

Review of the Pacific Oceanological Institute program on the Amur River Estuary and adjacent marine areas

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The Amur River is one of the largest rivers in the world and its influence on the Okhotsk Sea environment is significant. At the same time recent industrial development in the Amur River basin and its estuary suggests serious changes in the water characteristics, physical and biogeochemical processes, as well as structure of the ecosystem. However, our knowledge on the status of the environment and ecosystem of this region, as well as our understanding of the whole system functioning, are far from sufficient. Since 2003 POI, in collaboration with other institutes of the Far Eastern Branch of the Russian Academy of Sciences, has started a series of comprehensive surveys of the Amur River estuary and adjacent areas, including the lower part of the river, Sakhalin Bay of the Okhotsk Sea and northern part of the Tatar Strait in the Japan Sea. Six expeditions have been carried out to study summer, spring and winter conditions of the area, including high water and low water regimes and spring under the ice observations. The observations and sampling included CTD and current measurements, dissolved oxygen, nutrients, pH, total alkalinity, chlorophyll-*a*, humic substances, calcium, magnesium, suspended matter, microbiological activity in the water as well as structure, isotopic content and organic matter in the bottom sediments. Many of the observations and comprehensive surveys were never done here before. The results on the distribution of physical and chemical parameters, water exchange and mixing in the Amur Estuary, transport and transformation of river discharge on the natural barriers, production and destruction processes, distribution of the Amur waters into the Okhotsk and Japan seas, as well as the status of contamination, are discussed. Continuation of the field surveys is planned for the fall and winter periods.