

Short Communication

**DISTRIBUTION AND ABUNDANCE OF
BENTHIC POLYCHAETES AROUND ARTIFICIAL REEFS**

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ABSTRACT

A study was conducted in coastal waters off the east coast of Peninsular Malaysia to determine the distribution and abundance of polychaetes around an artificial reef complex. The distribution and abundance of polychaetes around the artificial reef complex were determined before and after the reef installation. Forty two families of polychaetes were found in the area. The dominant families before the reef installation showed continued domination after the reef installation. This study shows that the abundance and distribution of polychaetes are highly influenced by the artificial reef installation.

KEYWORDS: *artificial reefs, distribution, abundance, polychaetes.*

INTRODUCTION

Fishermen have been constructing artificial reefs in various aquatic environment for centuries to attract marine organisms, particularly those of commercial value (Turner *et al.*, 1969; Stone, 1982; Grove & Sonu, 1983). In most cases artificial reefs were actually attempts to imitate or to amplify the effect of natural reefs as a habitat for marine life. Artificial reefs placed in the marine environment can enhance fisheries productivity by providing substrate for attaching organisms, increase habitat complexity by providing vertically defined spaces and change the wave and current pattern (Turner *et al.*, 1969).

Many researches have been done on the attraction of fish and other invertebrates to artificial reefs (Alcala *et al.*, 1981; Gomez *et al.*, 1982; Ibrahim, 1991 & 1996). Research conducted in Florida Keys showed that an unproductive area of water managed to attract fish and other organisms after the installation of artificial reef (Stone *et al.*, 1979). This is due to the ability of artificial reefs to provide substrate for attaching organisms, change current and wave patterns in the area and develop a complex and stable artificial habitat in terms of feeding hierarchy (Molles, 1978).

Many past researches on artificial reef have only been concentrated on the attraction of fish and other invertebrates. Little studies have been done on the occurrence of benthic organisms

around artificial reef complex. As a component in the complex feeding hierarchy in artificial reef areas, benthic organisms too play important role in enhancing the productivity of artificial reefs. This study is thus to examine the distribution and abundance of benthic organisms particularly polychaetes, around an artificial reef complex.

MATERIALS AND METHODS

This study was conducted outside monsoon season which occurs between November and March every year. Pieces of cube-shaped concrete structures (Figure 1) were constructed and installed in pyramidal form. There were 10 pieces of the structure in a module and 15 modules were arranged to make a reef complex having an approximate base dimension of 4m x 4m and a height of 2m.

An area with latitude 05° 27.40'N and longitude 103° 06.19'E was selected as the experimental reef installation site. It was located approximately 2.1 km from the east coast of Peninsular Malaysia, having sandy mud bottom and depth at low tide of 12m (Figure 2). Recorded current speed for the area was 0.057m/sec to 1.400m/sec. Locations of the artificial reef and sampling stations were determined prior to the start of the study using a GPS. Sampling stations were located 0, 5 and 10m from the artificial reefs location in the directions of north, south, east and west (Figure 2). Prior to the installation of the reef modules, samples of bottom sediments were taken at the pre-

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