



université  
de BORDEAUX



## Post-doc Position

### Bio-economic modeling, scenarios and management for fisheries in coral reefs ecosystems.

#### Supervisors and contacts:

- Luc Doyen: CNRS, GREThA (Research Group Theoretical and Applied Economics), University of Bordeaux, France. [Website](http://Website) Email: [luc.doyen@u-bordeaux.fr](mailto:luc.doyen@u-bordeaux.fr)
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**Issues and goals:** Marine ecosystems, biodiversity and fisheries are under pressure worldwide. The related ecological and economic vulnerabilities are especially high in the case of coral reef ecosystems facing food safety issues and environmental changes such as global warming. To manage these ecosystems and fisheries in a more sustainable way, many scientists and stakeholders advocate the use of an ecosystem approach. However, the methods, models and quantitative tools for the implementation of such an approach remain controversial and difficult. The ecosystem approach indeed requires the account of several complexities including trophic, habitat and socio-economic dynamics and interactions. In this perspective, the Pacific coastal fisheries constitute very challenging case studies.

The purpose of this post-doc is to study and evaluate through several bio-economic scenarios the sustainability and resilience of coastal fisheries and marine biodiversity in French Polynesia. These scenarios will rely on an ecosystem based modeling. The post-doc is part of a research project entitled ACROSS funded by ANR (French National Research Agency) and involving several research centers including IFREMER, CRIOBE (Moorhea) and GREThA. The post-doc will strengthen and refine existing bio-economic dynamic models in a multi-species, multi-fleets, multi-patches context and integrating the dynamics of coral. These models will be calibrated on databases managed by the CRIOBE in French Polynesia. The scenarios will mix predictive, explorative and normative scenarios based on optimality or viability methods. Particular attention will be paid on multi-criteria evaluations and bio-economic risk assessments for scenarios and management strategies facing global changes.

#### References :

- FAO (2003), Fisheries Management .2. The Ecosystem Approach to Fisheries, FAO Technical Guidelines for Responsible Fisheries (FAO), 1020-5292, No. 4 (Suppl.2), Rome.
- Hardy P.Y., Doyen L. Béné C., Schwartz A.M. 2013. Food security - environment conservation nexus: a case study of Solomon Islands' small-scale fisheries. Environmental Development. [Available on line](#)

- Doyen L., Thébaud O., Béné C., Martinet V., Gourguet S., Bertignac M., Fifas S., 2012, A stochastic viability approach to ecosystem-based fisheries management, *Ecological Economics*, 75, 3242. [Available on line](#)
- O. Thébaud, Smith T. Doyen L., Planque B. Lample M., Mahevas S., Quaas M., Mullon C., Vermard Y., Innes J. 2013. Building ecological-economic models and scenarios of marine resource systems: workshop report. *Marine Policy* [Available on line](#)

**Profile of the candidate:** Applicants are expected to hold a PhD in bio-economics, resource economics or conservation biology. They will be motivated by decision support sciences, modeling and interdisciplinary perspectives. Knowledge in ecosystem approach will be especially appreciated.

**Location:** [GREThA](#), University of Bordeaux, France. Possibility of a stay in French Polynesia. GREThA (Research Group Theoretical and Applied Economics) is a joint research institute (Unit Mixte de Recherche), associating University of Bordeaux and CNRS, and developing research programs in economics but promoting interdisciplinary approaches. The unit gathers 50 permanent active researchers. An important part of GREThA research activity regards environmental and development economics. GREThA especially aims at developing quantitative methods, models and indicators for i) Operationalizing sustainability and viability ii) Bio-economic management and scenarios iii) Public policies governance.

**Net salary:** 2272 euros by month over 18 months

**Start:** September 2016