

CHARACTERISATION OF THE PHYTOPLANKTON OF THE GREAT BARRIER REEF LAGOON NEAR TO LOW ISLES USING ELECTRON MICROSCOPY AND LIGHT MICROSCOPY.

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As part of an ongoing research programme aimed at determining the water quality and eutrophic status of the GBR lagoon (Bell et al. 1991-93), detailed characterisation and enumeration of the phytoplankton and nannoplankton populations (diatoms, dinoflagellates, coccoliths) from Low Isles, North Queensland, has been essential.

Preliminary results show that the pennate diatoms Navicula spp. and Nitzschia spp. dominate the microphytoplankton component of the water column at Low Isles. Other diatoms commonly occurring include Paralia spp., Coscinodiscus spp., Rhizosolenia spp., Bacteriastrium spp., and Chaetoceros spp. The number of thecate dinoflagellates is usually low, the most common genera present are Ceratium, Dinophysis and Peridinium. Naked dinoflagellates belonging to the genus Gymnodinium are seasonally very abundant. Cyanobacteria (Trichodesmium spp.) is also abundant at different times of the year and has only been recorded in surface water samples. Epifluorescence microscopy and scanning electron microscopy have been necessary for determining the nature and abundance of the nannoplankton (<20µm) which mainly comprises coccoliths, very small diatoms and naked dinoflagellates. Detailed characterisation of these main groups using light and scanning electron microscopy is underway and a series of photomicrographs is being collated to be included in an identification guide.

References. Bell, P.R.F., Uwins P.J.R. and Dettmann, M.E. . Validation of the 1928-1929 phosphate and microplankton data for Low Isles as a baseline for eutrophication in the Great Barrier Reef Lagoon. SPG Univ. Qld, 1991-1993.

REPRODUCTIVE BIOLOGY AND RECRUITMENT OF THE SCLERACTINIAN CORAL TUBASTREA FAULKNERI

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Timing of reproduction and recruitment success of the ahermatypic brooding coral, Tubastrea faulkneri, were documented over a 7 month period from September 1990 to April 1991 off Magnetic Island, Townsville.

Planulae were released throughout the 7 months of the project by colonies maintained under laboratory conditions. The number of planulae released peaked in November, one week after the annual mass spawning event at Magnetic Island. Dissections of samples collected throughout the period of the project and field recruitment of T. faulkneri spat also indicated that planulae were released over a protracted period. Planulae were found in samples from November to February while new recruits were first seen in the field in December and continued to be recorded until April. Dissections also revealed eggs to be common in all samples throughout the study period while testes were extremely rare.

High recruitment was initially achieved on settlement plates under laboratory conditions, and continued to occur after the same plates were outplanted to the field study site. Mortality declined over time, at a variable rate for each cohort. Mortality and new recruitment did not appear to be density dependent.