20 years, perhaps wholesale stormwater treatment will be necessary in the absence of controlling atmospheric sources (Mangarella et al. 2006). Research is now beginning to focus on speciation (methyl and reactive mercury). This paper demonstrates the association between scientific information development and harmonizing a closely connected, highly urbanized, catchmentestuary system.

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## Estimation of biomass resource from *Mytilus* galloprovincialis attached the vertical seawall at Osaka Bay in Japan

Machi MIYOSHI<sup>1\*</sup>, Yasunori KOZUKI<sup>2</sup>, Ryoichi YAMANAKA<sup>2</sup>, Akio SAKAMOTO<sup>3</sup>, Tatsunori ISHIDA<sup>4</sup>, Nobuhiro YAMAGUCHI<sup>2</sup> & Koudai SAKASHITA<sup>2</sup>

<sup>1</sup>Department of Ecosystem Engineering, the University of Tokushima, Minamijousanjimacho 2-1, Tokushima, 770-8506 Japan \*E-mail: haseda@fe.bunri-u.ac.jp

<sup>2</sup>Course of Ecosystem Engineering, the University of Tokushima

- <sup>3</sup> FUJITA Construction Consultant Co., Ltd.
- <sup>4</sup> ECOH CO., LTD.

The invasive mussel *Mytilus galloprovincialis* dominates at the vertical structure composing the coast in Japan. This species plays a role of water purification from taking the terrestrial polluting load. However, a lot of oxygen was consumed after dropping the feces of this species and mussel themselves to the bottom during the summer. This causes to the dissolved oxygen deficiency at the bottom.

In this study, we suggested that the harvesting of this species cut the load of mussel residue and improved the bottom condition. We estimated the standing stock of this species and examined the difference of attached biomass in relation to the environmental condition at Amagasaki Harbor, Osaka Bay, Japan. Amagasaki Harbor is a closed shape by the vertical seawall. Our previous results suggested that the dissolved oxygen deficiency occurred in the bottom of this Harbor during 7 months through the year. The seawall of Nishinomiva is a straight line form with 4 km long. The average depth is about 12 m. A large amount of mussels attaches on the surface of seawall. We investigated the standing stock of this mussel from 14 sites at Amagasaki Harbor and on Nishinomiya seawall on August 2007 and January 2008.

The Blue mussel *Mytilus galloprovincialis* and the Pygmy mussel *Xenostrobus secures* coexisted at Amagasaki Harbor in summer and no *M. galloprovincialis* was observed in winter. Therefore, it is considered that the mussels dropped out and died. The other side, three species: *M. galloprovincialis*, *X. secures* and the Green mussel *Perna viridis*, were found at the seawall of Nishinomiya even in winter.

We compared the difference in size of this mussel between at Amagasaki Harbor and Nishinomiya seawall. The mussel size at Amagasaki Harbor was larger than that in Nishinomiya seawall.

From this result, the larva of this mussel move into Amagasaki Harbor earlier than Nishinomiya seawall. The mussel size in Nishinomiya seawall grew by 30 mm from July to January.

When the annual harvesting time is made summer, the amount of biomass resource from Amagasaki Harbor and Nishinomiya seawall was Total Organic Carbon (TOC) 4.7 t and Total Nitrogen (TN) 830 kg, and this time is assumed winter, the quantity was TOC 87.6 kg and TN 13.8 kg.



Figure1 Amagasaki Harbor and Nishinomiya seawall at Osaka bay in Japan

## Impact of damming and eutrophication on DSi: DIN ratio in river water, a case study of Yahagi River, Japan

Masashi KODAMA<sup>1\*</sup>, Katsuhisa TANAKA<sup>2</sup>, Tomoki SAWADA<sup>3</sup>, Motoi TSUZUKI<sup>4</sup>, Yuji YAMAMOTO<sup>4</sup> & Toyoshige YANAGISAWA<sup>3</sup>

<sup>1</sup> Marine Productivity Division, National Research Institute of Fisheries Science, Fisheries Research Agency (FRA), Japan, Fukuura 2-12-4, Kanazawa-ku, Yokohama, 236-8648 Japan \*E-mail: mkodama@fra.affrc.go.jp

<sup>2</sup> Fisheries Division, Japan International Research Center for Agricultural Sciences (JIRCAS),Ohwashi 1-1, Tsukuba, Ibaraki, 305-8686 Japan

<sup>3</sup> Marine Resources Research Center, Aichi Fisheries Research Institute, Japan, Toyoura 2-1, Toyohama-cho, Minamichita, Aichi, 447-3412 Japan

<sup>4</sup> Freshwater Resources Research Center, Aichi Fisheries Research Institute, Japan, Ichi-no-wari 56-6, O-oka, Hosokawa, Issiki-cho, Hazu, Aichi, 444-0425 Japan

Dissolved silicate (DSi) is one of the key nutrients to determine structure of phytoplankton communities. In recent years, significant reductions in the transport of DSi from river have been reported after construction of dams, with severe consequences for food web structure in the coastal areas as diatoms are replaced by nonsiliceous (potentially toxic) species. These issues are not a regional problem, but likely to occur in many freshwater and marine systems throughout the world.

To assess current status and possibility of Si depletion in Japanese river, variations of DSi and ratio to dissolved inorganic nitrogen (DSi:DIN ratio) were investigated in the Yahagi River, Japan over three years (from June 2000 to June 2003). DSi concentration and DSi:DIN ratio in the Yahagi River ranged from 75 to 254 M (average: 162 M) and from 0.74 to 4.3 (average: 2.3), respectively. Referring to the DSi:DIN ratio, there is a possibility of Si depletion in the Yahagi River and Mikawa Bay during the low flow period.



Figure2 The Amount of TOC and TN per the length seawall 1m at each sites in summer

DSi:DIN ratio in the river were reduced by high DIN loading from the lower tributaries, and its effect was stronger during the low river discharge period. From November to May, the low water exchange rate of the dam water leads to diatom blooms and results in the reduction in DSi:DIN ratio in the river water.

It is suggested that the increased nitrogen loading from agricultural and urbanized catchments and lower river flow induced by the water utilization, brought about not only a decrease in the DSi supply to the coastal sea but also a reduction in the DSi:DIN ratio.

## Suspended sediment dynamics at the Mekong Floodplains: data analysis

Matti KUMMU<sup>1</sup>\*, Juha SARKKULA<sup>2</sup>, Kim IRVINE<sup>3</sup>, Yin SAVUTH<sup>4</sup>, Olli VARIS<sup>1</sup> & Lu XIXI<sup>5</sup>

<sup>1</sup>Water Resources Laboratory, Helsinki University of Technology (TKK), P.O. Box 5200, FIN-02015 HUT, Finland \*E-mail: matti.kummu@iki.fi

<sup>2</sup> Finnish Environment Institute (SYKE), P.O. Box 140, FIN-00251 Helsinki, Finland

<sup>3</sup> Geography and planning department, Buffalo State University, 1300 Elmwood Avenue, Buffalo, 14222 NY

<sup>4</sup> Department of hydrology, Ministry of Water Resources and Meteorology, Phnom Penh, Cambodia

<sup>5</sup> Department of Geography, National University of Singapore 119260, Singapore

Sediments are an essential part of the floodplain ecosystems providing nutrients for the primary and secondary production. The sediments are also an important part of the ecosystem processes in the Lower Mekong floodplains in Cambodia, including the Tonle Sap system and other floodplains downstream from Kratie. However, the present sediment dynamics there is still rather poorly understood, especially outside the Tonle Sap.

The Mekong region is developing with increasing