



## Biogeochemical observations in the Amur River estuary

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Collaborative research cruise focused on biogeochemical processes in the Amur River mouth and adjacent marine areas was implemented on June 9-18, 2006. The aim of the study was twofold: (1) to recognize the processes that govern the biogeochemical pattern of the area and (2) to establish present biogeochemical status of the Amur River Estuary. The later is especially important for comparison with the future possible ecological changes in the area due to human activity.

Water samples were taken out on the following parameters: CTD, Calcium, Magnesium, Dissolved Oxygen, Nutrients (Silicate, Phosphate, Nitrate, Nitrite, Ammonium), pH, Total Alkalinity, Chlorophyll, Humic Substances, suspended matter, microbiological activity (15 stations), PAH (15 stations), phytoplankton, zooplankton and benthos.

Preliminary results may be summarized as following:

- In the downstream of the Amur River the concentrations of nitrite, phosphorous, ammonium, nitrate and silicate are ranged within 0-0.2, 0.2-0.6, 0.4-2.3, 2-5 and 83-98  $\mu\text{mol/kg}$ , respectively. It means that there is not any strong fertilization of the River waters at present time.
- High chlorophyll concentration in the Amur River (up to 20  $\mu\text{g/L}$ ) suggests high primary production (PP) in June 2006. The Amur River is a source of  $\text{CO}_2$  for atmosphere despite of a high PP that suggests high mineralization rate of allochthonic organic matter.
- Due to microbiological activity, the riverine part of estuary is a source of  $\text{CO}_2$

for atmosphere and internal part of the estuary may be considered as heterotrophic basin.

- External part of the estuary may be considered as autotrophic basin and sink for atmospheric CO<sub>2</sub> in studied time period.
- Distribution of microbial activity with peptone inhibited by phenol suggests that Sakhalinsky Bay was exposed by phenolic pollutions.
- Distribution of microbial activity with naphtalen and phenantren suggests that Tatar Strait was exposed by PAH.