

square-foot transects. Our most recent survey occurred 380 days after the initial tagging, and we found only one tagged individual out of 274 counted along transect lines. We don't closely examine all the cukes along the transect lines, but we have noticed on occasion that some cukes have tag scars; we have also picked up 7 loose tags. In short, we suspect that tag loss rather than movement or any other biological factor probably accounts for our findings, and the experiment is a dud. We did find one animal that had moved from 35 feet down to 90 feet, the deepest depth we have surveyed. This whole area will be opened to commercial diving for six months beginning May 1990, and we will be looking for tags in the catch, but I doubt we'll find many. We think that the hole never really heals and that the tag works its way out of the skin eventually.

Our fourth stab at cucumber research began in April 1989. We have been running a series of 900 square-foot transects along four depth contours in a nearby area

every two months since April 1989. We will continue this procedure for several years. Meanwhile, we'll be opening up the fishery there in May 1990 for a six-month period. We'll be able to monitor the catch there and follow the recovery of the population over time. This strikes me as a much more realistic approach than making density counts in a small area and then experimentally removing animals; here we have the experimental area being harvested as well as a huge surrounding area, so that recovery cannot depend simply on animals from nearby unfished areas migrating into the experimental area. Obviously, it will be some time before we have any results, but I'll keep you posted.

Otherwise my principal concerns at this point are developing a long-lasting tag (i.e., one that will be retained more than six months), developing a reliable method of sizing live cucumbers, age/growth studies, recruitment studies, and long-term movement studies.'

Pollution problems

by Bernard Fao

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Background

Interest in beche-de-mer harvesting, for export in dried form, was revived in New Caledonia through the efforts of a number of private operators and exporters and has greatly grown in recent years. Beche-de-mer fishing helps diversify the sources of income of New Caledonia's coastal communities.

In the past three years, beche-de-mer exports have amounted to 96 tonnes, 136 t and 55 t respectively, i.e. a total of 287 tonnes.

Besides the need to monitor the factors affecting the sustainability of the resource (stock renewal, recruitment, markets), the development of beche-de-mer harvesting, or more precisely the increasing number of processing workshops springing up on the foreshore, entails a number of serious hazards for the neighbourhood and the marine environment.

Toxicity of beche-de-mer

Case of Pam Bay (in the Ouegoa District)

Following a protest lodged through a process-server on the marine pollution caused by waste from a beche-de-mer storing and processing workshop, two officers from the territorial fisheries department inspected the site.

They found an abnormal number of dead bivalves on the foreshore adjacent to the workshop. The above-mentioned report furthermore mentioned the presence of several thousand dead sardines.

From discussions with the fishermen it emerged that both the fluid released by fresh stored beche-de-mer and the water in which they have been boiled are poured directly into the sea, while the guts are partly buried in the sand but always within the upper limit of wave wash at high tide.

Samples of the fresh juice and cooking stock were tested at ORSTOM-Noumea for ichthyotoxicity. The tests revealed the presence of a toxin called "holothurine". This toxin is thermostable and believed to interfere with the action of the fish branchiae, a property which has long been made use of by Pacific fishermen to catch fish by poisoning.

Test methods and results

About ten small fish (tilapia and guppy) in a one-litre tank were exposed to various concentrations.

- Fresh juice :

1 cc/litre:	all fish dead within 1 hour
55 cc/litre	all fish dead within 15 minutes

- Cooking stock :

1 cc/litre:	1 dead within 6 hours
	2 dead within 12 hours
	2 still alive after 24 hours
5 cc/litre:	all dead within 1 hour

To guard against pollution, the operators were advised to dispose of the fresh juice, the cooking stock and the guts in ditches dug at a sufficient distance from the sea, in the hope that the sand will act as an effective filter.



Marine pollution caused by waste from a beche-de-mer storing and processing

Welcome to new members

Jean-Paul Gaudechoux
SPC, New Caledonia

The Beche-de-mer Special Interest Group is growing. We have received additional completed questionnaires from the individuals listed below. The previous list of members is available in the first SPC Beche-de-mer Information Bulletin.

If you are on the list and your name and address is wrong, please send us a correction. If you are not on the list and want to be, fill in the form enclosed with the bulletin or write to us for a new one.

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