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Assessment of Marine Water Quality Using Bioindicator

Kentaro Imamura

Hiroshima Prefectural Institute of Public Health and Environment,
1-6-29 minami-machi minami-ku hiroshima, 734-0007, Japan
Tel +81-82-255-7131 Fax +81-82-252-8642
e-mail: imamura@hiroshima-cdas.or.jp

Abstract

The intertidal flora and fauna on the rocky shores in Hiroshima bay were investigated in 1995. 108 species had been listed to the fauna, and a further 43 species had been added to the flora. Then 10 species, from these 151 species, were selected which can be used as bioindicators.

A simple assessment of the marine water quality, using these species, was made. The technique (SAMB) gives guidelines to the general public to empower them to carry out such a survey on their own.

The marine environments in the Hiroshima prefectural regions were surveyed using this technique from 1996 to 1998. On the whole, the results found by the SAMB not only relate to COD levels but also water transparency levels. In high point areas of the SAMB, their COD levels were low (≤2.0mg/l), and their water transparency levels were high (≥5.0 m). Also their species diversity were found to be high, thus it was considered that their ecosystems were well balanced. But in low point area of the SAMB, their COD levels were high (>2.0mg/l), and their water transparency levels were low (<5.0m), also species diversity were comparatively low, thus it was judged that their ecosystems were unbalanced. An anomaly was found around Ikuchijima Is. and Innoshima Is. which had a COD level of <2.0mg/l, but a transparency level of <4.0m, which was probably caused by muddy water. Also, the biomass of the bioindicator *Serpulorbis imbricatus* was low. Considering this fact, the S.A.M.B. for this area is one rank lower than expected.

The SAMB is a very useful technique to find and assess some of the effects on the marine environment.