

## **Study on Hydrogen Isotope Transfer from Seawater to Marine Animals**

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Accompanied with the operation of a spent nuclear fuel reprocessing plant in Rokkasho, Aomori Prefecture, Japan, various radionuclides with a small amount are released into the natural environment. Tritium ( $^3\text{H}$ ), radioactive isotope of hydrogen, is directly discharged into the sea along the coast of Rokkasho (offshore 3 km, depth 44 m). Because hydrogen is an essential element for living beings, tritium released from the plant may possibly accumulate in marine animals. In this study, using deuterium as a tracer, the transfer of tritium from seawater into marine animals, including 6 kinds of fish, sea cucumber, urchin, scallop and mantis shrimp, was examined in the culture experiment. The exchange velocity constant of heavy water (HDO) observed between seawater and marine animals was very large, ranging from 0.06 to 0.29 per hour for fish and from 0.87 to 9.22 per hour in other marine animals.

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