

the amount of DDT found in surface water and sediment samples is lower in dry season. However, it indicated that DDT was certainly used in these areas and could be considered as pollution source of the surveyed coastal areas because of their harmful, bio-accumulative and persistent properties. The concentrations of p,p'-DDTs, as well as those of p,p'-DDE, p,p'-DDD and p,p'-DDT, at two estuaries in Hue province were particularly recognized much higher than other studied areas. The concentrations of OCs in Balat estuary at current study

were approximately much smaller than those in the past, showing clearly the decline of utilization of pesticides and chemical products containing OCs. Aldrin, Dieldrin, Endrin were not found in almost collected samples so it can be assumed that those chemicals were unutilized in Vietnam. The absence of Aldrin, Dieldrin, and Endrin as well as a seasonal variation of DDTs in the investigated locations in this period of study showed a good coincidence with the previous reports about surface seawaters in these coastal areas in Vietnam.

## **An assessment of trace metal pollution in coastal areas of Bangladesh**

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Trace metals from the three coastal regions of Bangladesh and also from the Ganges-Brahmaputra-Meghna (GBM) river system were analyzed. In the Central region the lower Ganges system shows relatively higher concentration of non-detrital fraction of heavy metals due to the presence of industrial and agricultural runoff in the drainage basin. In GBM estuary low concentration is found in water but higher concentration found in sediments. However, compared with other climatological latitudes most of the values found in the estuary are much lower. In the Eastern region, seasonal variation of heavy metals in *Perna viridis* inhabiting the Moheshkhali Channel of the Bay of Bengal reveals the highest concentration of these metals during the monsoon period. However, the level of these metals was well below the permitted levels recommended for human consumption internationally. 16 species of Marine fish were also analyzed and the concentration found was well below the level for human consumption. Almost same level of trace metals concentration was found in Karnafuly estuary and north eastern region of Bangladesh coast.

In the Western region concentrations of Fe, Cu, Zn and Cd

in surface waters and Cr, Cd, Pb, As, Cu, Mn and Fe in bottom sediments of Sundarban Mangrove Forest area were measured. Concentrations of Fe, Cu, Zn and Cd in water samples and concentration of Mn, Cu, Zn, Cd, and Pb in sediment exceeded the certified values. Comparing with the certified limits given by WHO, Pb, Zn and Cu exceeded the toxic level among the macrobenthos. The source of water pollution from the Ganges-Brahmaputra-Meghna estuary is from domestic sewage, land washout and river run-off. Results suggest that only the western region was comparatively polluted. Perhaps the mixing and dispersion effect in the central and eastern region by the combination of a strong river run-off during monsoon and semi-diurnal tide along the coast of the Bay of Bengal creates a dynamic regime which prevents from longer residence time in the near shore region. On the other hand, in the western region the ecosystem become a sump for pollutants because the normal structure and circulation of currents in the Bay of Bengal tend to prevent the mixing of these shallow waters with the rest of the ocean.

## **Coastal research programmes at Environmental Management Center (EMC)**

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Environmental Management Center (EMC) is founded in 1993 through grant from Japan Government. One of EMC's roles is to perform research related to environmental impact control. To execute this role, EMC is supported by research groups. There are five research groups at EMC i.e. atmospheric research group, environmental toxicology research group, noise and vibration research group, environmental remediation research group and waste treatment research group.

Environmental toxicology research group has performed research activities since 1995. Most of the research activities are to study toxic substances either heavy metals or organic substances in Indonesian's rivers. Only limited number of research activities studied toxic substances in coastal areas. In 1995 the research group studied tributyltin (TBT) compounds in harbor sediment. The purpose of this study was to identify pollution of organotin from ships. The study focused on

Tanjung Priok Harbor, because the harbor is the biggest harbor in Indonesia. In this harbor, many ships are not only staying there, but also being repaired in docks located there. Ten sampling points were assigned in this study. Six sampling points were in Basin, one sampling point was in front of the dock, one sampling point was at mouth of breakwater and two sampling points outside breakwater. This study showed that concentrations of TBT at Tanjung Priok Harbor were ranging from 0.022 to 0.204 ppm. In 1996 and 1999, we studied also heavy metals in green mussel, *Perna viridis* sp., collected from coastal areas of five major industrial cities (Jakarta,

Medan, Surabaya, Semarang and Makassar). The result showed that concentration of Cd, Pb and Cr for several sampling sites were not detected. However, in Semarang concentration of Cd was 5.93 ppm, in Makassar was 2.21 ppm and in Cilincing (Jakarta) was 1.04 ppm. On the other hand, concentration chromium in Semarang was 2.24 ppm, and concentration Cr in Makassar was detected 4.50 ppm. Both studies showed also that metals concentration in green mussel collected from coastal areas of five major industrial cities didn't change significantly.

## Chinese core journals for marine sciences

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Based on Index of *National Newspapers and Periodicals* (Natural Sciences), *Oceanic Abstracts* (Chinese) and the international index journal—*Aquatic Sciences and Fisheries Abstracts*, the journal productivities of hundreds of Chinese journals related to marine sciences were added up. Three aspects of each journal determine the sequence of the periodic. The first is the total paper numbers of each journal of 1998 and 1999. It contributes 50% importance to the sequence. The second is the total papers number from 1990 through 1997. It

contributes 30% importance to the sequence. And the third is the importance of the published institution. It contributes 20% importance to the sequence. (The number of scientists, the constitution of researcher and the administrative level of the publisher determines the importance of the published institution). Through comparative study of the lists, a much more practical *Chinese Core Journals List of Marine Sciences* was obtained.

Chinese core journal list of marine sciences

No.	English Name	Chinese Name (Pronunciation)	Publisher	Publish Place	Frequency
1	*Acta Oceanologica Sinica	Haiyang Xuebao	The Chinese Society of Oceanography	Beijing	Bimonthly
2	*Oceanologia et Limnologia Sinica	Haiyang Yu Huzhao	The Chinese Society for Oceanology and Limnology	Qingdao	Bimonthly
3	Marine Sciences	Haiyang Kexue	Institute of Oceanology, Academia Sinica	Qingdao	Monthly
4	*Marine Science Bulletin	Haiyang Tongbao	State Oceanic Information Center, SOA	Tianjin	Bimonthly
5	Tropic Oceanology	Redai Haiyang	South China Sea Institute of Oceanology, Academia Sinica	Guangzhou	Quarterly
6	Marine Environmental Science	Haiyang Huanjin Kexue	Institute of Marine Environmental Protection, SOA	Dalian	Quarterly
7	Journal of Ocean University of Qingdao	Qingdao Haiyang Daxue Xuebao	Ocean University of Qingdao	Qingdao	Quarterly
8	Journal of Oceanography in Taiwan Strait	Taiwan Haixia	Third Institute of Oceanography, SOA	Xiamen	Quarterly
9	**Donghai Marine Sciences	Donghai Haiyang	Second Institute of Oceanography, SOA	Hangzhou	Quarterly
10	***Journal of Oceanography of Huanghai and Bohai Seas	Huangbohai Haiyang	First Institute of Oceanography, SOA	Qingdao	Quarterly
11	Journal of Fishery Sciences of China	Zhongguo Shuichan Kexue	Chinese Academy of Fishery Sciences	Beijing	Quarterly
12	Ocean Technology	Haiyang Jishu	Institute of Ocean Technology, SOA	Tianjin	Quarterly
13	Chinese Journal of Polar Research	Jidi Yanjiu	Chinese Polar Administration	Shanghai	Quarterly
14	Chinese Journal of Marine Drugs	Zhongguo Haiyang Yuewu	Shandong Institute of Marine Medica	Qingdao	Bimonthly