HEALTH EXAMINATION FOR COASTAL SEMI-ENCLOSED SEAS: A NEW ECOSYSTEM APPROACH TO ENVIRONMENTAL MONITORING AND MANAGEMENT

HIDEAKI NAKATA[1], TOMOYO YAMADA[2], AND MITSURU OKAWA[3]
[1]Faculty of Fisheries, Nagasaki University, 1-14 Bunkyo-machi, Nagasaki 852-8521, Japan
[2]Graduate School of Science and Technology, Nagasaki University, 1-14 Bunkyo-machi, Nagasaki 852-8521, Japan
[3]Ship and Ocean Foundation, 1-15-16 Toranomon, Minato-ku, Tokyo 105-0001, Japan

The present situation of Japanese coastal water is making it increasingly imperative to take an ecosystem approach to environmental management. In particular, this is urgently needed in semi-enclosed seas, which are mostly afflicted with various environmental damages. Health examination for coastal semi-enclosed seas is a new approach to this problem, and will play an important role in identifying and eradicating at an early stage any factors that threaten to cause environmental degradation. In the examination, two major functions of marine ecosystem are highlighted in relation with environmental health; these include ecosystem stability and smoothness of material cycling in the ecosystem. Following a tentatively established guideline, a preliminary health examination was made in Omura Bay as a trial. After several practical items related to the above two major ecosystem functions were analyzed, it was concluded that deficiency of dissolved oxygen in the bottom water as often seen in summer was one of the most critical items threatening the environmental health of this bay. Although general water quality and abundance of living resources indicated from fisheries catch of this bay have not yet been seriously damaged, the above diagnosis should be considered with more caution. Future directions toward close examination into this matter are also presented and discussed in detail.