

## **Experimental Study on Growth of *Ulva Prolifera* Effectively Utilization of Nitrification Restrained Water at the Waste Treatment Plants**

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In Japan, the fundamental philosophy calls for realization of "Satoumi". It is proposed to suggest the program restoring fishery resources. Among the effect of declining fishery resources, the damage on discoloring aquaculture Nori (*Pyroria yezoensis*) is serious at coastal areas of Seto Inland Sea. Nitrification control treatment operation is carried out to explore preventing the damage on Nori at the sewage treatment plants.

Shido Bay is located in Bisan Seto, where the water of restraining nitrification is discharged from treatment plant. Total nitrogen (TN) and chlorophyll-a concentrations showed no trends on its increase. It is thought that the effect of nitrification restraining water could not expect production of aquaculture Nori due to dilution and diffusion by seawater. We conducted laboratory experiments in which treated water with nutrients was used to grow *Ulva Prolifera* before being diluted with seawater.

After 57 days of the experiment, the wet weight ratio of *U. Prolifera* was 0.6 and 0.8 for artificial seawater with 20 psu-salinity, no TN and actual seawater with 20 psu-salinity, 0.5 mg/l-TN, respectively. Maximum wet weight ratio of *U. Prolifera* as 1.9 was obtained when it was cultured with the culture mixing ratio of artificial seawater and nitrification restraining water being 3:7. The wet weight ratio of *U. Prolifera* was 0.7 being cultured only in the nitrification restraining water and it showed no growing under freshwater. These results suggest that DIN in the mixed seawater and nitrification restraining water was effective on the growth of *U. Prolifera* with 10 psu-salinity.

**Keywords:** nitrification restraining water, *Ulva Prolifera*, aquaculture, Seto Inland Sea

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