



HAL
open science

The influence of anthropogenic and terrigenous inputs on coral reef lagoon environments: the ECOTROPE Programme

Renaud Fichez, Stéphane Bujan, Ludovic Breau, Christophe Chevillon,
Sandrine Chifflet, Pascal Douillet, Jean-Michel Fernandez, Jocelyne Ferraris,
Robert Gouyet, Garrigue Claire, et al.

► To cite this version:

Renaud Fichez, Stéphane Bujan, Ludovic Breau, Christophe Chevillon, Sandrine Chifflet, et al.. The influence of anthropogenic and terrigenous inputs on coral reef lagoon environments: the ECOTROPE Programme. 9th ICRI (International Coral Reef Initiative) Symposium. Coral reefs in the Pacific: status and monitoring, resources and management, May 2000, Nouméa, New Caledonia. IRD; ICRI, 2003, Documents Scientifiques et Techniques. hal-04720754

HAL Id: hal-04720754

<https://hal.science/hal-04720754v1>

Submitted on 4 Oct 2024

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

The influence of anthropogenic and terrigenous inputs on coral reef lagoon environments : the Ecotrope programme

FICHEZ R., BUJAN S., BREAU L., CHEVILLON C., CHIFFLET S., DOUILLET P., FERNANDEZ J.M., FERRARIS J., GOUYET R., GARRIGUE C., KULBICKI M., RICHER DE FORGES B.
Centre IRD Nouméa, BP A5 Nouméa, New Caledonia, fichez@noumea.ird.nc.

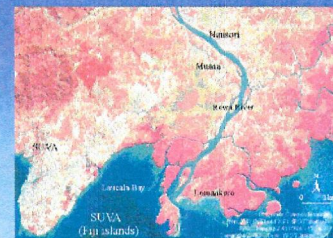
Objectives

Economic development strongly affects coastal zone environments and Pacific island states with limited land and resources are especially sensitive to environmental issues. The Ecotrope programme studies the influence of terrigenous and anthropogenic inputs on coral reef lagoons. The main study sites are the south west lagoon of New Caledonia (left) and the Suva lagoon in Fiji (right). Additionally, results from previous work in Tahiti, French Polynesia will be associated for comparison. Ecotrope focus on 3 main inputs that are of worldwide significance :

- **Particles** and associated hypersedimentation process
- **Nutrients** and associated eutrophication process



S-W lagoon of New Caledonia

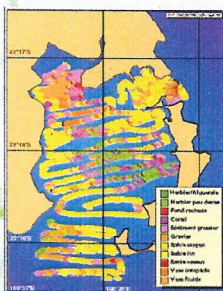


Suva lagoon and Rewa River, Fiji

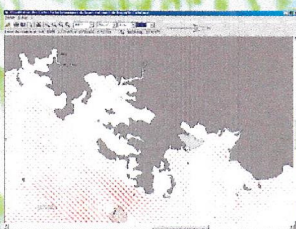
Realisation

Ecotrope is a pluridisciplinary programme including research actions on pelagic environments, pelagic biocenosis, benthic habitats, benthic communities and fish populations. In New Caledonia research activities are part of the "Programme National Environnement Côtier (PNEC)". In Fiji our work is based on a collaboration with the University of the South Pacific (USP) especially through the joint supervision of students at the Master and PhD levels.

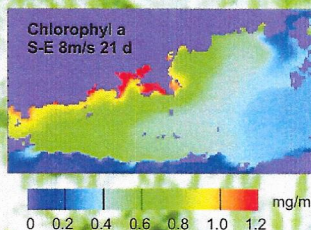
Environmental conditions



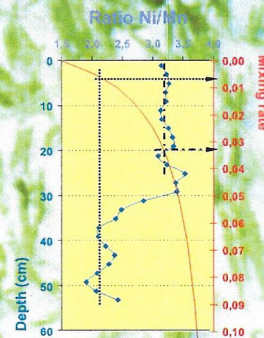
Mapping sediments and habitats distribution



Water circulation measurement and



Biogeochemical cycling, measurement and modelling



Sediment geochemistry and historical records

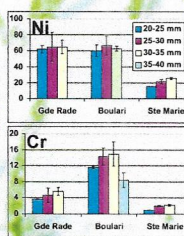
Effects on benthos and fishes



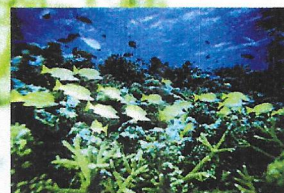
Exchanges at the water sediment interface



Benthic biodiversity



Metal bioaccumulation



Fishes of fringing reefs seagrass and algae beds

Applications

Ecotrope provides application products useful to decision makers who have to deal with sustainable development. Coastal management calls for a good knowledge on the current trends in environmental degradation. The main research applications are related to environmental diagnosis and the use of models as predictive tools. In New Caledonia Ecotrope