

The Health Examination of Ago Bay in Japan

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The problem in water quality became obvious in coastal waters of Japan since about 1970. Some areas developed unpleasant odor and a lot of fish died in many areas where industrial waste was discharged. The monitoring of water quality in these areas started together with missions designed to this water pollution. As a result of encounter measures, the water quality recovered to acceptable level but fishery resources have not recovered to the desirable level both in quality and quantity. What is the ideal way of holistic evaluation on aquatic system not only on the water quality? We propose a “Health Examination of the sea” as a new marine environmental assessment technique to monitor and evaluate aquatic system. This assessment technique focuses on biological production and purification ability of the sea, which means that the scheme of “Health Examination of the sea” covers ecosystem stability and smoothness of material cycling in the broad sense.

Ago Bay is an enclosed coastal sea located in Mie Prefecture in Japan and very famous for cradle of pearl culture all over the world. However, since 1960's the production of the pearl industry was drastically decreased by environmental deteriorations such as harmful red tide and hypoxia. To improve these problems, control of domestic pollution load and dredging of sediment were carry out in the bay. As a result, the chemical oxygen demand (COD) in water is gradually deceased recent year, but the COD in sediment still keeps high level and the red tide and the hypoxia occurred every year in Ago Bay. We diagnose that Ago Bay is unhealthy by using the scheme of “Health Examination”. Moreover, we diagnosed that the main cause of the unhealthiness of Ago Bay is domestic pollution load flowing into Ago Bay where the function of saving nutrients and taking nutrients outside the bay weakened. We proposed that the methods for the treatment of Ago Bay are the reproduction of both tidal flat and sea grass bed as well as control of nutrient cycle including the promotion of the sustainable fisheries.

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