

AN EVALUATION OF THE EFFECTIVENESS OF REEF RESTORATION OPTION: LESSONS LEARNT AND THE CHALLENGES AHEAD By Susan Clark and Dr Alasdair Edwards: Centre for Tropical Coastal Management Studies, Department of Marine Sciences and Coastal Management University of Newcastle, Newcastle upon Tyne, NE1 7RU. UNITED KINGDOM:—The world-wide decline in health and status of coral reefs and the long time-scales for reef recovery processes has prompted interest in techniques to either restore or rehabilitate degraded coral reefs. We distinguish between damage to the living reef resources and physical damage to the reef framework and outline criteria that should be applied for the assessment of damage and the potential for natural recovery. To date restoration and rehabilitation projects generally fall into 3 categories: 1) small discrete research projects; 2) practical pilot studies to meet a management objective, 3) opportunistic studies which have monitored reef recovery as a result of activities designed for alternative purposes. This paper evaluates the various techniques which have been used for restoration and rehabilitation and presents existing data in terms of the advantages, disadvantages and lessons learnt. The most commonly used methods include; coral transplantation, stabilisation of damaged corals and reef framework, artificial reefs to increase habitat complexity and manipulation of key organisms which influence community structure. New innovative methods such as mineral accretion to construct artificial reefs and introduction of laboratory reared juvenile corals are also reviewed in terms of their application in different situations. In conclusion our findings indicate that there are three major challenges: i) more scientific information on reef recovery processes; ii) to integrate the scientific knowledge on the structure and function of reef resources with economic and social pressures that directly impact the system and iii) to improve the dissemination of generic information to the practitioners.