



## **ABSTRACTS OF THE IXth ANNUAL CONFERENCE OF THE EAFE**

**Quimper April 28-29-30, 1997**

*Please note: the abstracts of the papers presented at the conference are in English and / or in French. The translation of an abstract is normally under the responsibility of the author(s). The titles have been translated by the conference secretariat, except when authors have given both a French and an English version of their abstract.*

## **Résumés des communications de la 9ème Conférence de l'EAFE**

**Quimper 28-29-30 Avril 1997**

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## **FIRST SESSION: fisheries management, regulation of access to the resources and conflicts of use**

### *Keynote speech*

**Title: Alternatives in fisheries management**

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### *Abstract.*

This paper is concerned with management systems for fisheries in industrially advanced countries, where the need for such systems is apparent and where the financial, administrative and scientific capacity to operate them is evident. The focus of the discussion will be on an evaluation of two prototype management systems, which appear now to be the most widely considered alternatives : (1) output-focused individual transferable quotas (ITQ) regimes, and (2) input- focused limited entry licensed (LEL) regimes with buy-out of excess capacity. In both cases the efficiency of these systems will be explored, considering also variations in the systems along with supplementary management regulations. The systems will be compared with reference to the achievement of commonly accepted policy objectives in the areas of conservation, efficiency, and distributional equity, noting in particular the extent to which they alleviate old externalities and create new ones. The discussion will use a priori reasoning, illustrated by examples drawn from recent fisheries experience. The paper also comments on the potential uses, as well as the difficulties in applying quotas at community and country levels.

With respects to the ITQ regime, the paper concludes that, relative to both open access and LEL regimes, it offers basic advantages in terms of capacity rationalization and individual vessel harvesting efficiency, as well as possible advantages in terms of operational safety and product quality. However, the regulatory requirements of the system and the behaviour it induces in fishery participants tend to introduce a variety of external diseconomies, including highgrading, price dumping, quota busting, quota ratcheting, data fouling, and others. These, together with the inflexibilities of annually or seasonally predetermined total allowable catches (TACs) and near- irreversibility of the system, may often have seriously adverse consequences for conservation and resulting stock productivity.

LEL regimes tend to suffer from negative externalities associated with the "race for fish" and "input stuffing", that lead to reduced harvesting efficiency. However, relative to ITQ regimes, they exhibit fewer behavioural incentives to discard and / or misreport catches, and thus offer better prospects for accurate stocks data. They also have enough flexibility to be accommodated to

conservation-sensitive real-time TAC management, with swift action using time and area closures to adjust stock impacts. Consequently, they tend to be more compatible with risk-averse management appropriate to the precautionary approach. Thus, they offer generally better prospects for long-run stock productivity.

Variations on ITQ and LEL regimes may be operated with or without transferable access rights. Transferability has been associated with distributional (including intergenerational) inequities, and sometimes also with geographical concentration of rights that threatens the viability of smaller coastal communities. Transferability, however, is essential for the achievement of full rationalization benefits that ITQ regimes are able to provide. In the case of LEL regimes, on the other hand, non-transferability may be an advantage, not only in respect of distributional equity, but also because it may assist in the capacity rationalization process for small-boat fisheries.

The author concludes that choosing a management regime for a fishery should be done in relation to the specifics of the fishery concerned and the policy objectives that have been selected. In general terms, the author considers that the advantages of ITQ regimes have been overstated and that insufficient foresight has been exercised in anticipating their hidden faults. The best opportunities for successful application of ITQ and related regimes will occur in fisheries with relatively stable and robust stocks, narrow marketing channels, small numbers of participants, and absence of equity considerations. In the author's view, LEL regimes are more adaptable to a variety of fisheries circumstances. Their possibilities have been too readily dismissed, without sufficient effort to correct mistakes in earlier applications.

As a general approach, it is suggested that the need now is for management regimes that are custom-made for particular fisheries and that are circumstance-specific rather than system-specific.

*Paper number 1.1*

**Title: Scenario analysis : Exploring the future of fisheries**

*Authors:* Pavel Salz, Erik Buisman

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*Address:* Burgmeester Patijnlan 19. PO Box 29703. NL-2502 LS The Hague. The Netherlands

*Abstract.*

In order to make rational decisions about policy, research strategies and investments in the present, it is necessary to have some idea about possible developments and problems in the future. Although the future is principally unknown, it is not impossible to explore future possibilities in a systematic way. One technique to accomplish this is scenario analysis.

The first part of this paper will give into scenario analysis as a way to generate and evaluate future policy options and to identify future research needs. After a brief discussion of the objectives of scenario-analysis and the results that may be expected from it, the technique of scenario building will be described. Specific attention will be payed to the role of present uncertainties and trends.

In the second part, a scenario study on the future of the North Sea fisheries will be presented. In this study three scenarios were developed with different levels of consumer preferences for sustainable resource use. One of these scenarios will be elaborated and analysed. The main ingredients of this scenario are the introduction of the ITQs on a European scale and a development of consumer preferences toward sustainably produced food.

Finally conclusions will be drawn on the possibilities of the technique of scenario analysis for identifying policy options and research priorities in the field of fisheries.

*Paper number 1.2*

**Title: The economic case for charging for licenses and quotas**

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*Abstract:*

Regulating access to sea fisheries, normally through some sort of restrictive licensing system, is a key step in avoiding over-exploitation of the resource. Where licenses or quotas are tradable, they have become valuable assets, their value reflecting the discounted expected future stream of profits from fishing. Under many fisheries management regimes, these license / quotas are issued free of charge. This contrasts with many other sectors where for example, charges are made for pharmaceutical licenses, TV and vehicle licenses, etc. The Paper sets out the economic case for charging for fishing licenses or quotas ; and briefly considers some practical problems and lessons from selected fisheries around the world, before making some concluding remarks.

*The Paper reflects the personal views of the author.*

*Paper number 1.3*

**Title: Does co-management resolve all our fisheries problems?**

*Author:* Pierre Failler *Institution:* University of Québec at Rimouski (Canada)

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*Abstract:*



Co-management of different types (community based management, local management, subsidiarity, partnership, etc.) is increasingly under discussion and applied around the world. For example, the new Federal Canadian fishery policy is based on the partnership principle.

This Paper will present some issues concerning co-management by making a synthesis of the three conference days which were held at the University of Québec at Rimouski and at the University McGill (Canada) in 1995 and 1996.

*Paper number 1.4*

**Title: Mediterranean and Atlantic fisheries management compared**

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*Abstract:*

In a study commissioned by the European Commission, a comparison has been made of fisheries management in the Mediterranean and in the Atlantic. The study concentrates on four major elements of fishery management:

- Stock conservation
- Structural policy
- Technical measures
- Institutions and user participation

The main characteristics of these fields of management of the Atlantic and the Mediterranean fisheries are briefly described and subsequently compared. Conclusions are drawn on the implications for a mediterranean CFP.

*Paper number 1.5 [The abstract is available in French only](#)*

**Title: Conflicts of access to the fishery resources in the Normand-Breton Gulf**

*Authors:* Jean-Luc Prat, Denis Bailly

*Institution:* CEDEM, University of Western Brittany (France)

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*Paper number 1.6*

**Title: Midwater trawling within the 12 nautical miles area : a recent conflict in the south of the Glenan Islands** (PhD thesis in progress)

*Author:* Philippe Le Rhun

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*Abstract:*

Perfected by the Danish about 1955, the development of the pelagic trawl in France began in the late 50'. As long as it was limited to the English Channel and the North Sea fishing areas, its slow evolution has not created any particular problem. Yet, its sudden introduction on the Atlantic coast (late 70') has overturned the fishing fleet habits, especially those using bottom set gear (nets, pots, longlines) largely used in Brittany. This sudden introduction has created violent areas conflicts (especially in Quiberon Bay) for the sharing of inshore fishing areas. These repeated incidents, in Audierne Bay, around the Glenan Islands, or Yeu Island, ended in the setting of a juridical regulation of the use of the pelagic trawl in French waters (12 nautical miles).

In early 1997, the twentieth birthday of the first law on pelagic trawl has been "celebrated" in the south of the Glenan Islands by hard conflicts between pelagic trawlers and fishing fleets using bottom-set gear, after the loss of many of such gear in areas forbidden to pelagic trawling or G.O.V. (high opening trawl). In fact, the present law is completely ineffective. The question is : how did we come to this situation?

The cartographic translation of the laws regulating pelagic trawling shows the incoherence in the distribution of areas where this activity is authorized or forbidden, because these areas were successively created as a solution to the repeated incidents on fishing areas, without any global reflexion on the management of this gear. Moreover, the high efficiency of the pelagic trawl and derived gear (hybrid G.O.V, Naberan trawl) causes a serious biologic problem. What is its fishing effort and impact on an overexploited coastal biomass ? A clear answer should be rapidly given to this question, because those gears are more and more contested among the fishing community, especially now that a good administration of French waters is requested for the "year 2002". Thus, a geographical approach is necessary, because the study of actually exploited fishing areas and of legally authorized areas will allow to determine the danger zones. Thanks to this study, a new spatial approach may be considered. To allow a practical application, the newly drawn up maps will be integrated in a G.I.S (Geographical Information System) and shall be distributed to the fishermen by Turbo 2000 and MaxSea (softwares used by most of the professionals). This a new approach in the inshore fishing management.

*Paper number 1.7*

***Title: Commercial exploitation of artificial reefs : economic opportunities and management imperatives ; the application of property rights***

*Authors: David Whitmarsh, Helen Pickering*

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*Address: Locksway Road. Portsmouth PO48JF. United Kingdom*

*Abstract:*

Relatively little is known about the economic effects of artificial reefs, and this lack of knowledge imposes a constraint on the fisheries planning process. In



this Paper we develop a simple bioeconomic model to explore the implications of creating a commercial reef-based fishery, highlighting the problems that can rise if the reef remains unregulated. We then go on to discuss the range of management techniques that can be used to mitigate those problems and to ensure the potential economic benefits of artificial reefs are appropriated. particular attention is paid to property rights and the legal basis for their establishment and enforcement.

*Paper number 1.8*

**Title: Comanagement and the dynamics of the fisheries : some issues**

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*Abstract.*

The main purpose of this Paper is to try to give a more precise definition of the comanagement of marine fisheries, using the "classical" theory of fisheries economics as the starting point. Three other objectives are : to explicit the economic meaning of comanagement, to identify the possibilities and the limits of comanagement, and to suggest some new avenues of research that can help to understand better the dynamics of fishing activity.

Using the existing literature, the author will suggest a definition of comanagement and the link between the institutional design and the regulation of the resource. The Paper will focus on the origin of an institution and the results of the of the decisions on externalities and free entry.

The first part presents briefly the problem of the resource management by the market forces alone and the results of this type of management on the dynamics of fisheries. The second part will discuss the institutional evolution implied by some forms of comanagement. The conditions that can explain the emerging and the surviving of comanagement are examined in the third part. In the fourth part, some implications of comanagement are evoked. Some perspectives for new research are suggested in the fifth part.

Since the managing institution has also its own dynamics that is more or less closely related to fisheries dynamics, it seems that we need a better understanding of the economic and social forces that affect the behavior of fishermen, and also more empirical works on the rationality of the institutions (how are determined the global level of utilization of a resource and the allocation of the resource between the users, especially in the case of comanagement).

*Paper number 1.9*

**Title: On the economics of natural resources : the management of fishery resources** (PhD thesis in progress)



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*Abstract:*

The main objective of the thesis is to quantify, in a bargaining model, the potential welfare benefits for vessels and countries that compete for a common pool if they coordinate their actions in order to obtain an efficient fishing policy. The level of total captures must guarantee the attainment of an ecological equilibrium. Furthermore, we want to study the effect that the bargaining power of each country has on the final share of total captures of his national fleet. To conclude, we want to apply the analytical results obtain to real cases of different countries with fleets fishing in the same pool.

*Paper number 1.10*

***Title:* Economic evaluation of the demersal Spanish trawl fishery in the Gulf of Lion**

*Author:* Ramon Franquesa

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*Abstract:*

The demersal trawl is the most important gear in economic terms in the Spanish Mediterranean. Within the gear diversity which characterizes the area, the demersal trawl is one of the most conflictive. The management instruments are designed to try to limit in some cases its expansion, basically through the regulation of fishing licenses.

In the Paper we examine the accounts of this fleet, to understand what are the key aspects of the economic performance of this gear. The main focus of the Paper is to study the possibilities of economic management versus administrative management. The evaluation shows that measures such as the changes in the fuel prices, for example, are more effective than the prohibition to surpass some set limits in horse power or in GRT.

The Paper finishes with a description of the economic management instruments which can be used to balance out the distribution between gears, and between different segments in the trawl gear, as a complement of the administrative instruments.

*Paper number 1.11*

***Title:* Measuring the economic results of small-scale fisheries : the case of French inshore fishing in the western part of the English Channel**

*Authors:* Jean Boncoeur\*, Denis Bailly\*, Pascal Le Floch\*\*

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*Abstract:*

A reasonable knowledge of the economic performance of the fishing vessels is a key to a sound management of the fisheries, since it governs the understanding of their endogenous dynamics, and the possibility of taking efficient and fair management decisions.

But the measurement process raises two kinds of problems : a statistical one and a conceptual one. The statistical problem is due to the frequently poor quality of official data about landings and prices, and to the questionable reliability of data coming from accounting centres. The conceptual problem is twofold. First, in some cases, standard accounting definitions may be unsuited to the economic reality of the fishing enterprises investigated. Second, the existence of strong externalities (stemming from various causes, among which discarding) creates a gap between individual private and social costs, and thus distorts the social significance of individual private performance.

This Paper presents and discusses some of the results of an economic sample survey of the French inshore fishing activities in the western part of the English Channel, realized in 1996 with the financial support of the French Ministry of Agriculture, Fisheries and Food, the Brittany Region and IFREMER (Programme AMURE). The management of these activities is complicated by some patterns, such as their multi-species and multi-gear character, the high number of landing places and the variety of the commercial channels which they use (to say nothing of the fact that different State authorities cohabit in the Normand-Breton gulf).

The Paper focuses on the measuring of the economic performance realized by different subsets of the fleet under investigation. After presenting the difficulties of this operation, it explains the methods which have been built up in order to overcome some of them, and shows the main results obtained. It also indicates the questions still unsolved, and the direction which is taken to treat them.

*Paper number 1.12*

**Title: An application of the fishing economic model "ECOPES" on the Atlantic hake fishery**

*Authors:* M. Augusto Lopez Martinez, Ana Maria Juarez Davila, Enrique Pescador Canora

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*Abstract:*

This Paper focuses on the ECOPEs model (for further details, see Lopez Martinez, M. Augusto, "ECOPEs : a fishing economic model", session Modelling, Paper 2, EAFE VIIIth Conference, Barcelona 1996), proving its ability on predictions of future tendencies in real fisheries, such as the ICES areas VIIIc and IXa of the south hake stock of the Atlantic Ocean, in which a convenient database is available. The use of these data in the model, including catches, prices, existing biomass and distribution of costs, led to a complete description of the present and future state of such fishery. Thus, it has been possible to determine the normal evolution in the fishery involving a situation of non-existing free equilibrium, as well as taking decisions to reach a regulated equilibrium, characterized by maximum sustained profit. Finally, fishing policy suggestions are given to get such equilibrium by the means of catch regulation.

*Paper number 1.13*

**Title: Modelling the UK component of the English Channel fisheries : an application of multi-objective programming**

*Authors:* Sean Pascoe\*, Mehrdad Tamiz\*\* *Institution:* \* CEMARE, University of Portsmouth (UK). \*\*Department of Mathematical Studies, University of Portsmouth (UK)

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*Abstract:*

Fisheries management is often characterized by multiple objectives. These objectives often include biological conservation objectives, improved fisheries incomes and maintenance of regional employment.

A criticism of many fisheries modelling approaches has been the focus on single objectives. Economists tend to focus on improving the economic performances of the fishery, and hence develop models with this objective in mind. Conversely, biologists are often concerned with achieving an acceptable stock level, and develop models with this objective in mind.

The development of multi-objective modelling algorithms enable several objectives to be considered simultaneously. In this Paper, a brief review of the multi-objective modelling theory is presented along with a review of previous attempts at developing multi-objective models in fisheries. A multi-objective model of the UK component of the English Channel is also developed, and compared with a single objective version of the model.

*Paper number 1.14*

**Title: Bioeconomic management of red swamp crawfish (*Procambarus Clarkii*) in the presence of environmental externalities**

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*Abstract:*

Red swamp crayfish (*Procambarus Clarkii*) is a valuable renewable resource which creates significant negative externalities in its environment. Crayfish can cause severe crop damage by burrowing in fields and irrigation systems to spread. These crayfish are resistant to normal dosages of pesticides which are harmful to fish and birds, can endure months of dryness, and live in a low oxygen environment. This Paper presents a simple bioeconomic model for optimal use of the red swamp crayfish accounting for its value in consumption, adapting Plourde's (1970) model to include the negative externalities.

*Paper number 1.15*

**Title: Individual quotas as a management tool and systemic modelling : an application to the French albacore fishery** (PhD Thesis in progress)

*Author:* Olivier Guyader

*Institution:* OIKOS and University of Rennes I, guest-researcher at CEDEM (France)

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*Abstract:*

This Paper deals with the implementation of individual (transferable) quotas in fishing activities. It develops a part of a larger work (PhD thesis) which tries to evaluate the relative advantage of rights based management tools.

We rapidly review the basic insights of quotas allocations from the point of view of efficiency and equity, and evaluate the potential difficulties of their application to the French albacore fishery. Then, we take care of this to build a simple model of fishermen behaviour within I.Q and I.T.Q systems. We consider the problems of imperfect enforcement and transaction costs, stocks effects and fleet adjustments. The model gives also the opportunity to modify quotas allocations and to put limits on rights concentration. It is converted into a systemic software language in order to simulate management options. Finally, the outputs of simulations are presented and the question of choice between quota and input regulation is discussed.

*Paper number 1.16*

**Title: Fisher behaviour : exploring the validity of the profit maximizing assumption**

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*Abstract:*

The assumption of profit maximizing behaviour underpins most bioeconomic models of fisheries. However, the results from a number of recent surveys of fishers attitudes have suggest that fishers are not generally profit maximizers. Researchers undertaking these surveys asked fishers directly for their key motivation. Few fishers admit to trying to maximizing profits explicitly. This unwillingness to admit profit maximizing behaviour has been interpreted as evidence that fishers do not operate in a profit maximizing manner.

In this Paper, evidence is presented that indicates fishers do operate in a profit maximising manner. A survey of fishers attitude was derived that did not ask for fisher motivation directly, but asked what would motivate them to change their behaviour. A number of fishers along the south coast of England were interviewed. The results of this survey are compared with the results of other surveys of UK and Irish fishers.

*Paper 1.17*

**Title: A method of indicating the comparative dispersion of national fleet revenue in mixed fisheries**

*Authors:* Philip Bertram\*, Philip Rodgers\*\*

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*Address:* Sea Fish Industry Authority. 18, Logie Mill, Logie Green Road, Edinburgh EH7 4HG UK

*Abstract:*

The views expressed in this Paper are those of the authors and not necessarily those of their institutions. The Sea Fish Industry Authority does not adopt a policy on fisheries management matters.

The Lorenz Curve and the related statistic, the Gini Coefficient are used to provide a measure of the dispersion of the national fleet revenue. Despite some weaknesses the Lorenz Curve and Gini Coefficient provide a basic conceptual framework for indicating the dispersion of national fleet revenue among species. For comparative purposes, the more difficult question is Addressed of how to provide a common basis for calculating a statistic analogous to the Gini Coefficient.

The Paper analyses recent data from Denmark, France, Italy, The Netherlands and the United Kingdom in terms of value of landings per species in the period of a year in the country of origin. Data from species by value from each country is analysed and presented graphically. A method of adjusting the Gini Coefficient to allow for reliance on differing numbers of species is considered.

Keywords : Lorenz, Gini, Fishery Economics.

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### **PREMIÈRE SESSION: aménagement des pêches, régulation de l'accès à la ressource et conflits d'usage**

*Communication introductive*

**Titre: Systèmes alternatifs dans l'aménagement des pêches**

*Auteur:* Parzival Copes, Emeritus Professor of Economics

*Institution:* Department of Economics and Institute of Fisheries Analysis, Simon Fraser University (Canada)

*Adresse:* Burnaby, BC, Canada V5A 1S6

*Communication n° 1.1*

**Titre: Scenario analysis: L'analyse de scénarios: une exploration de l'avenir des pêches**

*Auteurs:* Pavel Salz, Erik Buisman

*Institution:* LEI-DLO (Pays-Bas)

*Adresse:* Burgmeester Patijnlan 19. PO Box 29703. NL-2502 LS The Hague. Pays-Bas

*Communication n° 1.2*

**Titre: Les arguments économiques en faveur du paiement des licences et des quotas**

*Auteur:* Tom Sanderson

*Institution:* MAFF (UK)

*Adresse:* Room 519. 3-8 Whitehall Place (West). London SW1A 2HH, Royaume-Uni

*Communication n° 1.3*

**Titre: Le comanagement résout-il tous nos problèmes d'aménagement des pêches?**

*Auteur:* Pierre Failler *Institution:* Université du Québec à Rimouski (Canada)

*Adresse:* UQAR. Département Economie et Gestion. 300, allée des Ursulines. Rimouski G5L 3A1. Québec. Canada

*Résumé:*

Le co-management, sous différentes formes (gestion à base communautaire, gestion locale, subsidiarité, partenariat, etc.) fait de plus en plus l'objet de débats et d'applications, dans le monde entier. Par exemple, la nouvelle politique fédérale des pêches au Canada est fondée sur le principe de partenariat.



The European Association  
of Fisheries Economists

L'objet de la communication est de présenter un certain nombre de questions relatives au co-management, à travers une synthèse des travaux menés dans le cadre de trois journées d'études qui se sont déroulées à l'Université du Québec à Rimouski et à l'Université McGill (Canada), en 1995 et 1996.

*Communication n° 1.4*

**Titre: Comparaison de l'aménagement des pêches en Méditerranée et dans l'Atlantique**

*Auteur:* Jan Willem de Wilde

*Institution:* LEI-DLO (Pays-Bas)

*Adresse:* Burgmeester Patijnlan 19. PO Box 29703. NL-2502 LS The Hague. Pays-Bas

*Communication n° 1.5*

**Titre: L'accès conflictuel aux ressources halieutiques dans le Golfe Normano-Breton**

*Auteurs:* Jean-Luc Prat, Denis Bailly

*Institution:* CEDEM, Université de Bretagne Occidentale (France)

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*Résumé:*

Depuis plusieurs années des conflits de pêche, provoquant parfois de fortes tensions, se sont développés dans le golfe normano-breton. Ces conflits sont à la fois des conflits de métiers (arts traînants, arts dormants) et des conflits entre nationalités (pêcheurs français, pêcheurs des îles de Jersey et de Guernesey). Le désir du contrôle de l'espace y joue un grand rôle, le poids de l'histoire y est important.

S'appuyant notamment sur une analyse juridique du problème, cette communication se propose tout d'abord de préciser les raisons de cette situation. Ce qui impliquera l'examen de plusieurs conventions internationales. Elle essaie également de construire une typologie des conflits existants. Elle examine enfin les modes de gestion susceptibles d'apaiser, voire de résoudre les conflits.

*Communication n° 1.6*

**Titre: Le chalut pélagique dans les 12 miles: un conflit récent au sud des Glénan** (Thèse de doctorat en cours)

*Auteur:* Philippe Le Rhun

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*Résumé:*

Mis au point par les Danois vers 1955, le chalut pélagique a commencé à se développer en France à la fin des années 50. Tant qu'il est resté cantonné aux zones de pêche de la Manche et de la Mer du Nord, son évolution lente n'a pas posé de

problèmes particuliers. En revanche, son introduction brutale sur la façade Atlantique (fin 70) a bouleversé les habitudes des flottilles y travaillant, particulièrement celles des arts dormants fortement représentés en Bretagne. Cette introduction s'est traduite par des conflits zonaux particulièrement violents (notamment en baie de Quiberon) pour le partage des zones côtières. Ces incidents répétés, qu'ils se situent en baie d'Audierne, autour des îles Glénan, voire d'Yeu plus au sud, aboutirent à la mise en place d'une réglementation de l'utilisation de ce chalut dans les eaux territoriales françaises (12 milles nautiques).

En ce début d'année 1997, les 20 ans des premiers accords pélagiques ont été chaudement célébrés au sud des Glénan avec de vifs incidents entre pélagiques et arts dormants, suite aux nombreuses pertes d'engins (filets et casiers) dans des zones interdites au chalutage pélagique ou au G.O.V (chalut à grande ouverture verticale), preuve s'il en est de l'inefficacité de la réglementation actuelle

La traduction cartographique des textes juridiques montre aujourd'hui une incohérence totale sur les zones autorisées et interdites à la pratique de cet engin, car ces zones furent mises en place au coup par coup, en réponse aux incidents répétés qui se produisaient, sans aucune réflexion globale sur l'organisation de ce type de pêche. En outre, l'efficacité du chalutage pélagique et de ses dérivés (hybride G.O.V, Naberan) pose actuellement un grave problème biologique. Quel est l'effort de pêche de cet engin et son impact sur une biomasse côtière déjà surexploitée ? Cette question doit trouver au plus vite des réponses claires, car ces engins provoquent une contestation de plus en plus vive au sein du milieu maritime, au moment même où la gestion de la zone territoriale est mise en exergue dans l'optique du "syndrome 2002". Une approche géographique est ici nécessaire, car une synthèse cartographique sur les zones de pêche réellement fréquentées et juridiquement autorisées permettra de déterminer les zones à risques. Sur ces bases, une nouvelle approche spatiale pourra se mettre en place. Dans une optique d'application sur le terrain, les cartes proposées seront intégrées dans un S.I.G (Système d'information Géographique) pour les décideurs et pourront être diffusées par logiciels par les pêcheurs. C'est une approche nouvelle dans la gestion des pêches côtières.

*Communication n° 1.7*

**Titre: L'exploitation commerciale des récifs artificiels: potentialités économiques et impératifs d'aménagement; l'application des droits de propriété**

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*Communication n° 1.8*

**Titre: Cogestion et dynamique d'évolution des pêches: quelques pistes de réflexion**

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*Résumé:*

L'objectif principal de cette communication est de tenter de préciser ce qu'on peut entendre par cogestion en prenant comme point de départ la théorie économique "classique" des pêches, le modèle Gordon-Schaefer. A cet objectif principal, se greffent trois objectifs subsidiaires : expliciter les justifications économiques de la cogestion, cerner les possibilités et les limites de la cogestion et proposer de nouvelles avenues pour la recherche afin de mieux comprendre la dynamique d'évolution des pêches.

En procédant essentiellement à partir de la littérature existante, nous tenterons de définir ce que peut être la cogestion et en particulier la relation entre la forme institutionnelle et la régulation de la ressource. Il ne s'agit pas de discuter de la gestion interne d'une institution (Qui doit se réunir ? Selon quelle périodicité ? Présence d'un personnel permanent ou temporaire ? Rôle des autorités locales ? etc.) mais plutôt de contribuer à une réflexion sur les conditions à réunir pour qu'elle existe et sur le résultats de ses décisions en ce qui concerne les externalités entre les producteurs et la libre entrée.

La première section de ce papier abordera succinctement le problème de gestion de la ressource par les seules forces marchandes et la dynamique d'évolution qui en résulte. La section suivante traitera du changement institutionnel impliqué par la cogestion et de quelques aspects que peut prendre celle-ci. La troisième section abordera la question de ses conditions d'existence. Enfin, la quatrième section discutera des enseignements à tirer de la cogestion et la cinquième des perspectives de nouvelles recherches.

Comme l'institution responsable de la gestion de la ressource a sa rationalité propre qui est plus ou moins reliée à la dynamique d'évolution de l'industrie, il apparaît nécessaire de mieux comprendre les forces économiques et sociales qui président à l'évolution des pêches, en particulier le comportement des pêcheurs, et d'autre part de mieux documenter par des études empiriques la rationalité des institutions (comment est déterminé le niveau global d'exploitation de la ressource et l'allocation de la ressource entre les exploitants).

*Communication n° 1.9*

**Titre: Economie des ressources naturelles: la gestion des ressources halieutiques**

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*Communication n° 1.10*

**Titre: Economic evaluation of the demersal Spanish trawl fishery in the Gulf of**

## Lion

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*Communication n° 1.11*

**Titre: Mesurer les résultats économiques de la pêche artisanale: le cas de la pêche côtière française en Manche occidentale**

*Auteurs:* Jean Boncoeur\*, Denis Bailly\*, Pascal Le Floch\*\*

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### *Résumé:*

Une gestion sérieuse des pêches nécessite un degré de connaissance raisonnable des performances économiques réalisées par les navires, car cette connaissance commande la compréhension de la dynamique interne des pêcheries et la possibilité de prendre des décisions adéquates, tant sous l'angle de l'efficacité que de l'équité.

Mais l'opération de mesure se heurte à deux problèmes, respectivement d'ordre statistique et d'ordre conceptuel. Le problème statistique vient de la qualité souvent insuffisante des données officielles concernant les débarquements et les prix, et de la fiabilité relative d'une partie des données comptables en provenance des centres de gestion. Le problème conceptuel a lui-même deux aspects. Tout d'abord, dans certains cas, les définitions comptables usuelles se révèlent inadaptées à la réalité économique des entreprises de pêche étudiées. En second lieu, l'existence de fortes externalités (ayant des origines diverses, notamment les rejets) crée un écart entre les coûts privés et sociaux, ce qui altère la signification sociale des performances individuelles des navires.

La communication présente et discute une partie des résultats d'une enquête économique sur la pêche côtière professionnelle française de la Manche occidentale, menée en 1996 avec le soutien financier de la Direction des Pêches, du Conseil Régional de Bretagne et de l'IFREMER (programme AMURE). La gestion de cet ensemble de pêcheries est compliquée par plusieurs caractéristiques, telles que son caractère pluri-espèces et pluri-métiers, la multiplicité des points de débarquement et la variété des circuits de commercialisation utilisés (et, bien sûr, le partage des compétences entre Etats différents dans le golfe Normand-Breton).

La partie de l'enquête faisant l'objet de la communication est consacrée à la mesure des performances économiques des différents segments de la flotte étudiée. Après avoir exposé les difficultés de l'opération, on présente les méthodes mises en oeuvre pour tenter de surmonter une partie de ces difficultés, et les résultats qu'elles ont permis d'obtenir. On indique enfin quels sont les principales questions non résolues, et quels sont les moyens envisagés pour les traiter.

*Communication n° 1.12*

**Titre: ne application du modèle d'économie des pêches "ECOPES" à la pêche de merlu de l'Atlantique**

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*Communication n° 1.13*

**Titre: Modélisation de la composante britannique des pêches de la Manche: une application de la programmation multi-objectifs**

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*Communication n° 1.14*

**Titre: Modélisation de la gestion de l'écrevisse rouge de marais (Procambarus Clarkii) en présence d'externalités environnementales**

*Auteurs:* Rui Junqueira-Lopes\*, Philippe Michel\*\*, Gilles Rotillon\*\*\*

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*Communication n° 1.15*

**Titre: L'utilisation des quotas individuels comme instrument de gestion et la modélisation systémique: une application à la pêche française de thon germon**  
(Thèse de doctorat en cours)

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**Résumé:**

Cette communication traite de l'application du système des quotas individuels (transférables) dans le secteur des pêches. Elle s'insère dans un travail plus large (thèse de doctorat) visant à évaluer l'avantage relatif des instruments d'aménagement fondés sur des systèmes de droits d'usage.

Après avoir brièvement rappelé les caractéristiques fondamentales du système des quotas, tant du point de vue de l'équité que de celui de l'efficacité, on analyse les difficultés potentielles de sa mise en oeuvre dans le cadre de la pêche germonnière française. Sur cette base, un modèle simple du comportement des pêcheurs dans le cadre d'un système de quotas individuels (Q.I) ou de quotas individuels transférables (Q.I.T) est construit. Les problèmes liés aux imperfections de mise en oeuvre et aux coûts de transaction, ainsi que les effets de stocks et les ajustements de la flotte



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sont examinés. Le modèle donne aussi la possibilité de modifier les allocations de quotas et de d'instituer des limites à la concentration des droits. Il est converti dans le langage d'un logiciel systémique permettant de simuler des options d'aménagement. Les résultats des simulations sont présentés, et la question du choix entre une régulation par les quotas ou par le contrôle des inputs est discutée.

*Communication n° 1.16*

**Titre: Le comportement des pêcheurs: quel crédit accorder à l'hypothèse de maximisation du profit?**

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*Communication n° 1.17*

**Titre: Une méthode indiquant la dispersion comparative des revenus des flottes nationales dans les pêcheries mixtes**

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