

**PH101 Dynamics of dioxins in an aquatic food web of Tokyo Bay.** Naito, W.<sup>1</sup>, Yoshida, K.<sup>1</sup>, Masunaga, S.<sup>2</sup> and Nakanishi, J.<sup>1,2</sup> <sup>1</sup>Research Center for Chemical Risk Management, AIST, Tsukuba, Ibaraki, Japan. <sup>2</sup>Yokohama National University, Yokohama, Kanagawa, Japan. It is known that the major route of exposure of PCDDs/DFs and co-PCBs to human is through dietary uptake. Consumption of fish and shellfish has contributed significantly to the exposure of these compounds to the Japanese population. The concentrations of these compounds are, therefore, of concern to those who consume fish and shellfish. Moreover, fish-eating birds are known to accumulate high levels of these compounds. In order to evaluate the potential risk of PCDDs/DFs and co-PCBs to humans and fish-eating birds, it is important to understand the levels and characteristics of bioaccumulation of PCDDs/DFs and co-PCBs in the aquatic food web. Such information will help to set for the acceptable daily intake of fish and shellfish and determine the environmental quality criteria of PCDDs/DFs and PCBs in the aquatic environment (e.g., water, sediment). In this study, concentrations and accumulation profiles of PCDDs/DFs and coplanar-PCBs (co-PCBs) in aquatic biota (e.g., plankton, shellfish, benthic invertebrate, and fish) and sediment from Tokyo Bay were examined to elucidate the relationship between bioaccumulation and trophic level in the food web as determined by the stable nitrogen isotope analysis. The results showed that bioaccumulation patterns of PCDDs/DFs and co-PCBs varied greatly among congeners. Biota-sediment-accumulation-factors (BSAF) for co-PCBs in biota from Tokyo Bay were significantly greater than those of PCDDs/DFs. Furthermore, the slopes of the plots of  $\delta^{15}\text{N}$  and BSAF values and water solubility of 2,3,7,8-substituted PCDDs/DFs and co-PCBs were highly correlated. The results of our study would provide the valuable information to understand the accumulation properties of PCDDs/DFs and co-PCBs in aquatic biota. Furthermore, we will introduce an approach for predicting bioaccumulation levels of these compounds using the data from Tokyo Bay.