

## SEMINAIRE AMURE

Vendredi 04 novembre 2011

14h00 > 16h00

IUEM - Amphi B



## PROGRAMME

### < L'espace de liberté comme mesure synthétique du développement territorial durable >

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#### Résumé

Par la mise en débat du concept de développement, les auteurs proposent deux indicateurs synthétiques fondés sur une évaluation de potentiel. Sous l'hypothèse, faible, que tout développement réussi élargit le potentiel futur, la variation de potentiel est une mesure pertinente du développement. Dans l'analyse, les auteurs montrent combien l'espace de développement est intimement lié à l'étendue des libertés: une réduction de ces dernières entraîne mécaniquement une baisse des indicateurs. Fiable en conditions d'analyse, la méthode sera prochainement testée en situation réelle, afin de vérifier la pleine disponibilité des données sur des territoires divers et de sécuriser les modalités de calcul.

**Mots clés :** Indicateurs synthétiques ; territoire durable ; potentiel territorial ; capacités; indice.

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### < An ecological-economic model of oyster-farming with multiple exploitation systems >

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## Abstract

This paper presents an ecological-economic model for assessing the adaptive strategies of oyster-farmers in the Marennes-Oléron Bay (France). Marennes-Oléron Bay is the main European site in terms of both production and marketing of oysters (*Crassostrea gigas*). The global production of all companies amount to 35 000 tons per year, the total sales reach about 43 000 tons and the current standing stock is assessed to 100 000 tons. The activity is strongly dependant on the environment, and any ecosystem modifications may affect the different stages of the 3-years production cycle. In order to cope with environmental hazards, oyster-farmers have developed adaptive strategies which have resulted in four main exploitation systems, some of which use the resources of other production basins for spat, half-grown oysters or even marketable oysters.

An ecological-economic model of oyster-farming has been developed, which includes three main components: (1) a primary production sub-model connected to the watershed which provides the bottom-up trophic control of an oyster Dynamic Energy Budget (DEB) sub-model, (2) a population dynamic sub-model which enables the assessment of the global oyster production in the basin and (3) an economic sub-model integrating the strategies of four exploitation systems which are defined according to both their production and commercial practices. The modelled exploitation systems account for the choice of companies to specialize or not into different stages of the production process as a response to ecological driving forces (spat and oyster mortality, food resource productivity) and social-economic constraints (availability of access-rights, outlets). Exploratory scenarios simulate oyster production deficits due to increasing dry years, increasing oyster mortality and the consequences of improved freshwater management on the watershed. Based on the assumption that each production system targets a fixed production objective, the model is able to estimate the revenue deviations due to environmental or institutional changes.

**Keywords :** System approach, Ecological-Economic modelling, Exploitation systems, Production function, Oyster-farming

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