

researches on MPA Network design have focused on application of ecological criteria in designing an MPA Network, opportunity cost of developing such a Network as well as developing a general model for MPA Network design.

However, the examples are mostly from west (e.g., California Channel Islands, South Australia or Gulf of California), and there is not such study or research in Asian context. Therefore this study aims to examine an MPA Network design in Thai Andaman Coast, a tropical area with diversified ecosystems and habitats that belong to one of the world's highest biodiversity region. Among the existing studies, Gulf of California case resembles an area covering different habitats, which is more similar to the study area. But this case has not applied the ecological criteria to a greater extent. However this was another opportunity to examine the methodology context that they have used and modifying it with other case studies.

Although the other researches have used ecological criteria as a theoretical framework and describe the steps in designing an MPA Network, this study is keen in describing ecological considerations and identifying essential ecological criteria that mostly suite to the study area context. Within the existing ecological context it is necessary to identify the locally applicable and suited ecological criteria and selecting them to design an MPA Network in the study area i.e., Lower Thai Andaman Coast covering Krabi and Trang Province. Then the study aims in integrating socio-economic considerations which are necessary and are demonstrated in other research, e.g., fishing area, conflict use area.

The primary as well as secondary data collections have been done in relevant to the research objectives. Data on existing protected areas and available biodiversity, habitat types, human activities and uses, and major fishing grounds were collected. In order to collect primary data and interviews, field trips were conducted during Nov, 2005 and May July, 2006. The data were all processed into geo-spatial data or layers, which is in order to facilitate the Network design work in GIS environment.

Based on available data the study has demonstrated examples of an MPA Network in the study area considering existing ecological context and socio-economic activities. Further analysis on selecting applicable ecological criteria and socio-economic considerations are ongoing.

Effect of dredged sediments on ordinary concrete properties

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Artificial reefs with different geometric forms in general are used in aqua-cultural industry, because they provide different marine species with hard substrate for invertebrate organisms to settle in. Besides that provides protective shelters for fish and other marine organisms. Prospective assessment for making marine environmentally friendly materials such as marine blocks and reefs out of dredged sediments was evaluated.

Different proportions of dredged sediment treated with paper sludge ashes (1.5%) were added to the ordinary concrete in order to evaluate its effect on the compression strength, shrinkage and change in the mass for four weeks. Fine aggregate (sand) was partially or completely replaced by dredged sediments in the main concrete composites in order to compare between ordinary concrete and concrete with dredged sediments. Results indicated that, the three & seven days compressive strength was relatively higher for the samples treated with sediment when different W/C ratios were applied, however no change was observed at 28-days.

Moreover, no significant changes were noticed in the shrinkage and change in the mass for low W/C ratio (0.471), though these changes were relatively higher than ordinary concrete when W/C ratio was 0.686, and significant change at ratio of 1.145. To study the morphological aspects, SEM images were taken for different mixes at the age of seven days. SEM observations indicated that the micro-pores of the specimens contain sediment were filled with fine particles, therefore the total pore volume and maximum pore size were reduced significantly with increasing the sediment amount in the mixes.