

Ecomorphology as key to the solution of ecological problems in marine wetlands

Wetlands

Wetlands are areas where water is the primary factor affecting the environment and the associated plant and animal life. The marine, coastal wetland is one of the five types of wetlands. Wetlands are among the world's most productive environments. They are cradles of biological diversity, providing the water and primary productivity upon which countless species of plants and animals depend for survival. These benefits can only be maintained as long as the ecological processes of wetlands are able to function.

Ecomorphology

Ecomorphology is the study of the interaction between morphodynamical characteristics of the environment and organisms living in this environment. This relatively new area of expertise combines ecology with morphodynamica. At Alkyon we believe a real integration between morphology and ecology cannot be achieved by collaboration of morphologists and ecologists on an ad hoc basis. For a real integration and good understanding of interactions between organisms and their environment, people from both sciences need to discuss and solve problems together. Therefore Alkyon employs both morphologists and ecologists, who interact on a daily basis, guaranteeing a maximum profit for both.



Integrated studies and advice

To solve ecological problems in marine wetlands, Alkyon can study and advise on a wide range of topics, from processes low in the food chain to effects on birds and sea mammals. Because all organisms live in an environment, in wetlands these aspects are always linked to the morphodynamics of the environment, making ecomorphology the key to the solution of ecological problems. Our possibilities will be illustrated by two examples.

Product description



Salt marshes

Salt marshes are coastal wetlands, which are rich in marine life and occur on depositional coasts, bays, and estuaries where tidal action is relatively gentle. They are dominated by salt tolerant plants. Salt marshes rank among the most productive ecosystems on earth, and dozens of animals species use salt marshes for feeding and hiding. Globally, we are losing large areas of salt marshes every year. To restore these salt marshes properly, we need a thorough knowledge of the interaction between the morphodynamics of a salt marsh and the requirements of all organisms living there. As Alkyon is an expert in the relationship between both disciplines, we don't just study the morphological or ecological possibilities and requirements of salt marsh restoration, but can develop an integrated strategy.

Waders in intertidal areas

Coastal regions are important habitats for migratory shorebirds, e.g. waders. Waders feed on intertidal areas, eating bottom life (macrobenthos). The presence of macrobenthos requires a suitable morphodynamic environment in the form of the intertidal flat. When humans interfere with the environment, e.g. by fishing or dredging, this will effect the morphodynamics, followed by the macrobenthos, and subsequently the waders. By combining what we know about the needs of birds and their food with what we know about the response of morphodynamics to human interference, Alkyon can predict the effects of human intervention or the effects of restoration projects. Using this knowledge Alkyon can also give a list of "do's" and "don't's" for managing an intertidal area.

Effects of contamination

Apart from the morphodynamic environment organisms can be affected by contaminations in the soil and the water. Alkyon can also perform studies on the dispersion of contaminants in the environment, and the resulting effects on organisms.

Information

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