

THE ROLE OF CORAL CAY CONSERVATION IN COASTAL MARINE RESOURCE PROTECTION IN BELIZE

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1. AIMS OF THE PRESENTATION

The aims of this presentation are (a) to introduce the role of Coral Cay Conservation with coastal marine resource management in Belize, and (b) to touch upon some of the essential issues relating to tourism and the Belize reef.

2. INTRODUCTION

The Belize barrier reef has been described as "unique in the western hemisphere on account of its size, its array of reef types and the luxuriance of corals thriving in pristine condition" (Dahl et al., 1974; Perkins, 1983). Approximately 250 km long and 32 km wide, the Belize reef is the largest uninterrupted reef system in the Atlantic (James et al., 1976), and being second only in size to the Great Barrier Reef of Australia, the Belize reef can justly be described as the Great Atlantic Barrier Reef.

Few countries can boast territorial ownership of such a diverse and highly productive coastal marine resource which includes coastal lagoons, mangroves, sea grass beds and coral reefs. The occurrence

of a nearly continuous barrier reef perched on the edge of a narrow continental shelf, the large number of patch reefs and faroe's present in the deep shelf lagoon areas, and the unusual diversity of reef types found within a relatively small area, are amongst some of the geophysical features that make this reef system particularly interesting.

In the early 1980's, the small population of Belize had placed fairly modest demands on the Country's marine resources; an artisanal fishery, a small but growing tourist industry, small-scale shipping and oil exploration were its principal users (Perkins, 1983). Since then, there has been an almost exponential increase in the contribution of the tourism sector to the economy of Belize, with international tourism receipts rising from US\$8m in 1981 to US\$79m in 1989 (Cater, 1992). Current estimates suggest that tourism has overtaken oil to become the worlds largest industry, and the rise in the number of tourists visiting Belize (from around 60,000 in 1981 to over 200,000 last year) is a general reflection of this world-wide trend, and also the result of government initiatives to develop Belize's tourist industry.

The Government of Belize has declared its commitment to balanced and environmentally sound tourism development by promoting ecotourism, and a number of highly commendable resource management projects have already been initiated. However, the majority of these initiatives deal with terrestrial resources and the pressing need to address the problems facing the country's marine resources has, until recently, been largely ignored, and as a result, areas of the reef and coastal mangrove stands have suffered degradation.

In 1989, the Government responded to growing national and international concern for the well-being of the Country's coastal marine resources by establishing the Coastal Zone Management Unit (CZMU) within the Department of Fisheries. The CZMU was given responsibility for the development of a coastal zone management plan for Belize, and in 1990, a framework was established for such a plan (Price et al., 1990). Phase 1 of this plan is entitled "Data Collection & Compilation", and stresses the need to gather in-depth ecological, socio-economic and related information about the coastal zone.

Research programmes involving even small-scale marine habitat mapping and status assessment are, however, notoriously time-consuming, logistically difficult and costly. They require a sizeable work force of trained underwater survey divers, expensive items of equipment including boats, air compressors, scuba gear, underwater cameras, etc., and favourable sea conditions. This is where Coral Cay Conservation is providing assistance.

3. CORAL CAY CONSERVATION

Coral Cay Conservation (CCC) is an independent, U.K.-based organisation established to assist the Government¹ of Belize with the development of management strategies for the protection of the country's unique marine resources.

The CCC programme first started in 1986 when a small group of volunteer research scientists and divers visited Belize for a three month period to look at the effects of tourism and the fisheries industry at selected sites throughout the geographical range of the Belize reef. This work was repeated by a similar-sized group the following year, and in 1989 a much larger group of 36 volunteers returned to look in detail at the marine resources in the vicinity of South Water Cay (Figs. 1 & 2), an area which had been designated as a critical habitat by the Belize Centre for Environmental Studies. It should be stressed that these expeditions were designed to be discrete scientific projects, and at that time there was no intention of maintaining any long-term presence in Belize.

However, encouraged by the then newly established CZMU, and non-government organisations including the Belize Audubon Society, the Belize Centre for Environmental Studies and the Belize Zoo & Tropical Education Centre, the decision was made to attempt to offer longer-term support for the CZMU, and in March of 1990 the "Coral Cay Conservation Belize '90-95" programme was launched: termed Belize '90-95 because (a) Coral Cay has traditionally dedicated its entire efforts to Belize, and (b) because within 5 years, CCC aims to have trained sufficient numbers of Belizean nationals and have attracted long-term support from major environmental funding agencies, to allow Belize to become more self-sufficient in terms of this type of marine research.

In order to achieve the latter aim, last year CCC established a charitable trust which is administered by independent trustee in Belize and the U.K. The CCC Trust is designed to help fund 24 training scholarships each year to selected Belizean nationals. These scholarships involve a 2-4 week training programme which includes dive training (to PADI Open Water grade) and development of marine identification and survey skills. In addition, CCC proposes to offer up to 4 travel scholarships each year to provide opportunities for Belizeans to obtain specialist training in a range of scientific and resource management skill at centres of excellence in the U.K and elsewhere. The CCC scholarships are administered through the Department of Fisheries in Belize, to whom applications should be directed.

CCC is a non profit-making organisation and at present is funded solely by donations from its participating members. Last year alone, CCC sent over 300 volunteer divers and research scientists from Europe to Belize, to join one of several initiatives to describe the marine resources at selected sites throughout the southern sector of the Belize reef, at a cost of over US\$1 million. CCC maintains a permanent team of over 35 volunteers in the field at any one time, and the research programme is coordinated through the CZMU to whom CCC reports under the terms of a recently drafted Memorandum of Understanding.

CCC maintains a main coordinating and training station on South Water Cay, which comprises accommodation for up to 35 volunteers, and full facilities including scuba equipment, boats, air compressors, global positioning systems, and underwater camera and video equipment. Since 1990, CCC has been undertaking comprehensive surveys of the marine resources in a 180km² area around South Water Cay with the aim of designating it as a marine reserve (Fig. 2). This area encompasses a wide range of marine habitats including sand and mangrove cays, seagrass beds, patch reefs, and expansive sections of uninterrupted barrier reef, and, therefore, has the potential for attracting large numbers of tourists. Initial surveys of the marine resources within the proposed boundaries of the South Water Cay marine reserve are almost complete, and the CZMU has asked CCC to extend these surveys to encompass a further 300km² area of reefs and lagoons immediately south of the proposed boundaries.

CCC has also been asked to assist with the production of a management plan for the reserve, and it is anticipated that the first draft will be completed by September 1992. Maintaining high water quality will be an important component of this plan, and CCC has applied for funding from the Overseas Development Agency to assist with the establishment of a water quality monitoring lab within the Department of Fisheries.

The survey methods used by CCC are based on those recommended by the South Pacific Commission of UNEP (1984) and the Marine Nature Conservation Review of the Joint Nature Conservancy Council (Hiscock, 1990). The survey protocols employed are designed to be used by non-scientifically trained observers, thereby broadening the scale to which divers from Belize and elsewhere can usefully contribute towards this type of resource assessment. All surveys are conducted along transects orientated in an east-west direction and their positions accurately fixed using GPS technology. Detailed information about the bathymetry and community composition of each site is gathered, including any human impacts observed in the area, and photographic and video records of each site are maintained.

Information gathered in the field is transferred to the CCC headquarters in the U.K. for incorporation into a powerful computer database specifically designed by the Joint Nature Conservancy Council to handle this type of data. The data is formatted in such a way that it can be transferred directly to a GIS database for use in the supervised classification of remote sensing data. CCC is currently seeking support from outside organisations to assist with the funding of a dedicated GIS database for the CZMU.

Remote sensing studies, which involve taking images from space, have been successfully applied to the inventory and management of coastal marine resources elsewhere (Jupp et al., 1986), and some of the main advantages of this technique are the provision of rapid, current, and comprehensive assessments of habitat distributions within a reef system. Remote sensing also offers a non-intrusive method of monitoring changes within and between habitats that may be subject to disturbance. Classification and validation of remote sensing imagery using CCC data is being carried out in association with the University of Edinburgh, the University of Wales, and the Department of Remote Sensing at Silsoe College, and CCC is funding three M.Sc. students to coordinate this work.

CCC has also assisted with surveys of marine resources at other locations within the geographical range of the Belize reef, including those surrounding Laughing Bird Cay and the Sapodilla Cays (Fig. 1). These are areas that are under severe threat from tourist-related activities, and are already showing signs of degradation. Last year CCC undertook preliminary surveys in both locations, and since January has sent satellite teams of researchers to Hunting Cay each month to continue surveys in this area. The Government of Belize is anxious that these studies should be continued and has agreed in principle, to the establishment of a small research station to be built on Hunting Cay.

CCC has recently gained international recognition for its contribution towards marine resource protection in Belize by being selected as winners of the 1992 World Underwater Federation International Marine Environmental Award, which will be presented at the UNESCO headquarters in Paris next week. CCC was also awarded the Duke of Edinburgh's Prize for its contribution to marine conservation at a ceremony at Buckingham Palace last December, and is a candidate for support by the EEC.

4. ECOTOURISM

The major threat currently facing the Belize reef is not from oil exploration and extraction, or even land run-off into rivers, but from tourism. Much has been said in favour of ecotourism, and in its correct definition, i.e. the conservation of natural environments for the good of the local people through responsible travel (Cater, 1992), ecotourism in this sense can only bring benefits.

However, this may not be the way developers see it, and there is a great danger that the term ecotourism may be just a more acceptably dressed-up version of tourism, and if this is the case, there is a great danger that previously undeveloped areas, with delicately balanced physical, biological and cultural environments, may be brought into the locus of international tourism.

Cater (1992) has stated that common to most developing countries, Belize is subject to domination by the more developed countries as far as international tourism is concerned. Ecotourism in Belize has become big business and as was the case with last year's ecotourism conference, the a high percentage of participants at this conference are from abroad and have declared financial interests in the development of ecotourism in Belize. Belize is only 2 hours flying time from the USA and the environmentally insensitive development of resorts in Mexico such as Cancun has led to a scramble towards relatively unspoilt destinations, including Belize. Estimates suggest that as much as 90% of all coastal development is now under foreign ownership.

The protagonists of ecotourism assume that ecotourists will be automatically environmentally sensitive, yet one only has to look at the damage that is happening to the corals at the Hol Chan Marine Reserve and Lighthouse reef in Belize, and the increased consumption of threatened marine species such as lobster and conch, to know that this is simply not the case.

As Cater (1992) correctly states: to argue against ecotourism is to swim against the tide. People want to seek out unspoilt nature, and ecotourism, despite its faults, is a lesser evil than uncontrolled mass tourism. However, every ecosystem has its carrying capacity, and it is essential that the carrying capacity threshold of the Belize reef is accurately and honestly assessed and the effects of tourism continuously monitored, if a catastrophic destruction of the unique marine resources of Belize is to be avoided.

The Government of Belize must not bow to pressure from developers from the more developed

countries, as to do so would surely lead to eco-colonialism and not true ecotourism.

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Figure 1.

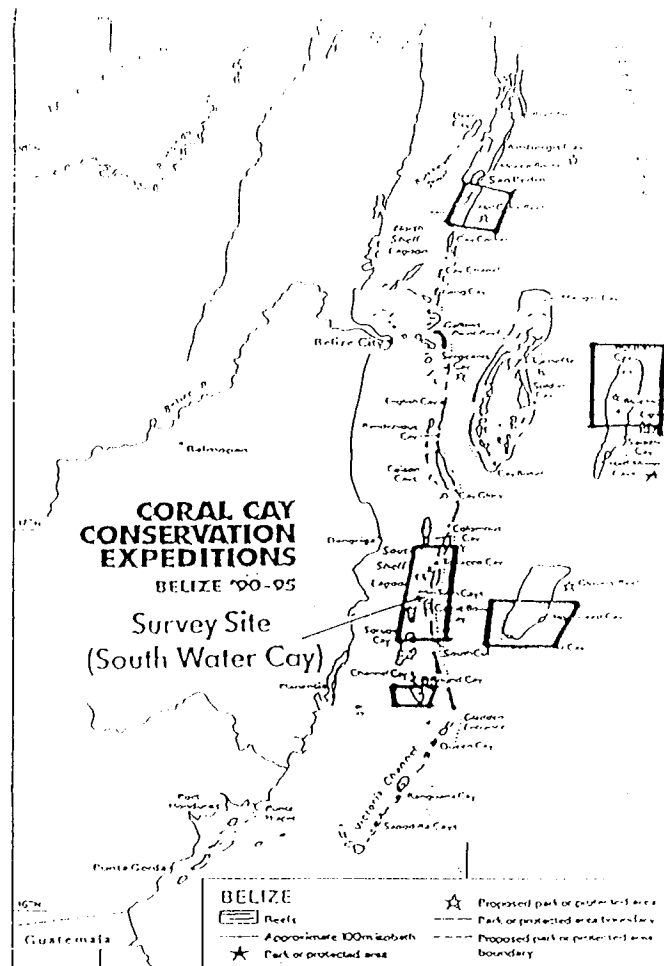


Figure 2.

