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SUSTAINABLE PRODUCTIVITY OF COASTAL SEAS

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Coastal seas are highly productive areas. We are conducting research to reveal the mechanisms for maintaining the high productivity and modeling them to develop a managing method to restore and enhance their sustainable productivity.

Elucidation of mechanisms maintaining high productivity in coastal seas

We are conducting field observations to reveal how nutrients are loaded, transported and used for primary production in semi-enclosed coastal seas (Seto Inland Sea, Ise Bay and Tokyo Bay).

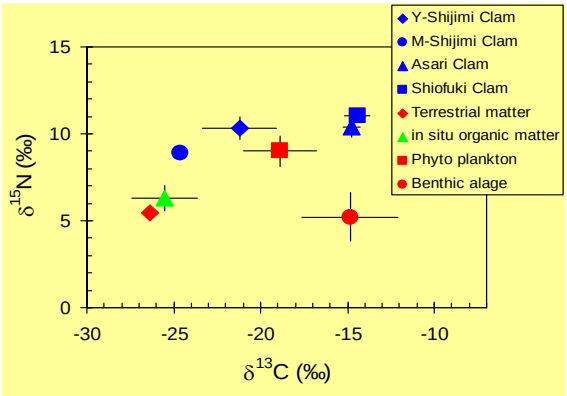
Study on eutrophication and hypoxia in coastal seas

Turbidity and COD are increasing in Bisan Strait in the Seto Inland Sea

Summer eutrophication and winter oligotrophication are simultaneously proceeding in the Seto Inland Sea. Hypoxia occurs in summer and nutrient level is too low to culture sea weeds in winter. We are developing tools for predicting and managing nutrient levels in the sea by modeling nutrient dynamics.

Ecosystem in estuaries

Flow of nutrients and organic matter, and the ecosystem are studied using carbon and nitrogen stable isotope ratios in animal tissues, particulates and sediments. The right figure shows that in some clams the isotope ratios are similar to those of phytoplankton and benthic micro algae, but in others they are similar to those of terrestrial matter. This indicates that the former selects its food source and digests marine-produced organic matter but the latter digests terrestrial matter.



C-N map of bivalves and their food sources in the Kushida estuary.

Key words

Environment, Coastal sea, Eutrophication, Primary production, Ecosystem, Nutrient dynamics, Stable isotope, Field observation, Numerical model

Recent publications

Migration ecology of juvenile temperate seabass *Lateolabrax japonicus* in the Yura River estuary: A carbon stable isotope approach
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