afterward it has decreased up to the recent. Before the 1980s, grain size was constant, but it became coarser gradually after 1980s.
The result from the ostracode analysis reveals that the construction and extension of the Manzeki-seto Strait have influenced the distribution and composition of ostracode assemblages around the inner part of Asou Bay. Before the 1900s, Bicornucythere bisanensis, which lives in oxygen-poor bottoms, was abundant. On the other hand Nipponocythere bicarinata, which cannot tolerate anoxic or oxygen-poor bottoms, was rare. Between the 1900s and 1970s, B. bisanensis decreased although N. bicarinata increased gradually. Since the 1970s, there are no significant changes of the species composition of ostracode assemblages, but the total number of individuals has increased up to the present.
Thus, seasonal hypoxia was developed in the study site before the 1900s. The construction and extension of the Manzeki-seto Strait, however, have promoted the inflow of oxygen-rich waters from open seas and have improved the environment in the inner part of Asou Bay.

Up-to-date technology for treatment watery sediments

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The Project of Environmental Restoration of Enclosed Coastal Seas in Agobay of Mie Prefecture in Japan was carried out by a group of collaborative researchers assigned by Japan Science and Technology Agency for five years since 2003. This project deals with efforts to clean up the deteriorated sediments that are accumulated at the bottom of the sea. Agobay is known as the starting bay on the culture of pearl oysters by Mr. Kokichi Mikimoto and has been contaminated in the continuation of pearl culture spanning 110 years. Attempts are in order to enhance the self-cleaning capability of the natural water in the bay by using the many kinds of artificial restoration technologies, that is, dredging engineering, re-forming artificial tidal lands and seaweed beds. As one of the innovated investigation results, new technologies for dewatering and solidification of the dredged sediments were developed by the original coagulant, named ‘AGOCLEAN-P’, which was made of paper sludge ashes wastes and/or coal ashes as raw materials. The coagulating mechanism of AGOCLEAN-P is explained that ettringite crystallites are firstly formed in the watery sediments when the powdered coagulant and wet sediments are mixed. The mixture reacts with water to make soil particles by cross-linkages of silicate networks. Soil particles are agglomerated to become diameter several 10 μm and does not disperse into water as silts. The separation between agglomerates and clear water is performed very well and sedimentation of agglomerates is happened very short time. After dewatering by press, treatment dredged mud can reuse for the raw materials of artificial tidal flats, granular micro-habitat beads for microorganism, seaweed beds, and marine blocks. This treatment will improve the turbidity of sea water in order to reach the sun light in the bottom of the sea. This technique will be applied to the environmental cleaning about river catchment and estuary areas in Asia. Wetland restoration actions, in general, for lagoons, lakes, rivers, and reefs grow yearly on a point of view for global environmental problems.

Nutrients transfer between the sea and artificially enclosed waters

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Ago-Bay has several enclosed water bodies surrounded by concrete dykes which were artificially constructed for rice cultivation, and almost of the nutrients from the land flow down to the sea through these enclosed waters. In order to estimate the amount of nutrients discharged into the sea, evaluation of the waters enacting on the nutrients flow is regarded very important. Therefore, the nutrients flowing into the Ishibuchi-pond and Tateishi-pond have investigated in this study.
Area of Ishibuchi-pond is estimated to be ca. 15000 m^2, and the bottom sediments in this area are in extremely anaerobic condition. Tateishi-pond has no river flowing into them, and surrounded by natural forest. The total area of the

Tateishi-pond is estimated to be 850 m^2 at the low-tide (0 cm to 30 cm above sea level), and ca. 2000 m^2 at the high-tide (higher than 30 cm above sea level). Few benthos and shells inhabit the area.
In investigation of Ishibuchi-pond, survey was conducted at the water gate of the dyke and the mouth of the river flowing into the pond (two points). Tateishi-pond, survey was also conducted at the water gate. The measurements were carried out during spring-tide 2 or 3 days consecutively.
Usually sea is alternating high-tide and low-tide twice in a day, however contrary to this, the water level in the pond was witnessed to have high-tide and low-tide only once a day. Furthermore, a time lag of ca. 3 h was recorded between the high tide in the pond and that observed in the outer sea. However, the time lag was only ca. 30 minutes in case of low tides in the pond and outer sea. It was considered that the water gate has a kind of structure of check valve, which is hindering the up-flow from the sea. The sea level fluctuates from spring tide to neap tide in two weeks. As may be expected, while moving from neap tide to the spring tide, usually sea water levels become higher at the high tide, and lower at the low-tide. Contrary to this, although water level in the pond on the same occasion becomes lower at the low-tide, it tends to remain/become lower at the high-tide as well. This phenomenon is regarded as an influence of the structure of the water gate which is hindering the water flow from the sea.
Regarding outflow and inflow of T-N and T-P between the outer sea and the waters, no significant difference was observed in Tateishi-pond, however, the outflow of T-N and T-P to the sea in case of Ishibuchipond was bigger than the inflow from the sea. So far, it has been presumed that the amount of nitrogen and phosphorus will be reduced by the processes like sedimentation and/or de-nitrification in the pond, however, results from the present study do not support this hypothesis. However, survey time in our investigation was rather limited, and therefore, much more accumulation of the data over a longer period is require.

China estuaries aquatic biodiversity and endanger aquatic wildlife conservation

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The coast line length of China is about 18000 kilometers; the Chinese inshore rivers are numerous at the same time. There are 1500 or more with the river valley area is above 1000 square kilometers. The most of rivers flow to the ocean become various river estuary ecosystems.
The Chinese important river mouth includes the Liao River estuary，the Yellow River estuary, the Yangtze River estuary and the Pearl River estuary, these important river estuary be abundant on of the biology quantity, and with high biodiversities. All of them are important habitats for endanger wildlife species in China. “ China national protection wildlife category” have 80 aquatic wildlife species, in addition to 20 fresh waters species, the big part of them distributes in estuary, first-class protecting aquatic wildlife include Chinese white dolphin *(Sousa chinesis)*, Baiji dolphin *(Lipotes uexillifer)*, Chinese sturgeon (*Acipenser sinensis*.)， Chinese paddlefish （*Psephurus gladius*） .etc., second-class protecting animal include seal, cetaceans, Loggerhead Turtle（*Caretta caretta*）,Green Sea Turtle（*Chelonia mydas*）, Hawksbill （*Eretmochelys imbricata*）, Pacific Ridley Turtle（*Lepidochelys olivacea*）and Leatherback Turtle (*Dermochelys coriacea*), finless porpoise（*Neophocaena phocaenoides*）, roughskin sculpin （*Trachidermus fasciatus*）etc., the estuary is important to the existence of these species. Most spot common seal（*Phoca uitulina*）documented in the Liao River estuary for Breeding in China, the yellow river is an important waterfowl habitat, the Yangtze River is the important for Chinese sturgeon migration, also for finless porpoise and roughskin sculpin's habitats. The Pearl River is the important for Chinese white dolphin to distribute the ground, the many sea turtle was found in this area. Also Because of the influence of human activities, cause the river estuary ecosystem deteriorated seriously, express to descend for aquatic biodiversity. The main factor of affect include: (1) Pollution of the environment, enrich the nourishment; (2) The fishery activity cause of over-fishing; (3) The influence of the engineering construction; (4) the indiscipline variety of the sea fresh water quantity; (5)Transportation and ships.
Conservation recommendation: (1) Sound aim at the protective laws of the estuary ecosystem; (2) Raise the protective public awareness; (3) Strengthen the pollution exhausts the management, reducing discharge into the sea; (4) The control fisheries catch, manage the fishery on base of the ecosystem system; (5) enhance natural sanctuary construction and managements.