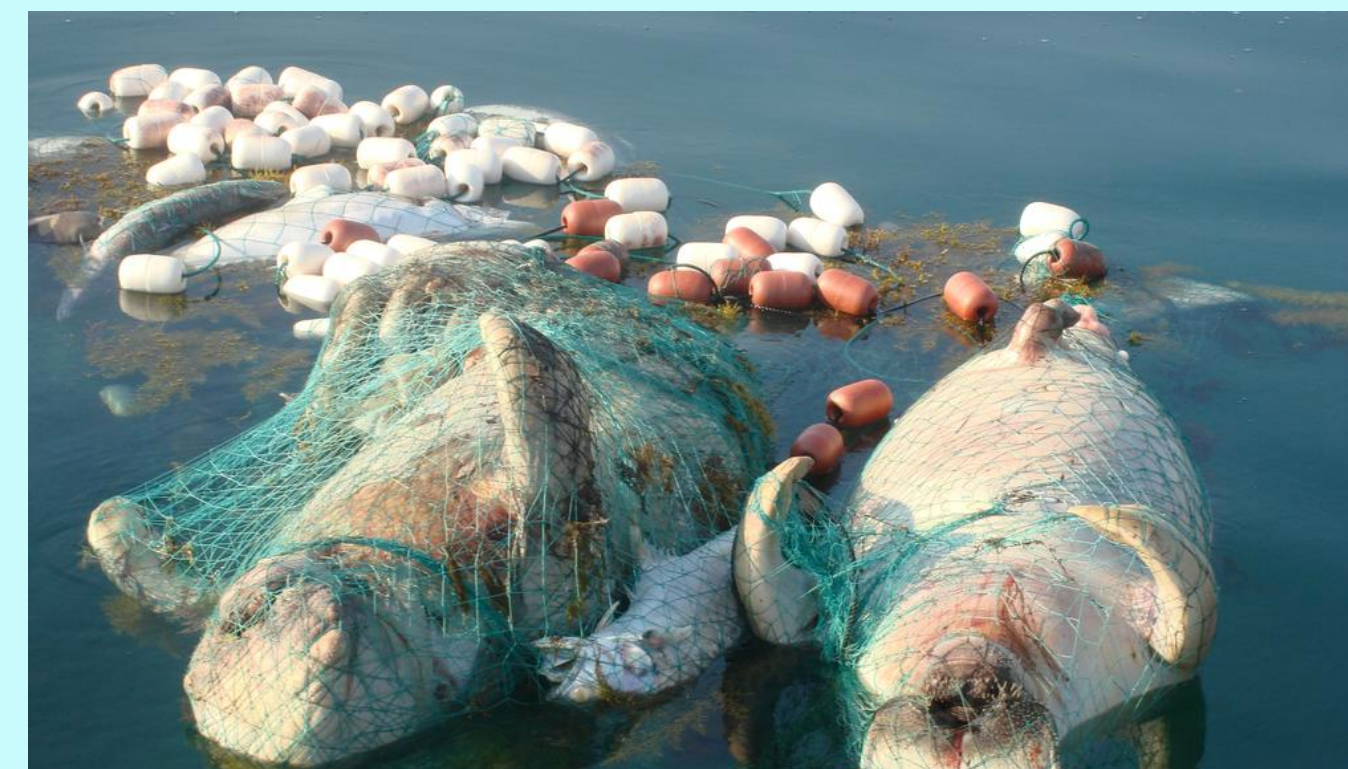


Figure 4. Two dugongs caught and killed via illegal drift fishing nets in Abu Dhabi. Between 2000 and 2015, there have been estimates of 153, or more, dugong deaths in Abu Dhabi's coastal waters due to commercial fishing nets alone, accounting for 85% of dugong deaths in the area. (Source: Todorova, 2015).



Figure 5. Dugong cow and calf killed in a ferry collision in Queensland, Australia. This illustrates the threat of boat strikes dugongs face, as they surface approximately every 12 minutes for and live in shallow waters. (Source: Groom et al., 2004).

PROPOSED SOLUTION

The first step to conserving dugong populations includes protecting the species from immediate harm via imposing restrictions on activities which directly threaten them, such as designating no-fishing areas where dugongs can be found. Perhaps the most important element of any conservation plan concerning the dugong is the dual focus on the animal and its seagrass habitat. Researching methods to mitigate the loss of seagrass fields while actively cultivating new ones will not only benefit the dugong, but also alleviate stress brought upon by climate change. In addition to these direct approaches, the implementation of education and outreach programs will also supplement the conservation of the animal, especially in areas like Vanuatu, where there is a preexisting passion for conservation.

STAKEHOLDERS

Scientific stakeholders like The Dugong & Seagrass Project and The Center for Marine and Coastal studies are focused on integrating a myriad of conservation techniques into the task of dugong protection. Economic stakeholders, like coastal fisheries and local fisherman, rely on the dugong and their habitat as means of revenue source, either for fish nurseries or direct-capture fishing for other purposes. Cultural stakeholders, often comprised of sea-living people, view the dugong as a creature of myth that is important to their heritage and traditions, and thus worthy of conserving.

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