

## Seaweed Beds Management Using a Submerged Backhoe

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Effect of valuable seaweed beds creation scrubbing seabeds covered with various seaweeds or coralline flats was investigated in neighboring the Tsugaru Strait, Japan. The results are summarized as follows.

### 1. Creation of new beds for valuable seaweeds

In November 1999, we had an experiment at the depth of 10 meter under a sea level located at waters of Ohmamachi, Shimokita-gun, Aomori Prefecture. It enables to create new beds for seaweeds by washing the seabed with a rotary brush attached with a submerged backhoe with weight of 10.8 tons. This brush rotates at 78 rpm and has a diameter of 850mm. The experimental area of 840 m<sup>2</sup> (42m × 20m) in space is divided in two; the brushed area and the control which is untouched.

### 2. Surveys on the abundance and species composition of seaweeds on the experimental area

For upgrading data accuracy, we made extra inspections in May 2000 (1st inspection) and May 2001 (2nd inspection) which monitor conditions of seaweed growth by the **quadrate** method.

In the preparatory inspection, *Ecklonia stolonifera* and *Cystophyllum sisymbrioides* covered 86 to 100% in total wet weight, while the valuable kelp "*Laminaria japonica*" was not observed at all. In the 1st inspection held 6 months later, *L. japonica* appeared in the experimental area by 93 to 99% in wet weight, whilst *L. japonica* appeared in the control area was only 0 to 12%. This is significantly different between two experimental areas. Calcareous **algae** that cause the deforested area appeared only one over fifty compared with the control. In the 2nd inspection, *L. japonica* increased four times in wet weight compared with that of the first inspection which is favorable in growth of *L. japonica*.

### 3. The applicability of this technology to the deforested area

It was evident that scrubbed seabeds would provide good kelp beds. It is therefore promising that the technology of new seaweed beds creation using a submerged backhoe will assist in the restoration of the deforested area.