

year (see the October 90 Newsletter - ed) was found in tiny pieces and covered in a couple of feet of rubble on the 06th February. A second table coral adopted nearby was not covered in rubble but was completely smashed up.

RANNALHI

Workers unloading building materials on Rannalhi house reef had anchored over the adopted corals on the NW side of the house reef. We are keeping our fingers crossed!

HELENGELI

Elaine Connolly and Ueli Weibel from the diving school at Helengeli were unable to find the corals that were adopted last year and suggested that they might have been destroyed by the January storm. They adopted five new corals on the 1st of March. They report that all are situated in areas they visit fairly regularly with their beginners.

VILLIVARU

Elizabeth and Evelyn report that they are so

concerned for the health of their adopted table coral "Zeenia" that they are very unwilling to take divers to see it!

RIHIVELI

Pitt Pietersoone took us to see Victoire and Bastille on the Rihiveli house reef. Both corals are situated in a particularly beautiful coral garden and the adopted corals are also quite spectacular. Bastille is an almost perfectly circular table coral and is nearly 2m across. Victoire is a massive *Porites* perched on the edge of the reef and is at least as big.

AMINIYA SCHOOL

Attempts, at a recent lecture to over two hundred grade 8 and 9 schoolgirls, to get them to "Adopt a Coral" or two proved unsuccessful though we will keep trying. We noted that many of the posters on the wall covered such serious issues as tropical deforestation but there was nothing on coral reefs! Perhaps all the coral reef conservation posters take up available space on the walls of some school in the tropical rainforest.

REG. No: 354

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**Please give a Copy to
your Diving School!**

NO: 13
DATE: FEB-APR 1991

GREAT BARRIER REEF
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COT
NEWS LETTER



MARINE RESEARCH SECTION
MINISTRY OF FISHERIES AND AGRICULTURE
The Republic of Maldives

EDITORIAL

POPULATION AND QUALITY OF LIFE

There is a popular drawing that has gone the rounds of the aid agencies for as long as aid agencies and photocopying machines have existed.

The drawing aims to illustrate that some efforts to improve quality of life can be self-defeating!

A variation on this theme is shown in fig 1. In the upper drawing a man is building a boat using the only two palm trees available on his island. In the lower drawing he realises that there is not enough wood left to make oars. He is stuck!

CORAL MINING AND BEACH EROSION

There is a similar link between coral and sand mining and beach erosion. When the coral is mined the waves break with greater energy on the beach rather than on the reef and the sand is eroded away...and when sand is taken off the beach for building it is no longer on the beach! A Maldivian intent on building a home with coral from the housereef may end up without an island to set the foundations of his house in! The Government of Maldives recognises this dilemma and the National Council for the Protection and Preservation of the Environment (NCPPE) has made the designation of coral and sand mining areas a priority for this year. The areas will be located according to guidelines already provided by the Presidents Office. These guidelines aim to prevent coral mining on those reefs that protect islands and sand mining on the beaches of islands but allow it in other limited spots so as to provide a source of building materials.

HOW YOU CAN HELP

Limiting those other spots where mining is allowed requires your input. In the next couple of months you should receive copies of a form with a map of North and South

Male', and Ari Atoll. One form will ask you to mark those areas where you feel that sand mining should not be allowed and the other where coral mining should not be allowed. We will try to take account of your views in designating these mining areas so please make them known.

POPULATION GROWTH

The system of mining areas will only work if demand does not exceed supply. Demand, in certain places, may exceed supply if the present uncontrolled population growth rate continues.

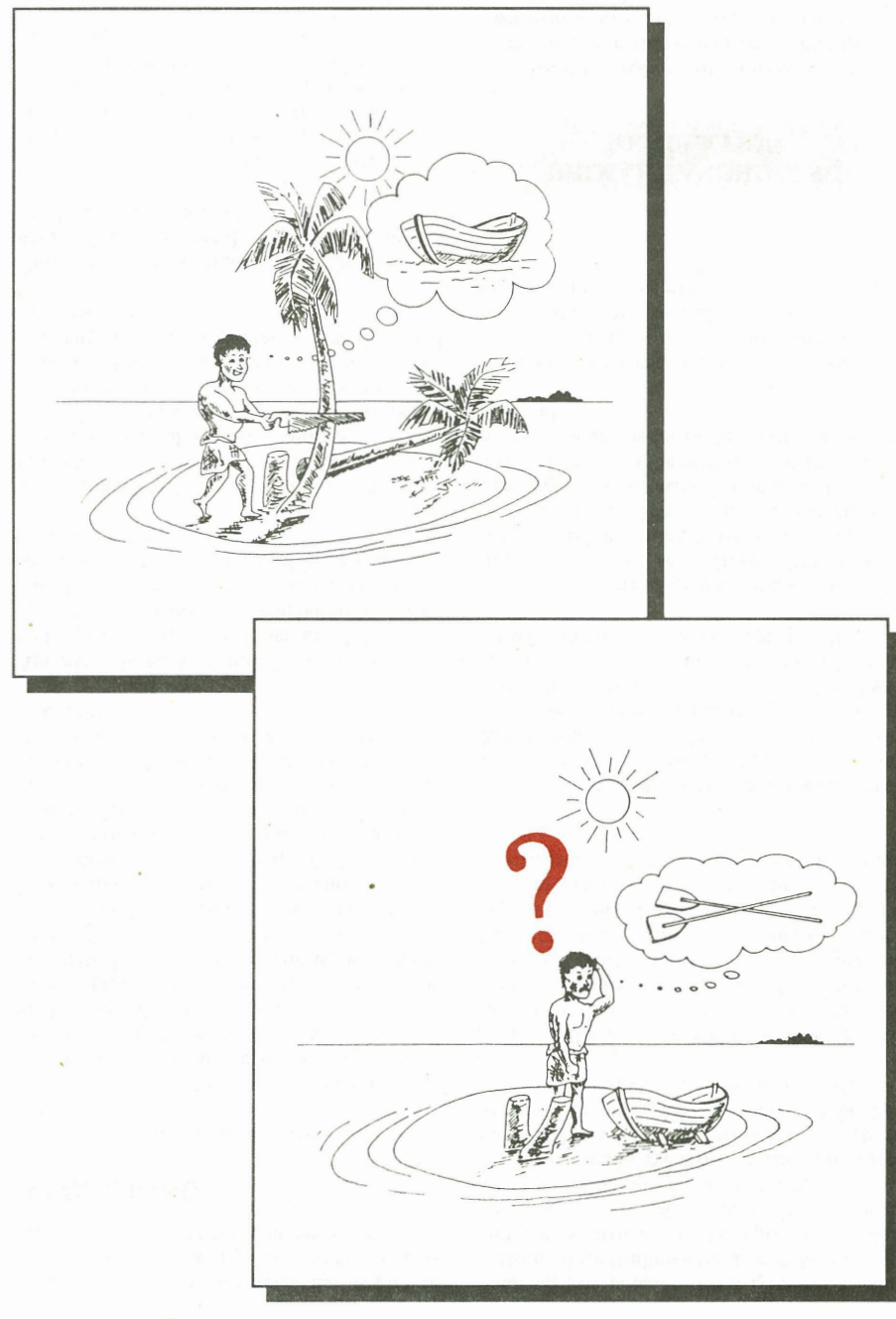
The template already exists for such a future. Islands with high population densities are invariably covered in coral buildings, are surrounded by coral seawalls, and are fringed by coral-mined reefs. It seems unlikely that the people have chosen to live in this way. It can certainly be argued that the 'quality of life' of these islanders has deteriorated. The image of the man without any oars for his boat returns!

The NCPPE also recognises the danger of uncontrolled population growth. Efforts are being made to try to identify a strategy that will lead to a planned population growth. However, in most developing countries, population growth rate only stabilises when living standards improve and the benefits of a planned family size are appreciated. It does not occur when 'quality of life' is deteriorating. Unfortunately the small size of many islands in the Maldives and the high population growth rate of 3.7% give little scope for improved 'quality of life.' Indeed it is a recipe for the opposite.

TOURISM SECTOR

The exception could, perhaps, be for those Maldivians working in the tourism sector. With relatively good wages and experience of a different lifestyle those people might be receptive to family planning. Fewer children gives them the opportunity to concentrate resources on bettering living standards and

Fig 1. BUILDING A BETTER LIFESTYLE CAN LEAD TO ALL SORTS OF UNFORESEEN PROBLEMS



improving 'Quality of life'. In the meantime a bigger family is still considered to be a better family by most parents. Unfortunately it is the children that will be paying the price for this attitude.

TWO FUTURES

There are two possible futures for the Maldives. In one population continues unchecked. More and more people live on less and less. There will be less money from tourism as the natural environment deteriorates. Such a deteriorated environment will be less attractive to tourists. Those tourists that come will need to be housed on fewer and fewer islands as the islands are handed back to provide land for the expanding Maldivian population. There will be less money from fish exports because the fish will be needed to feed the growing local population.

In the other future there is a planned slower population growth and the economic benefits of tourism and fisheries are used to improve living standards and 'quality of life'.

VILLINGILI

One significant crossroads on the policy road of the future is the way in which the island of Villingili is developed. Formerly a Tourist Resort it has been handed back for use by the Maldivian community. Fortunately the development is planned to support a low population that will eventually be 9,000 strong rather than the 20,000 or 30,000 population that is needed to temporarily alleviate overcrowding on Male'. In this way maintenance of a reasonable 'quality of life' will be assured those who move to Villingili. In the short term such a decision is likely to be unpopular amongst residents of the nearby capital island Male'.... and perhaps as unpopular as the decision that introduced football pitches to the local islands many years ago. In the longer term.... well we all know how popular football is now!

NEWS ABOUT COT

Table 1 lists the incidence of COT seen in a one hour swim around 31 Resort islands in 3 atolls in February/March 1991.

Table 1. NUMBER OF COT SEEN IN A ONE HOUR SWIM AROUND SELECTED RESORT ISLANDS IN FEBRUARY/MARCH 1991

Atoll	Place Name	Date	COT seen in 1 hr.
K	Vabbinfaru	91/0210	48
K	Makunudu	91/0211	17
A	Atharugeau	91/0222	17
A	Fesdu	91/0223	15
K	Boduhithi	91/0211	12
K	Aschu	91/0213	4
K	Nakatchafushi	91/0210	1
A	Angaga	91/0220	1
V	Almetha	91/0217	0
A	Ari Beach	91/0218	0
K	Bandos	91/0322	0
A	Bathala	91/0224	0
K	Byachoo	91/0215	0
A	Dhuneefinohu	91/0220	0
V	Digiri	91/0216	0
A	Elaichoo	91/0223	0
K	Eryachu	91/0212	0
A	Gangeli	91/0226	0
A	Halevelli	91/0224	0
K	Halegell	91/0213	0
A	Hurudhoo	91/0221	0
K	Kanfinohu	91/0214	0
A	Kudarah	91/0219	0
K	Kurumba	91/0308	0
A	Maseyafushi	91/0225	0
A	Meachafushi	91/0219	0
A	Minhi	91/0219	0
A	Nikka	91/0225	0
K	Rannahi	91/0215	0
K	Rihiveli	91/0218	0
A	Thundufushi	91/0222	0

No COT were seen during swims around 23 islands. The maximum number of COT (48 in one hour) were observed around Vabbinfaru. 11 were seen in an hours swim over the same area of reef on the 23rd of May last year. We have asked the Resort to actively remove COT from the reef. Numbers of COT appear to have fallen since last year at Nakatchafushi where 8 COT were seen in an hours swim on the 23rd of May 1990 and at Makunudu where 106 COT were seen in an hours swim on the 24th of May 1990.

ENVIRONMENTAL HEALTH AND DIVER SAFETY

A number of general recommendations were made at the October 1990 workshop. These were presented in the November COT newsletter and comments requested. None were forthcoming. A number of environmental health and diver safety matters were discussed with dive operators at 24 resorts during February 1991. The beginnings of a consensus were evident. The process continues and we ask snorkel, dive, and night-fishing operators to comment on the points that follow.

Please also note in your diaries that we plan to have another workshop in October of this year. It will be helpful if you can attend.

ANCHORING

BACKGROUND

Anchoring regulations will first need to be introduced and regulated within the tourism sector. It may be frustrating operating a no-anchoring rule when you can do nothing to stop a local dhoni from anchoring on your favourite dive-spot. Unfortunately whilst the island office or the owner/lessee, in the case of an uninhabited island or resort island, can limit activities on the lagoon and house reef of an island baitfishing is exempted. Clearly this loophole to a no-anchoring policy needs to be resolved. In the meantime all you can do is set an example. However, don't forget that the local dhoni may be supplying a Resort and so there may be some control over what it does.... so check!

Against this background there is a general feeling that a significant sector of the tourism market will only be attracted to Maldives and become repeaters if standards are set to maintain environmental health and ensure diver safety.

It is considered by virtually all the dive operators that unrestricted anchoring damages the reef. Most dive operators do not anchor and most of the remainder consider that anchoring, mooring, 'and tying-on, are less safe than mobile boat cover in the majority of boat supported snorkelling and diving situations.

The feeling was that night fishing and snorkelling boats tend to anchor and this needs to be discouraged.

A few dive/snorkel operators consider that securing a boat by tying-on to the bottom is necessary in certain situations and that this is preferable to attaching to a permanent mooring line and is far preferable to anchoring.

Despite this opinion it is generally felt by dive operators that attaching to a permanent

mooring line is safer than tying-on to the bottom since it allows the line to be quickly, and safely, attached and slipped, and avoids any need to scuba dive alone. Furthermore allowing tying-on makes monitoring and enforcement of a 'No Anchoring' regulation more difficult. Tying-on, other than to a permanent mooring should, therefore, be discouraged in any regulatory framework.

Conflicts between snorkelling, diving, and fishing (commercial and night), interests were felt to be minimal except in certain parts of North Male' Atoll. In view of the situation in parts of North Male' any regulatory framework should require that moorings, and the area near to moorings, be designated for particular use(s).

Unfortunately, and despite regulations, provision of permanent moorings away from Resort house reefs could attract non-tourism sector boats and especially-so if necessary safety lights were to be carried. Localised damage to the reef and depletion of fish, lobster, and other, stocks might result.

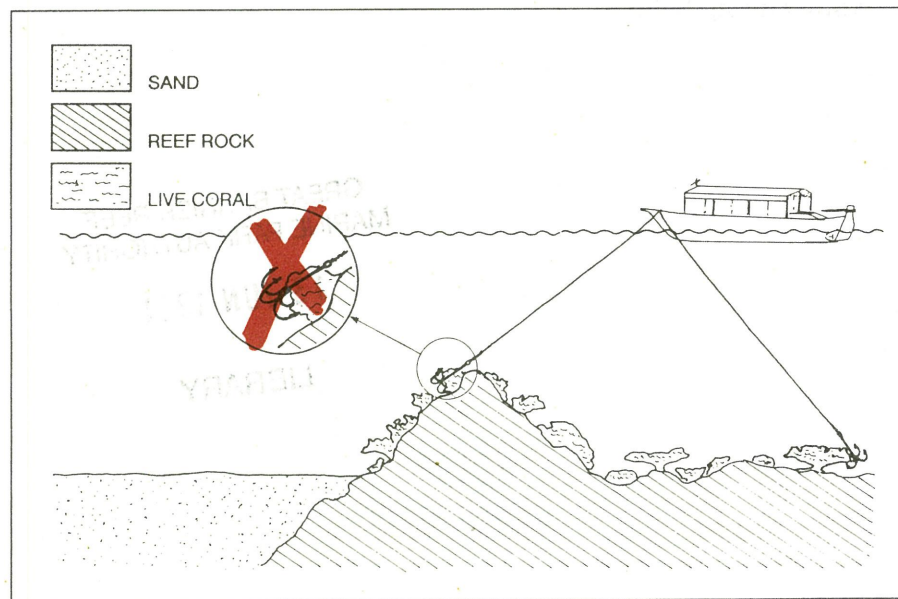
For these reasons the majority of those moorings placed away from Resort house reefs used for diving would need to be submerged at least 3m below the surface. A few surface moorings for dive boats should be installed at a very limited number of sites on a trial basis. Surface moorings for night fishing should be acceptable.

Against this background copies of a draft regulatory framework are enclosed with this newsletter. The central regulation of the draft is given below:-

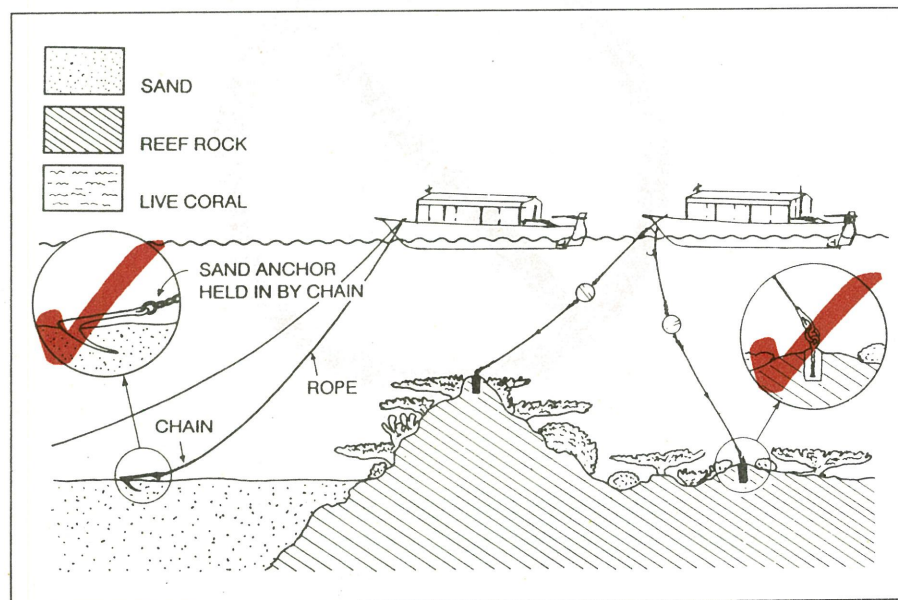
PRIMARY ANCHORING REGULATION

All boats involved in Tourism-Linked activities would be required, except in emergency, to anchor on sand or use an approved mooring.

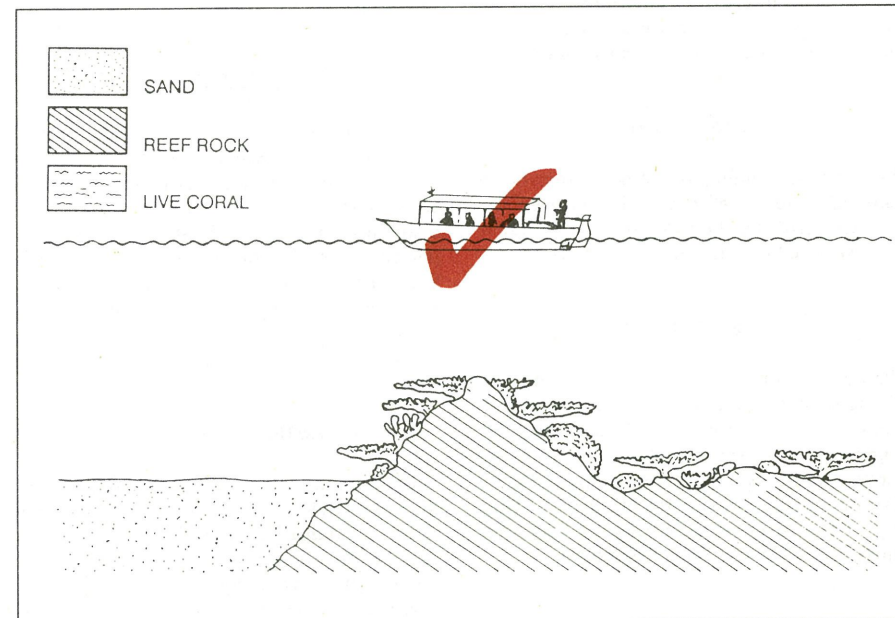
THROWING AN ANCHOR ONTO THE CORAL REEF BREAKS THE CORAL, KILLS THE REEF, AND MAY NOT BE SAFE FOR DIVERS AND SNORKELLERS.



ANCHORING ON SAND OR ATTACHING TO A PERMANENT MOORING IS SAFE AND DOES NOT DAMAGE THE REEF.



MOBILE BOAT COVER IS CONSIDERED BY MOST DIVE INSTRUCTORS IN THE MALDIVES TO BE FAR SAFER THAN MOORING OR ANCHORING IN THE MAJORITY OF BOAT SUPPORTED SNORKELLING AND DIVING SITUATIONS.



The regulation is supported by a framework of monitoring and enforcement regulations which are enclosed with the newsletter.

With this newsletter you will find copies of:-

- 1-2 **Draft Anchoring regulations (A4 sheet).**
- 3-4 **Comments and acknowledgement form (A4 sheet).**
- 5-8 **'Questionnaire and expression of interest' form for mooring buoys (A3 sheet).**

If you do not get them please contact us at MRS as soon as possible.

After examining the "Draft Anchoring Regulations" please return a copy of the "Comments and Acknowledgement" form to us so that we know that you have seen them. Please also fill in the "Questionnaire and expression of interest" form for mooring buoys. You can start the ball rolling by agreeing to follow the proposed regulations on a voluntary basis.

The next few issues of the COT newsletter will continue the process of developing a regulatory framework for improving environmental health and diver safety. We hope to suggest standards for "Dive Boats", standards for "Dive supervision", and a system for providing general support for the quality of diving in Maldives through a "dollar a dive" reef health and diver safety tax.

ADOPT A CORAL

CORALS ADOPTED BY MARINE RESEARCH

It would appear that the storm in mid January has already led to the demise of at least three of the table corals that were adopted by Marine Research Section last year and the complete disappearance of one *Porites* coral. One table coral on the reef face by Machchafushi in Ari atoll had toppled over when we visited it on 19th February. It was adopted on 15th August 1990. The table coral that we tried to keep clear of rubble last