

studies for appropriate application of land. The boundary was specified on the basic maps based on some criteria such as village boundary, main roads, boundaries of strategic and protected areas, uniformity and simplicity of employing data during process procedures. In the sea side, selecting EEZ as the managing margin leads to an extensive area in the sea that should be divided to some phases, same as land side, to ease the required procedures for completing the project. In the southern coastlines, the first phase considers the area between active sediment transport zone and the territorial sea limit and the study area of phase two starts from the territorial sea limit and ends at in the boundary of EEZ or agreed boundary of countries. In the northern coastlines, the sea side will be investigated in two phases. The boundaries will be defined after defining the legal regime of the Caspian Sea.

### **A pilot survey of managing coastal resources by choice experiments**

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In many coastal regions, oil spills can be considered one of the most important and certainly the most noticeable forms of marine pollution. Efficient contingency management responding to oil spills on waters aiming at minimizing pollution effects on coastal resources turns out to be critically important. Such decision making highly depends on the importance attributed to different coastal economic and ecological resources. While economic uses can, in principal, be addressed by standard measures such as value added. Due to a missing of market in the real world for natural goods, they cannot be directly measured in money terms what increases the risk of being neglected in decision making. This paper evaluates these natural goods in a hypothetical market by using stated choice experiments. Oil spill management practice in German North Sea is used as an example. Results from a pilot survey show that during a combat process, beaches and eider ducks are of key concerns for households. An environmental friendly combat option has to come to a minor

cost for households. Moreover, households with less children, higher monthly income and a membership of environmental organization are more likely to state they are willing to pay for combat option. Despite that choice experiments require knowledge of designing questionnaire, statistical skills to deal with discrete choices and cost time for conducting a survey, such a method can offer useful information for decision makers to find cost effective combat strategy, also has wide application potential in the field of Integrated Coastal Zone Management.

### **The sediment characteristics of the tidal flats in the northern of the estuary of Beilunhe, Guangxi, China**

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Beilun River estuary, an internal boundary water between China and Vietnam, is located the northwest of the Beibu Gulf, which plays an important role in the internal and external traffic and the economic development. The broad tidal flat of the estuary provides survival for a human, as a potential large-scale land resource. However, suffered from the storms and strong tidal-wave actions as well as the irregular exploitation, the beach area decreases and coastline landward retreats recently. To stimulate the sustainable development of the beach of the estuary, we need to better understand the sediment characteristics on the beach and the controlling factors.

The geomorphology of the estuary is characterized by sand island, coastal dam, tidal flat, tidal ridge and tidal grooves, in which the tidal flat is the emphasis for the research. Compiling the data from previous researches and the field investigation on sediment types, water table, vegetation, hydrodynamics, geomorphologic features, we summarized the two main types of sandy coast and muddy coast with two transects for each besides mangrove coast elsewhere. The sediments of the high intertidal zones along the transects F10 and F03 mainly compose of yellow middle-fine sand above 4 cm, and grey fine sand below in F10, dark grey in F03, which indicates the higher organic or humic content in sediments of the later. The material obviously accumulates where mangrove plants scatter. Mosaic tidal ridges and creeks distribute

in the middle intertidal zones and tidal flow cracks are marked in the low intertidal zones. Different from F10 and F03, the transects of F06 and F04 are characterized by the exposed base rock, detritus and shells in the high intertidal zones, fine sand, silt and silty clay in the low intertidal zones.

The most distinguished phenomenon is human impacts on the tidal flats in common. For example, the sediment patterns are strongly destroyed and recreated by people scraping clams and dredging, shown by the obvious signs on the tidal ridges and grooves. The new hydrodynamic system of the recreated micro-geomorphology would intensify the erosion together with the native tidal actions. In the middle intertidal zone of the transect F03, the large-scale purse seine intensifies the sediment deposition inside and the erosion outside. The deforestation has also accelerated the flat erosion without the mangrove protection. In all, the tidal flats in Beilun Estuary are dominated by sand sediments with mangrove scatters in the high zones, fine sand or silt with high organic or humic material content in the middle zones and silty clay in the low zones. Human activities strongly affect the sediment depositions and intensify the coastal erosions by destroying the vegetation proof and micro-geomorphology systems. We should full consider the features of the tidal flats and formulate the valid protection measures such as curing mangrove diseases, replanting to restore mangrove, prohibiting the arbitrary excavation to prevent the flat erosion for the sustainable development.