



CORAIL project: Coral reefs in a changing world – ecosystem services from coral reefs: public tools for decision-making in New Caledonia and French Polynesia

The project aims to provide a set of methods to evaluate ecosystem services (ES) from coral reefs for public decision-making for the present and for the future in the context of global change including demographic and climate change. The goal is to understand current relationships between ecosystem services in order to inform future decisions through governance scenarios. The theories and methods proposed will be tested in two case studies in EU OCTs in the Pacific.



Project activities and achievements

In May 2013, the project's steering committee gathered together, in Moorea French Polynesia, many stakeholders from French Polynesia and some from New-Caledonia (picture below). It was an important moment for presenting this BEST project on coral reef and gather their feedbacks to draw their needs and expectations. Attendees participated actively and discussed their anticipation on the outcome of this assessment of coral reefs' ecosystem services (ES). During the months that followed, more local stakeholders shared their expectations on the output of the project. Three main areas of concerns emerged:

- ES and Governance of a network of Marine Protected Areas (MPAs): implications to increase support for governance and generate financing for conservation
- ES, Coral and Health: especially the impact of Ciguatera¹ in terms of ES
- ES, Coral and Acanthaster (Crown-of-thorns Starfish) : their impact on coral reef in terms of ES



More input on desired outcomes on the CORAIL BEST project may arise during the year 2014 especially in New-Caledonia.

In the meantime, during the year 2013, teams involved in the project gave presentations in Paris at the 'Ecole des Hautes Etudes en Sciences Sociales' (EHESS) during a symposium on three issues we have to cope with, related to cultural services.

1. Critical analysis of ES notion and its valuation methods about coral reef in the Pacific
2. Mobilisation of the notion of culture in ES valuation in the Pacific. The Moorea example.
3. ES, culture and ethics.

This work was an important step towards the finalisation of Work Package (WP) 1 report titled: Critical analysis of ES notion and its valuation methods about coral reef (due mid February 2014).

During the year 2013, project's teams and stakeholders also discussed and selected the main ecosystem services provided

by coral reefs. This selection is almost validated by the members of the WP1 who conducted a revision of the literature and multidisciplinary discussions. Following the Millenium Ecosystem Assessment and the Economics of Ecosystems and Biodiversity (TEEB) approaches, the ES are: production of biomass for commercial fishery (ES1) that includes coastal, pelagic and recreative fishery; production of protein for non commercial fisheries (ES2); scenery beauty for underwater tourism and associated expenses of blue tourism (ES3); protection against coastal floodings (ES4) and carbon sequestration (in New Caledonia mangroves and seagrass) (ES5). Many other ES related to cultural and traditional aspects are being studied by the members of WP1 and more work needs to be done before final selection. For ES1 to ES5, data have been collected for the study sites both for the bio-quantification of the ES and for their economic valuation. Data was formatted and validated for the needs of the WP2 outputs and coordinated with the WP3 models for the cost-benefit analysis. Collecting missing data (mainly about ES3 and the costs of conservation) as well as defining clear scenario of coastal management are planned for the first two quarters of 2014.

Members from WP2 and WP3 also met in Hamburg (Germany) to discuss and formalize 1) the interface between WP2 monetary valuation of ES and WP3 cost-benefit analysis and governance scenarios; 2) Influence diagram and Bayesian Belief networks for Moorea (according to governance objectives of the Moorea's management committee).

At last, the communication and governance team (WP4), participated in meetings both in french Polynesia and New Caledonia with other BEST members and gathered many data to produce a very interesting report on "analysis of the role of scientists and knowledge in marine areas construction and governance in Moorea." This report, based on an analysis of scientists' influence on the Moorea case, during the last 20 years, shows a very limited influence of biologists and no influence at all of human science input, on the governance of the Moorea's network of MPAs.



¹ A sickness caused by eating toxins originally produced by microorganisms found on coral and algae where they are eaten by fish and move up the food chain

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