

Preface

Japan is one of a few countries where people have paid attention to the decrease of seaweeds for more than a century. In the east coast of Izu Peninsula, Central Pacific Coast of Japan, fishermen called the decrease of *Gelidium* or *Ecklonia* 'isoyake'. Since the first literature in 1885, the dialect has been applied to refer the decrease of a variety of 'moba' (useful seaweed beds) including *Saccharina* in northern Japan, *Eisenia* and *Sargassum* in central to southern Japan. The causative agents of isoyake vary from natural to anthropogenic. In a hundred and twenty years since 1885, more than 1,000 papers have reported the occurrence and ecology of isoyake and trials of seaweed bed restoration. However, deforested areas have continued to increase even in the 21st century and successful restorations of seaweed beds have been quite limited. In Japan extending long from south to north, we can see various types of isoyake. The recent characteristic phenomena are 1) increase of urchin barrens by *Anthocidaris* or *Diadema* in southern Japan, 2) long persistence of urchin barrens by *Strongylocentrotus* in northern Japan, 3) deforestation by herbivorous fish (*Siganus*, *Calotomus*, *Prionurus* and *Kyphosus*) in southern Japan, and 4) occurrence of barrens by stagnation of waters and/or sedimentation near highly protected areas. The stagnation of waters may not only weaken seaweed thalli, but enhance the destructive grazing and browsing by herbivores. Elevation of water temperature relating to global warming (?) is one of the greatest concerns as a causative agent or background of isoyake, but the trend of fluctuation differs spatially and temporally. On the other hand, a variety of human activities (changes of coastlines and rivers, fishery, aquaculture etc.) may directly or indirectly affect the seaweed beds. For a long time, fishing villages and local governments have tried to increase seaweed beds by traditional hard techniques such as deployment of stones and concrete blocks. However, these techniques are not the measures to restore seaweed beds on deforested bottoms, particularly when the densities of the herbivores are high and not controlled. The invested hard substrata seldom restore seaweed beds but even worsen the conditions because of providing habitats for herbivores.

In Japan, 'Isoyake Taisaku Guideline' was published in 2007 by Fisheries Agency and the following projects are ongoing to popularize the principle as well as to practice the restoration of seaweed beds all over the country. The communities of seaweeds and the related fish and shellfish are local, but most of the component species are Indo-Pacific, common in East Asian countries. Recent exploitation and export (to Japan) of these marine products may also have impacts on the coastal resources and their management in both of exporting and importing countries. Also for global warming, we should exchange information to broaden our view from the different sides of the common sea. The present symposium was held at Zenko Suzuki (the 70th Prime Minister, 1911-2004) Hall in Tokyo University of Marine Science and Technology on August 1st 2008 to learn current status of seaweed beds, isoyake and their restoration not only from Japan but from other regions of East Asia and in a global scale to deepen our knowledge, to understand each other and to find out the better way of managing healthy seaweed beds and the related coastal resources. We believe this symposium is the first synthesis of wisdom in East Asian countries and provide the base for further collaboration on this theme.

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