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BACKGROUND PAPER

presented by

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SEMI-PRECIOUS CORALS IN THE EXCLUSIVE ECONOMIC ZONE (EEZ) OF NEW CALEDONIA

INTRODUCTION

The red coral of the Mediterranean, Corallium rubrum (Order: Gorgonacea, family: Corallidae) has always been collected since antiquity. It lives at depths between 20 and 150 m. and prefers hard substrates where there is not much light, in particular caves and rock overhangs. Because of its colour and hardness this species is one of the most sought after for jewellery-making. The intensive collection of this coral that was made possible by scuba diving (going down to 120 m. !) has resulted in such heavy overfishing that it has become rare. In 1986, it was selling for 500 to 1,500 $US/kg depending on the quality (Carleton and Philipson, 1987).

For some years now, exploration of the bathyal zone of several areas of the Pacific has lead to the discovery of a fauna made up of organisms whose skeletons can be used for jewellery making. These organisms all belong to the Cnidaria (or Coelenterata) phylum of the Orders Gorgonacea and Antipatharia (Grigg and Bayer, 1976). Their commercial value depends on their hardness, their color and their lustre; the Corallium spp., of which 36 species are known and 7 are at present fished, range in colour from white to red while the antipatharians produce black coral (Chesher, 1984). Some species of the genus Stylaster (Order: Stylasterina) with their pastel shades of white, yellow, rose and mauve, might well be considered for use despite their comparative fragility.

PRESENT STATUS OF FISHING FOR SEMI-PRECIOUS CORALS IN THE PACIFIC

The living part of these organisms is made up of polyps whose tentacles catch particles in suspension. To develop, they require hard substrates where the colony can establish itself and fairly strong currents to carry their food to them. This is why they are particularly abundant on seamounts (Grigg, 1986); it is on these formations therefore that commercial exploitation has developed. Collection is difficult because of the rugged bottoms and is carried out mainly by dredging and "mopping". The strongest fishing pressure is exerted by Japan and Taiwan whose vessels have for several years now been fishing on the seamounts of the "Emperor Hawaiian Ridge".

Almost all the seamounts of the Pacific have remained unfished so far; there are many in fact that have yet to be discovered and mapped (figure 1). Exploratory surveys to estimate the potential resource of semi-precious corals have been carried out since 1980 by CCOP/SOPAC (Committee for co-ordination of joint Prospecting for mineral resources in the South Pacific offshore areas). Census of the fauna has concentrated mainly on antipatharians, on Corallium spp. and on other species such as the so-called "gold coral" (Gerardia spp., Parazoanthus spp., Primnoa spp.) and "bamboo coral" (Lepidisis spp., Acanella spp.). The areas investigated have been Cook Islands (28 dredgings), Kiribati (95 dredgings), Vanuatu (66 dredgings), Papua New Guinea, Western Samoa (36 dredgings), Solomon Islands (138 dredgings) and Tonga (55 dredgings). The results of these surveys have been very promising in some places, the richest bathymetric layers being in the 100 to 300 m. depth-range.

A number of authors have studied the fishing statistics of the Taiwanese, Japanese and Hawaiian vessels (Grigg, 1986; Carleton and Philipson (1987). In 1983, the quantities of Corallium spp. taken on the seamounts of the "Emperor Hawaiian Ridge" amounted to some 140 tonnes, which is nearly 70% of world production. All these authors noted the vulnerability of the stocks in view of the fact that exploitation was often uncontrolled and destructive.

EXPLORATION OF NEW CALEDONIA'S BATHYAL ZONE

There are very many seamounts in New Caledonia's EEZ; locating and mapping them has just begun. Since 1978, the Nouméa ORSTOM Centre, in co-operation with the Paris Natural History Museum, has carried out several scientific surveys to explore the deep benthos (Richer de Forgès and Bargibant, 1985; Richer de Forgès et al, 1986; Richer de Forgès et al, 1987; Richer de Forgès in course of preparation). The surveys investigated the fauna of the outer reef slopes at depths from 200 m to 1,000 m and the seamounts of the Lord Howe and Norfolk ridges (Fig. 1 and 2). About 500 dredgings were carried during these surveys. Although most of the samples collected are still being studied by Dr Bayer of the Smithsonian Institution, it is already evident that semi-precious corals are abundant here; they are mostly Gorgonacea and Stylasterina. In about 50 of the samples, there was at least one of the three species identified as belonging to the genus Corallium. These were taken at depths between 300 and 600 m.

CONCLUSION

There are many seamounts in New Caledonia and resources of semi-precious corals appear to be substantial. At the present time, it would be difficult to quantify and exploit the resource, no detailed sea-bed mapping having yet been done. Before a soral fishery is set up, a research programme should in any case be carried out to define the biological parameters of these organisms, assess the stock and set appropriate rules for its management (Grigg, 1982). Uncontrolled fishing would rapidly lead to destruction of the biotopes and it must be borne in mind also that certain deep-bottom fish of commercial value (Etelis spp., Beryx spp., Pseudopentaceros spp., etc.) are abundant on these biotopes.

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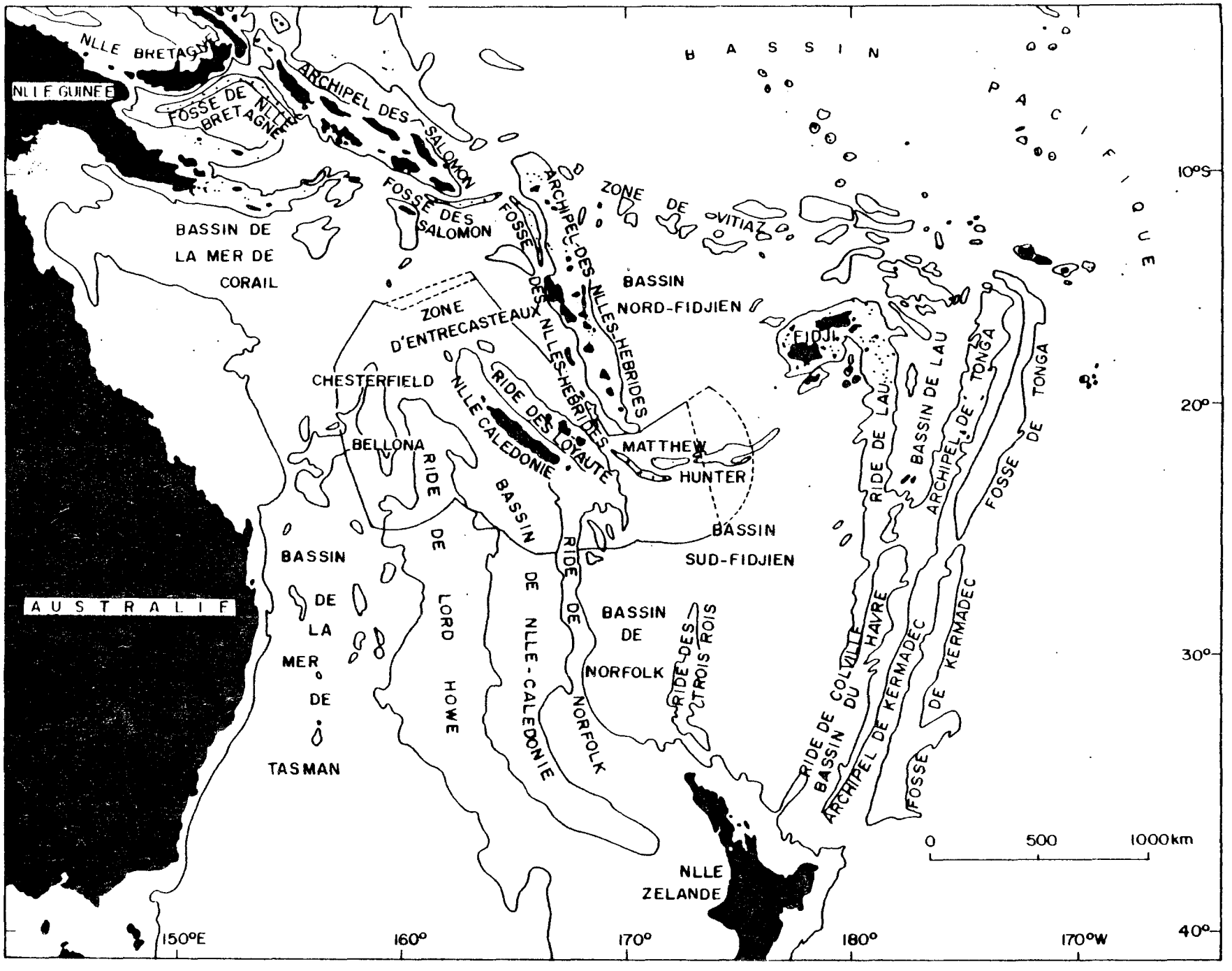

Fig. 1 – Carte bathymétrique du Sud-Ouest Pacifique

Sea-bed mapping of the South-West Pacific

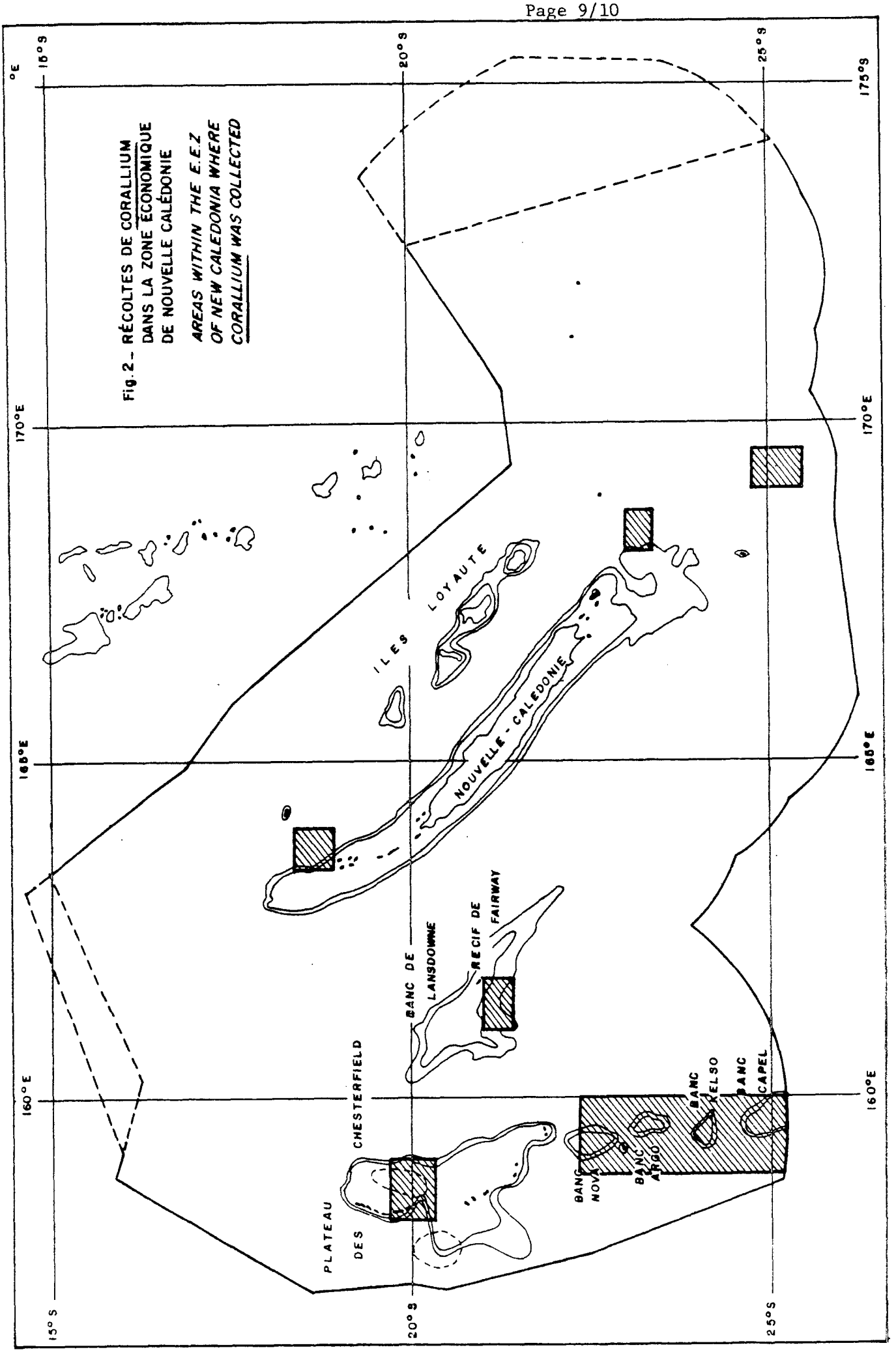
Fig.2- RÉCOLTES DE CORALLIUM DANS LA ZONE ÉCONOMIQUE DE NOUVELLE CALÉDONIE
AREAS WITHIN THE E.E.Z OF NEW CALEDONIA WHERE CORALLIUM WAS COLLECTED
15° S
20° S
25° S
160° E
165° E
170° E
175° S
ILES LOYAUTE
NOUVELLE-CALEDONIE
RECIF DE FAIRWAY
BANC DE LANSDOWNE
PLATEAU DES CHESTERFIELD
BANC NOVA
BANC ARGO
BANC KELSO
BANC CAPEL