



Overview of the Characteristics and Environmental Effects of Coastal Lagoons

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DESCRIPTION

Coastal lagoons are transitional areas between the land and the sea. They are small inland water basins that are connected to the ocean by one or more narrow inlets that are open at least sometimes. The majority of coastal lagoons were created as a result of the Late Quaternary marine transgression, which started roughly 18,000 years ago and ended roughly 3,000 years ago, leaving a mean sea level close to the present. Because of the way that river sediments and marine processes interact, coastal barriers were built.

Lagoons undergo erosion and deposition once they are created. The accumulation of washed sediments and organic wastes has filled several of the historical coastal lagoons. In other places, old lagoons were turned into marine base by the sea's erosion of the seaward barrier. Due to their quick geomorphologic growth, coastal lagoons only have a fleeting "natural" character. The rates of sediment supply and the relative sea-level increase are the main forces behind this process. Eustatism's cumulative effects determine the actual sea level.

Since the beginning of time, the lagoons of the Euro-Mediterranean region have been managed to preserve their natural heritage while providing economic and societal benefits. However, this balance has since been upset by a combination of anthropogenic pressures that have grown stronger over time as well as social and cultural changes.

Lagoons are among the most prolific and lucrative settings in the Biosphere, making them prized ecosystems that offer to the modern society not only significant ecosystem services but also frequently great cultural heritage value.

Coastal lagoons are transitional ecosystems that frequently encounter environmental disturbances and changes, making them naturally stressed systems. At this time, habitat loss and change, physical alteration, organic, chemical, and biological pollution, and overexploitation (as exogenic unmanaged pressures and endogenic managed pressures, sense) are having a significant impact on lagoons. Even if the underlying

mechanisms and the precise quantitative linkages are still unknown, pathways of lagoon ecosystems' vulnerability to anthropogenic factors like urbanization and industrialization are qualitatively well defined. In addition, lagoons are among the aquatic ecosystems that are most vulnerable to both recent and anticipated climate change since they are ecotone habitats that are open and connected to both freshwater and marine ones.

Changes in water temperature, freshwater supplies and their temporal patterns, and seawater imports are only a few of the impacts that climate change will have on lagoon ecosystems. The distribution and number of species, biodiversity, and ecosystem functioning are predicted to alter more as a result of low water releases in Southern Europe and flash flooding occurrences in North-Eastern Europe. As ecosystems in transition and lagoons adjust to climate change, which affects vital environmental factors like temperature, dissolved oxygen, salinity, element concentrations, and hydrology, more changes are anticipated.

Deltas and lagoons that connect to the sea are included in this definition of estuaries. Coastal systems, however, that has morphologies that are highly limited by pre-existing geology or by engineering projects are not included. Geological restrictions are almost always present in coastal systems, but they frequently have a much smaller impact on morphological evolution than sediment dynamics. This is particularly true for estuary systems that were formed by the marine invasion of a moderately sloping coastal plain. These zones are where the estuarine systems that are being considered here are usually found.

These estuaries have a large mouth, and the estuary channels are getting narrower farther inland. The Charente and Hooghly estuaries provide as examples. There is no mouth barrier or it has been transformed into a subsurface ebb-tidal delta. Old river sediments or recent marine deposits are scoured, a process that has mostly occurred over the previous millennia when the marine incursion has stabilized close to the current sea level. A single main channel links to the river upstream at the head of the estuary. Along the canals, there are tidal flats, which were mostly constructed with sediment brought in from the ocean.

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