



# Integration of knowledge for quality advice in TTHue province:

predicting impacts on the state of the coastal ecosystem

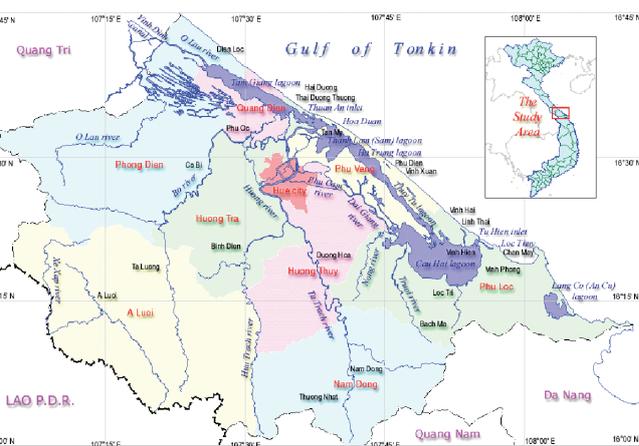
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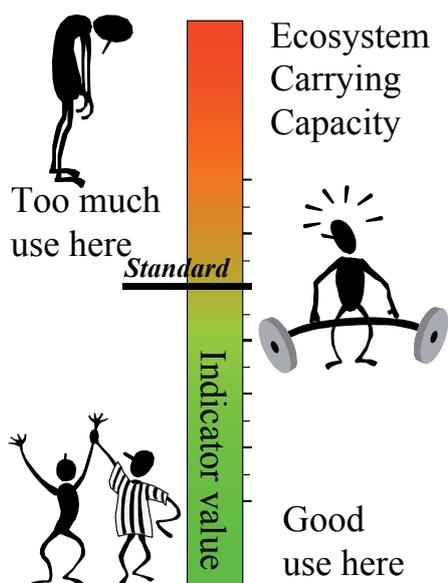
*The Thua Thien Hue province with the main rivers and the largest lagoon of SE Asia which is intensively used: rice cultivation, fisheries, aquaculture and navigation. (source: Vietnam-Netherlands ICZM Project Atlas)*

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## Summary

One of the main aims of the Vietnam-Netherlands ICZM project and Coastal Cooperative Programme (CCP) in Thua Thien Hue was to provide the province with ICZM tools. This to strengthen the capabilities and to improve the quality of the decision making processes for the management of the TTHue Lagoon area and its surroundings. The TTHue Lagoon is the largest lagoon of SE Asia and provides livelihood to about one hundred thousand families. The lagoon is a highly dynamic and sensitive system governed by a complex set of interacting processes. Extreme flooding and coastal erosion are causing major problems. The rapid development of economic activities, such as aquaculture, fishing, rice production, transportation, tourism are seriously threatening the state of the lagoon through overexploitation and water pollution. Methodologies were introduced and developed to quantify the state of the Tam Giang – Cau Hai - Thuy Tu Lagoon ecosystem and the impacts of human interventions through integrated modeling, based on the concept of ecosystem carrying capacity. Coastal hydraulic models and a GIS water balance model of the TTHue river basins, supported by the results of morphological, chemical and biological CCP monitoring of the lagoon and remote sensed aquaculture developments were important building blocks of the integrated ecosystem modeling. Training was a fundamental part of the project. The modeling efforts culminated during one of the hands-on training CCP workshops in Hue. The water quality of the rivers and lagoon deteriorated during monitoring period, meaning that the resource use of the lagoon exceed its capacity for natural purification. Some historic trends regarding fish catches, bird counts and macrophyte coverage confirm the heavy pressure on the Lagoon. The impacts of the strongly growing human activities, especially aquaculture and fishing, exceed the carrying capacity of the Lagoon. Preliminary modeling results based on scenarios of future human activities and climate change were also demonstrated. A series of recommendations to improve future use of the Lagoon based on the future scenarios of human use were provided. One of these advices involved the creation of an inter-university and international coastal cooperation in the field of integrated ecosystem monitoring, modeling and policy preparation in order to support sustainable exploitation and good governance of the TTHue Lagoon. The results were presented to and welcomed by the high level provincial authorities.

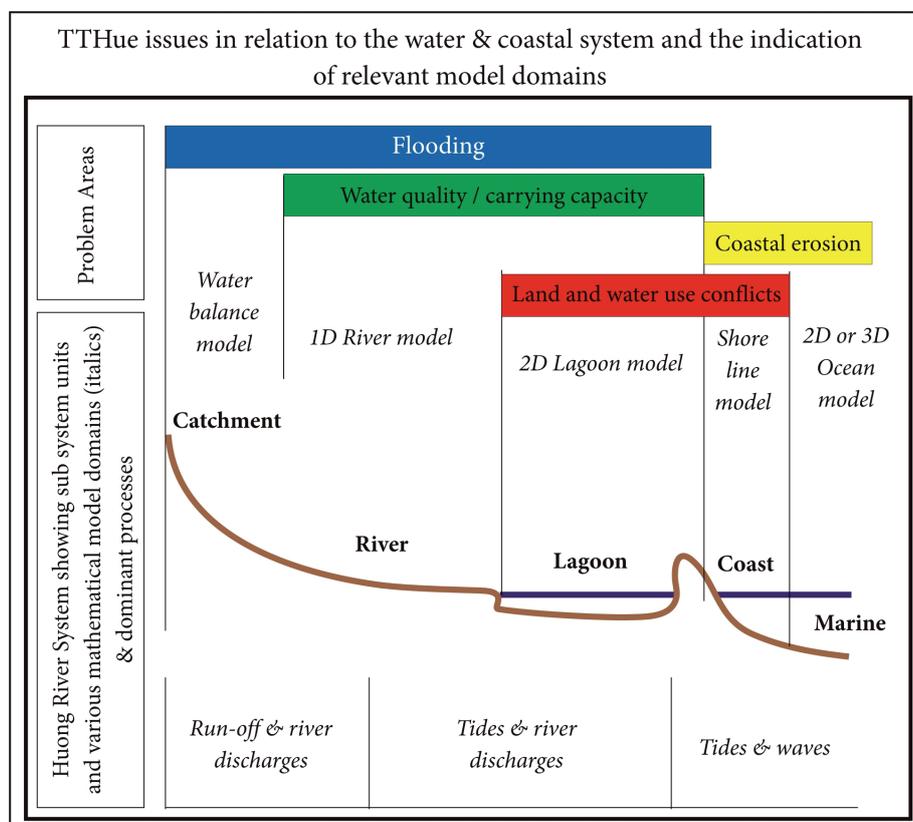


Depicting the concept of carrying capacity of an ecosystem in relation to its use and self restoring capability.

How to quantify this concept in modelling terms attractive for policy makers preparing sustainable uses of the TTHue Lagoon.

That was the question. (source: CCP2002)

Intense use of the borders of the Lagoon: rice paddy fields next to aquaculture ponds in the Tam Giang - Thuy Tu Lagoon, TThue province, 2004. (photo: Mindert de Vries)



TTHue issues in relation to watersystem and indication of relevant model domains. (source: CCP 2002, adapted)