## **Mesocosm Experiment in Changjiary Estuary**

## Hiroshi Koshikawa<sup>(1)</sup>, Kaiqin Xu<sup>(1)</sup>, Hideaki Maki<sup>(1)</sup>, Shogo Murakami<sup>(1)</sup>, Mingyuan Zhu<sup>(3)</sup>, Teru Ioriya<sup>(2)</sup> Kunio Kohata<sup>(1)</sup> and Masataka Watanabe<sup>(1)</sup>

 <sup>(1)</sup>National Institute for Environmental Studies, Tsukuba 305-0053, Japan Tel +81-298-502505; Fax +81-298-502576 e-mail: koshikaw@nies.go.jp
<sup>(2)</sup>Tokyo University of Fisheries, Minato-Ku, Tokyo 108-0075, Japan

<sup>(3)</sup>First Institute of Oceanography, State Oceanic Administration, Qingdao, China

## <u>Abstract</u>

An oil enrichment experiment using the water-soluble fraction (WSF) of #0 diesel oil was conducted in mesocosms in the Changjiang Estuary, China, over 7 days, to investigate the acute impact of oil on the plankton ecosystem. The dominant grazers (ciliates, noctiluca and copepods) decreased in abundance after the addition of WSF. The decline of ciliates was particularly marked, suggesting that they were most sensitive to WSF. There was little difference in phytoplankton abundance between the control and oil-enriched mesocosms, because nutrients became deficient in both mesocosms. However, a batch experiment with <sup>13</sup>C bicarbonate revealed that photosynthetic activity was strongly affected by the WSF addition. The study suggests that oil pollution may have a direct impact on productivity in marine ecosystems.