



Coastal biodiversity and ecosystem services flows at the landscape scale: The CBESS programme.

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The health of the European coastline is inextricably linked to the economy and culture of coastal nations but they are sensitive to climate change. As global temperatures increase, sea levels will rise and the forces experienced where land meets sea will become more destructive. Salt marshes, mudflats, beaches will be affected. These landscapes support a wide range of economically valuable animal and plant species, but also act as sites of carbon storage, nutrient recycling, and pollutant capture and amelioration. Their preservation is of utmost importance. Our programme: “A hierarchical approach to the examination of the relationship between biodiversity and ecosystem service flows across coastal margins” (CBESS) is designed to understand the landscape-scale links between the functions that these systems provide (ecosystem service flows) and the organisms that provide these services (biodiversity stocks) and moves beyond most previous studies, conducted at smaller scales. Our consortium of experts ranges from microbial ecologists, through environmental economists, to mathematical modellers, and organisations (RSPB, BTO, CEFAS, EA) with vested interest in the sustainable use of coastal wetlands. CBESS spans the landscape scale, investigating how biodiversity stocks provide ecosystem services (cf. National Ecosystem Assessment: Supporting services; Provisioning services; Regulating services; and Cultural services). CBESS combined a detailed study of two regional landscapes with a broad-scale UK-wide study to allow both specific and general conclusions to be drawn. The regional study compares two areas of great UK national importance: Morecambe Bay on the west coast and the Essex coastline on the east. We carried out biological and physical surveys at more than 600 stations combined with in situ measures of ecosystem function to clarify how biodiversity can provide these important ecosystem functions across scales. This information will be shared with those interested in using and managing coastal systems and we will propose practical methods and improved tools for the future analysis, management, and sustainability of coastal wetlands. The programme and progress over the last 3 years will be described.