

The Effect of Urbanization on Coastal Wetlands

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Editorial

Wetlands are ecologically rich and productive transitional zones between land and water, with shallow water topping saturated soil and submerged or emergent plant interleaved. Coastal wetlands, such as Melaleuca swamps, salt marshes, mangroves, intertidal mudflats, seagrass beds, and shallow subtidal habitats, serve as the interface of the coastal landscape by occupying zones of transition between terrestrial and marine ecosystems.

Wetland formations are thought to be determined by a combination of hydrology, landscape location, sediment dynamics, storm-driven processes, sea level rise, subsidence, and animal colonisation and disturbance. Many essential ecological services have been proposed for coastal wetlands, but few have been proved, including the highly contentious 'out-welling' function, which proposes that coastal wetlands export considerable portions of their production to sustain offshore secondary production. Wetlands serve vital purposes such as providing habitat for flora and wildlife, especially migrating birds, and helping to manage water quality by being productive and frequently spatially diversified ecosystems. Inshore wetlands are also used by other migratory species such as fish, turtles, and cetaceans.

Coastal wetlands such as mangroves, salt marshes, intertidal mudflats, and seagrass beds produce a wide range of food for consumers, with system net primary productivity levels in mangroves and salt marshes frequently exceeding 2000 g dry wt m² year⁻¹ and in some cases exceeding 4000 g dry wt m² year⁻¹. Wetlands may support commercial and recreational fishing by acting as nursery habitats and provide a variety of direct and indirect services to the local community in addition to providing habitat and food supplies for connected creatures. Wetlands can operate as a buffer between land and sea by preventing erosion, reducing currents, attenuating waves, and promoting sediment deposition and accretion.

According to an analysis of the latest Asian tsunami, there may be an inverse association between the existence of mangroves and tsunami damage. Protecting such critical functions necessitates resource management practises that are frequently at conflict with the requirements of human progress. Coastal wetlands are frequently used for a variety of harmful and consumptive applications, including rubbish dumping, land reclamation, aquaculture ponds, and dredging for navigational channels and marinas, despite their great ecological significance.

As a result of these activities, coastal wetland ecosystems including salt marshes and mangroves have been rapidly disappearing in recent years. For example, during the 1960s, more than half of the mangrove forests that existed in numerous south-east Asian nations have been lost to development, and the trend is continuing. Surprisingly, such degradation is occurring at the same time that more people are becoming aware of the environmental benefits supplied by coastal wetlands. One growing view is that coastal wetlands provide valuable ecological services, such as sustaining fisheries output, as a complement to habitats rather than in isolation, which has significant conservation and management implications.

Woodward and Wui demonstrated in a meta-analysis that evaluating wetland services may require a site-specific approach. Non-consumptive benefits provided by coastal wetlands include tourism and biodiversity protection, although the value of these services is frequently difficult to estimate. The degree of or growth in urban character or nature is sometimes referred to as urbanisation, and it can relate to a geographical region mixing urban and rural areas, or it can refer to the shift of places to more urban development. The phrase can be used to describe a situation at a certain point in time, such as the proportion of total population or area in urban areas or regions, or the rise in this proportion over time.

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