

Chakhrit Ruengsorn 2007: Study on Optimum Qualities of Waters and Sediments for Abundance of Seagrasses in Thailand. Master of Science (Marine Science), Major Field: Marine Science, Department of Marine Science. Thesis Advisor: Associate Professor Shettapong Meksumpun, Ph.D. 207 pages.

Research on water and sediment optimal qualities for abundance of seagrasses around the coastal area of the Gulf of Thailand and the Andaman sea was carried out in 4 major seagrass beds; (1) Kungkraben Bay of Chantaburi Province, (2) Chang Islands of Trat Province, (3) Chong Island of Pangnga Province, and (4) Lanta Yai Island of Krabi Province by field survey during April 2005 to January 2006. Six species of seagrasses included *Enhalus acoroides*, *Halodule pinifolia*, *Halodule uninervis*, *Halophila ovalis*, *Halophila decipiens*, and *Cymodocea serrulata* were found. Biomass of *Enhalus acoroides*, *Halodule pinifolia*, *Halophila ovalis*, and *Halophila decipiens* ranged between 28.01-86.47, 3.34-81.61, 27.69-40.15, and 0.15-1.60 g-dry weight.m<sup>-2</sup>, respectively. The analysis of impacts of environmental factors among seagrass meadows can imply that the limitation of seagrass growth were depended on optimum level of water and sediment qualities. Through water qualities were measured namely, the ranges of dissolve oxygen, pH, salinity, and temperature were between 5.1-11.3 mg.L<sup>-1</sup>, 7.56-8.64, 14.86-33.94 psu, and 28.9-34.4 °C, respectively. In a case of pore water nutrient of surface sediment (0-1cm depth), the result indicated that concentrations of ammonium-nitrogen, silicate-silicon, and orthophosphate-phosphorus ranged between 2.93-91.63, 1.11-8.62, and 0.04-0.99 µM, respectively. Analysis on relationship among seagrass biomass and environmental factors in water and sediment indicated that each seagrass abundance had optimal growth in specific circumstance and were significantly influenced by pore water nutrients of NH<sub>4</sub><sup>+</sup>-N (424.39-530.34 µM), Si (OH)<sub>4</sub>-Si (40.00-54.97 µM), PO<sub>4</sub><sup>3-</sup>-P (5.54-6.77 µM), respectively. Such levels were invaluable for transplant site selection so as to develop new seagrass beds in near future.

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Thesis Advisor's signature

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