

WATER QUALITY BIOASSAYS AND THEIR APPLICATION TO MARINE POLLUTION STUDIES IN THE EAST ASIAN REGION

By I. R. B. McFadzen¹ and N. Bussarawit²

¹ *Natural Environmental Research Council, Plymouth Marine Laboratory, Prospect Place, West Hoe, Plymouth, Devon, PL1 3DH, United Kingdom*

² *Phuket Marine Biological Center, P.O. Box 60, Phuket 83000, Thailand*

ABSTRACT

The rapidly increasing anthropogenic activities in the East-Asian region exert considerable stress on the aquatic environment. The principal stresses are related to the pressures on the exploitation of marine resources (coral reefs, mangroves, fisheries and endangered species) from problems pertaining to the pollutants released to the marine environment. Since the ultimate concern is the capacity of the sea to support life, it is desirable to measure water quality in terms of biological response. The response in the laboratory of suitable test organisms to water samples taken from polluted areas can be used as an index of water quality. Echinoderm embryos and larvae have been routinely used in water quality assessment due mainly to their ease of culture, distinct developmental stages and relative sensitivity to environmental variables. Historically, water quality assessments have been conducted in temperate waters and the effectiveness of such methodologies in tropical conditions, are tested in this study. Bioassays utilising the blue-spot sea urchin *Diadema setosum* (a representative species of coral reef communities), can be exploited as valuable training tools to assess and demonstrate environmental impacts in the East Asian region using survival and developmental success as indicators.