



Editorial

EMECS8 – Harmonizing catchment and estuary

The 8th EMECS (Environmental Management of Enclosed Coastal Seas) International Conference was held on October 27–30, 2008, in Shanghai, China. Approximately 570 participants from nearly 40 countries attended the meeting, including biophysicists, social scholars, government officials, politicians, and industry representatives. The conference was organized to help provide answers, or at least establish valid scenarios for future changes that can be used for planning purposes, for the changes in the water circulation, the geomorphology, the ecology, and the ecosystem services provided to the human population, of estuaries, deltas, and coastal waters. The focus was on Asia, with additional examples from other regions, where estuaries and deltas are rapidly changing as a result of human influences within the watershed and in the estuary itself.

Water turbidity has measurably increased in some estuaries as a result of land clearing upstream, while it has decreased markedly in others as a result of dams. Large Asian estuaries include the estuaries of the Yellow (Huanghe), Yangtze, Red (Song Hong), Mekong, Chao Phraya, Irrawaddy, Ganges–Brahmaputra, and Indus rivers. They are all impacted by rapidly increasing human populations and rapid economic growth along the estuaries and throughout the watershed. Dams upstream have significantly cut down riverine sediment load into the estuary, resulting in decreased suspended sediment concentration (SSC), which in turn modifies the geo-biochemical properties of the estuaries. Within the estuaries themselves the wetlands are increasingly degraded from direct human impacts. As a result of decreased SSC and decreased wetlands, the filtering action of these estuaries is weakened, and this leads to decreased ecosystem services provided by the estuaries to the growing human populations.

The papers selected for this special issue focus on the practical goals of the conference, namely 1) environmental vulnerability under global warming setting, 2) integrated coastal zone management and future perspective; 3) water quality, total load controls and management, and 4) ecological, hydrological, geochemical and biological processes, and 5) large river input into the estuarine seas – processes and response. They address the changing geo-biochemical interactions occurring in human-impacted estuaries, with a focus on Asian estuaries. An example of a possible future scenario for these dam-impacted estuaries is the Nile Delta, where there has been almost none riverine SSC into the estuary due to

Aswan dam, but anthropogenic pollution is intensifying. The selected papers provide important lessons and have profound implications. Can these modified estuaries continue to absorb the loads of nutrients and heavy metals that are ever increasing as a result of human influences? At what rate will the decreased SSC lead to coastal retreat? How will global warming, and/or sea level rise, and/or ocean acidification, and/or introduced species change the ecology of these estuaries and the coastal waters? Will these estuaries and coastal waters keep providing vital ecosystem services including food to an ever increasing human population? The answers may not be fully found in these papers, but rather a drive provided for future study.

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