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S5-A Keynote

Ecosystem Approach and Indicators for Management of Marine Resources and their Uses in Pacific Islands

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Since 2002, the French Research Institute for Development (IRD) has carried out research on interactions between the diversity of coral reef ecosystems, human activities and coastal marine resources in the Indo-Pacific. The research program, called “Biocomplexity of coral reef ecosystems” has 3 main objectives: (1) to characterize reefs at different spatial scales to explain the structure of their living communities, (2) to evaluate the influence of natural and human disturbances on the structure and functioning of reef-associated communities (i.e. fishes and invertebrates) and (3) to evaluate the influence of resource diversity on resource uses. Interactions between environment, reef and human communities are compared amongst contrasted sites in South Pacific. The program aims at a global understanding of the reef ecosystem interactions in order to propose tools (maps, models, and indicators) for management.

The ecosystem approach developed by the multidisciplinary scientific CoReUs team and its partners is based on the relationships between the three main themes included in Biocomplexity: Environment, Biology and Human activities. Remote sensing of coral reefs for habitat mapping, genetics and biology of species (invertebrates, larvae and juveniles of fishes) and ecology of the structure of exploited communities and surveys of resources and fisheries are undertaken on the same pilot sites to improve our understanding of reef ecosystem interactions and their uses.

Indicators useful for management mainly subsistence or recreational fishing and Marine Protected Areas are proposed and tested to estimate the state of marine resources and their changes next to human perturbations,. Some studies are also undertaken on local ecological knowledge to favour participative management in fisheries. The principle of our approach is presented with a few results obtained from New Caledonia and French Polynesia.