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Unregulated high seas  
fisheries: the “interlopers”  
issue



Manuel P. Coelho; José B. Filipe; Manuel A. Ferreira



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Observatório de Economia  
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>> **FICHA TÉCNICA****UNREGULATED HIGH SEAS FISHERIES: THE "INTERLOPERS" ISSUE**

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>> **RESUMO**

Comportamento ilegal e fiscalização pública da Lei são questões essenciais do domínio da Ciência Económica. Em todo o caso, permaneceram “dormentes” na investigação académica até aos desenvolvimentos proporcionados pela investigação seminal de Becker, 1968, “Crime and Punishment: An Economic Approach”.

No contexto da Economia das Pescas, o problema pode ser entendido como uma externalidade que resulta da difícil definição dos direitos de propriedade e dos custos associados à fiscalização e imposição da sua exclusividade. O problema torna-se mais complexo dadas as características transzonais de certas espécies piscícolas.

O artigo combina o Modelo Básico de Gestão das Pescas (Gordon/Schaefer) com a teoria do Crime e Castigo de Becker para abordar o tema dos designados “interlopers” (utilizadores indesejados) nas pescarias do Alto-Mar. Os “unfinished business” da lei do Mar (segundo a expressão de G. Munro), i.e., a incompleta definição dos direitos de uso nas áreas para lá do limite das Zonas Económicas Exclusivas, estiveram na origem de várias “fish wars”, nos anos 90, e motivaram a realização da Conferência das Nações Unidas sobre Gestão de Recursos Transzonais e Espécies Altamente Migradoras cujos resultados encontramos consubstanciados no Acordo respetivo, de 1995. Contudo, com as regras processuais que são propostas em termos de fiscalização, o efeito potencial deste Acordo parece estar altamente limitado.

## &gt;&gt; ABSTRACT

*Illegal behaviour and public enforcement of law are important theoretical and empirical subjects for Economics. They were dormant in economic scholarship, until the article of Becker, 1968, "Crime and Punishment: An Economic Approach".*

*In the context of Fisheries Economics, the problem can be seen as an externality arising when exclusive property rights are absent. That absence depends on the costs of defining and enforcing exclusivity and the problem becomes more complex when fisheries are transboundary.*

*The paper combines standard Economics of Fisheries analysis with the Theory of "Crime and Punishment". The conclusions are used to discuss the so-called issue of "interlopers" in High Sea fisheries. The "unfinished business" of the Law of the Sea, that is, the imprecise definition of property rights in the areas of High Sea adjacent to Economic Exclusive Zones, were in the origin of a lot of "fish wars" in the nineties. The 1995 UN agreement on transboundary stocks and highly migratory species pretended to be a new form of cooperation, including the introduction of new forms of enforcement and compliance with the law, affecting fishing enterprises and convenience-flag vessels. However, with the legal procedures that were proposed, it seems broadly bounded, the potential effect of enforcement and regulation.*

*Key Words: Fisheries, High Seas, Enforcement, Interlopers*

*JEL Classification: K42, Q22.*

## >> INTRODUCTION

By definition, anything that is an infringement of the law is illegal. Illegal fishing therefore covers a wide range of behaviours, which can take place at different levels: regional, national and international. Illegal fishing has always existed but, in recent decades, there has been a sharp rise in violating activities, due to technical progress. Motorization, freezing techniques, improved gear, new forms of stocks detection and information, all facilitating illegalities. This process was majored by the evolution of the Law of the Sea - a "creeping jurisdiction" process that seems to have given an end to the principle of open access, putting into the jurisdiction of coastal states the exclusivity of use rights.

It is impossible to quantify or qualify infringements. They are known to take place at all levels and take different forms at different times; some violations are detected but many remain unnoticed. Infringements take the traditional forms of fishing over the quota or using non-permitted mesh-size, but are also in situations of non-permitted by-catches or transshipment, even in the fake world of convenience flags. Illegal fishing occurs at all stages of fishing activity.

A large number of offenders are fishermen motivated by various interests, the fundamental being the lure of short term profit. But fishermen are not the only ones involved. Fraud can take place along the entire channel. National administrations sometimes bear part of the blame. Every state is responsible for enforcing the existing rules and monitoring activities (policing the territory, conducting controls and penalising offenders). Its inefficacy in controlling activities is the fundamental reason of many enforcement problems.

Public enforcement of law, that is, the use of public agents to detect and sanction violators of legal rules, is an obvious important theoretical and empirical subject for Economics. In the context of Fisheries Economics, the problem can be seen as an externality arising when exclusive property rights are absent (Cheung (1970)). That absence depends, among other things, on the costs of defining and enforcing exclusivity. Efficiency considerations don't dictate alone the choice of a certain property rights regime. In some systems of property rights (as it is the case of "common property") the realignment of the property rights can have a very high or even prohibitive cost. The establishment and enforcement of a system of rights depends, also, on the individual preferences and the ethical, political and social reali-

ties in a community. These include the lack of clear regulation and the lack of means (or other insufficiencies) of the administration to control and enforce the execution of legal rules (Demsetz, 1967).

The problem becomes more complex when the resources are transboundary by nature. Extended Fisheries Jurisdiction gave the coastal states property-rights and the potential of a sustainable management of fisheries. However, the general evolution towards more exclusive rights to the coastal states didn't mean the exclusion of free access in international fisheries. The new Law of the Sea (UNCLOS, 1982) doesn't exclude the principle of the "freedom of the seas" that remains in force in the High Sea, outside the 200 miles of Economic Exclusive Zones.

One of the most penetrating subjects that emerged as a consequence of this new framework is the management of international fisheries commons. Given that the fish are endowed with mobility, it was inevitable that the coastal states, after the establishment of the Economic Exclusive Zones (EEZs), verified that they were sharing some of those resources with neighbouring countries. Many coastal countries also verified that some of the acquired stocks passed the border of EEZ to the High Sea, where they were subject to the exploitation of distant waters fishing fleets from other countries. Some of those stocks moved at great distances, passing successively in EEZs of several countries and in areas of High Sea. There is no rigorous typology, we can designate the first ones as transboundary resources, the seconds as straddling stocks and the last ones as highly migratory species.

The persistence of situations of two or more different regimes of access to the same stock, and the consequent differences in the rules of control and monitoring, is the problem we introduce in this paper. Our preoccupation is centred in the theme of fraud and control of High Sea fisheries. This a problem that has been getting some attention in the media, especially the case of the so-called "*Convenience Flags*"<sup>1</sup>.

The structure of the paper is the following: The first point introduces the problem of High Sea fisheries management and control and explains the legal background that frames this topic. The second point reviews the fundamental results of the theoretical and empirical literature on the management of this type of fisheries. The third point discusses the 1995 UN Commitment on the Management of Transboundary Stocks and Highly Migratory Species and stands out for the fundamental rules of the game affecting the control of those species. In the fourth point, the enforcement and compliance pro-

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<sup>1</sup> A system commonly known as "Flags of Convenience" has developed in which commercial vessels register in a country with "open registries" and consequently the ships contain virtually no link to the flag states in which they were registered.

blems arising from the incomplete definition of use rights are discussed, and the guidelines for further investigation are presented.



## >> 1. THE "UNFINISHED BUSINESS" OF THE LAW OF THE SEA

The legal background of the problem can be stated as the following: The Law of the Sea attributes to the coastal states almost exclusive property rights on the fisheries to the 200 miles - the fundamental article (art. 56) reflects these sovereign rights to explore and to conserve the resources in EEZs. A clear definition!

By the contrary, one of the subjects that was inconclusive in the Law of 1982, concerned "transzonal" species; it rested for a clear debate the subject of who should be entitled management on these resources. During the Montego Bay Conference, the distant water fishing nations argued that, given the mobility of those stocks, management should not be under jurisdiction of coastal states but under the competence of the Regional Fisheries Organisations. This position had the vigorous opposition of many coastal countries.

The commitment established in the art. 64, ended for being the focus of subsequent controversy. Art. 64 count two paragraphs seemingly contradictory. In the paragraph 1 it is said that, where Regional Organisation exist, coastal states should cooperate with the countries of distant fishing. For these countries it means that, inside those Organisations, they can influence the regulation of the resources. But the paragraph 2 says that the art. 64 should be applied "in addition to the other provisions of the part V of the Convention". Coastal states interpret this paragraph as implicating that the art. 56 should be applied integrally, in and out, their EEZs; that is, also to the migratory species. Something as a "preferential" right for coastal states should be considered as inevitable.

An area of potential conflict grew up. The high negotiation costs implicated in the problem resolution were enough to maintain this vague stance situation but, in the 90s, the problem arose strongly, especially in the context of straddling stock fisheries. The consideration of the small importance of the highly migratory resources globally accomplished in the early 80s (about 90% of the resources were in the EEZs) and the reasonable conjectures of certain coastal countries, who believed that the long distance fishing fleets could only explore the resources of High Seas adjacent areas if it was guaranteed the access to EEZs, all showed to be wrong. Straddling stocks management was in the root-causes of serious "fish-wars" in the 90s ("Turbot war" between Spain and Canada is a good example)

In the essence, it was (is) a problem of property rights. The conviction of the coastal states, that they would be entitled "de facto" property rights on the transboundary resources, was not correct. These virtual rights ended

for showing emptiness. Actually, these resources remain as "international common property" and the usual "tragedy of the commons" is well reflected in the overexploitation of these resources. The vague, imprecise form as they are defined in the Convention of 82 is in the origin of the problem; so they can be called the "unfinished business" of the Law of the Sea (Kaitala e Munro (1993)).

## >> 2. THE LITERATURE ON HIGH SEA FISHERIES MANAGEMENT: SOME FUNDAMENTAL RESULTS

The overall problematic of High Seas fisheries management is a very complex one, and the issue of monitoring and control is just one more significant problem to solve. To understand this let's summarize the fundamental results of the literature (theoretical and practical) on this subject.

In the literature, the most common analytical approach to this problem has been the one that takes the basic model of Fisheries Economics and combines it with Game Theory. In the core, the theory was developed for trans-boundary resources. The importance of straddling stocks is more recent. There is, however, a common trunk (which we refer to as Shared Resources Management) that puts the cooperation between interested countries as the key-factor for the solution of this kind of problems.

The cooperation in the management implies the consideration of various issues such as the distribution of shares among partners, the determination of the optimal management strategy (which involves the estimation of resource usage over time) or the implementation and supervision of the agreements. The first aspect involves a difficult negotiation between partners but it is probably the simplest; whereas the determination of the optimal management strategy has severe difficulties because management objectives may be substantially different: one of the co-managers may be more conservationist and be willing to practice lower catch rates to allow a more sustainable use. On the other hand, strategies mutually accepted by the co-owners do not offer more than temporary benefits if an oversight mechanism that discourages fraud and blackmail between partners does not exist.

Thus, the first issue to discuss, in analytical terms, is the fundamentals for Cooperation: Is cooperation worthwhile? In fact, it is not expected that the co-owners engage in a process of cooperation (with the associated costs), if they are not convinced that the consequences of non-cooperation will be severe.

The starting point is the model of Gordon-Schaefer where we deal with two key issues: the nature of open access of the resource (and the consequent effect of full dissipation of rents) and the exercise of intertemporal resource management (implying a trade-off between present sacrifices and future earnings). The Game Theory can be understood as an analytical tool applicable to situations in which a decision maker is influenced not only

by their decision and actions, as by the others'. The value in this case is obvious. There are several alternative analysis: the classical approaches of Colin Clark (1980) and Levhari and Mirman (1980) and the developments of the so-called Helsinki Group (see Kaitala (1986), Kaitala & Pohjola (1988), Hamalainen & Kaitala 1990)). The general conclusion is that non-cooperation leads to inferior performances. The authors predict that non-cooperation translates into results very similar to the case of a sole country fisheries with open access and unregulated, that is, to the dissipation of rents.

Recognized the advantage of cooperation for some fisheries, we must pursue an analysis of cooperative management. In cooperative games it is assumed that each "player" seeks to maximize his benefits and it is assumed that the two players can communicate with each other and are able to establish firm agreements. In case there is willingness to cooperate, the first question that arises is whether the co-users are willing to establish a formalized agreement subject to oversight by a regulatory authority - a coercive (binding) agreement; or simply more informal, flexible agreements, non-coercive (non-binding) agreements, without the establishment of an administrative / functional structure and rules of strict control over the substance of the commitments. The analysis of cooperative fisheries is simpler in cases of formal and coercive agreements.

There are, also, several alternatives for economic analysis. A seminal analysis is Munro (1979). The co-users must consider two issues: the division of net benefits and the possible existence of different management objectives. If countries have the same management objectives, in theoretical terms, the problem is relatively simple: the appropriate strategy is the management as if it was a single user. If management objectives are not uniform, as usually happens, the problem grows in complexity. The key results of the analysis can be summarized:

- Different discount rates imply different arrangements in preferred strategies. *Ceteris paribus*, the co-manager that uses a relatively low discount rate favors a conservationist policy and is willing to invest in the resource. So, the compromise favors, in the immediate future, the most myopic co-manager since, by using a higher discount rate, this player intensively evaluates the closest benefits. But in the long term, more conservationist preferences will be more considered.
- The existence of different weights that each player puts in the conservation of resources is inevitable. To Munro (1990), an *optimum-optimorum* will be found if the preferences of the one who assigns a higher value to the fishery are dominant. He should establish the management program and, obviously,

should compensate the other members, in any way. It is the "Principle of Compensation" (Munro, 1987).

- The economic analysis indicates that the commitments on fisheries policies through cooperative games with transfers (side payments) are more efficient. The economic consequences of the introduction of transfers is that the partners are encouraged to focus on the allocation of economic benefits, rather than the division of quotas.

When the stock in question is a straddling, the analysis of management is similar to that applied to the shared resources. We assume that the coastal State is confronted with one or more distant water fishing nations in High Sea waters adjacent to his EEZ. Arises, however, an important difference in terms of Game Theory: that refers to the characteristic of symmetry. While in the relationship between, for example, two countries of contiguous EEZs there is a relationship of perfect symmetry, in that each State has clearly defined rights in its EEZ and none can use the resources of the EEZ of another without permission; in the case of the straddling stocks this relationship is asymmetrical. Nothing impedes the fleet of the coastal country in according to the waters of High Sea where the free access is maintained, but the fleets of distant water fishing nations only enter the coastal countries EEZs if they are allowed.

Note, also, that in the case of the straddling stocks, the number of participants may vary. While the hypothesis of two players seemed plausible until now, to this type of stocks, the most common management will be the one in which a coastal country is confronted with several fleets from distant countries. Plus: their number can vary over time. When one considers the multilateral management of straddling stocks and the possibility of "new entrants", the problem becomes significantly more complex.

Despite these differences, the common trunk of the non-cooperative management of shared resources can keep up with minor changes. Results do not depart significantly. Essentially, it is concluded that if the non-cooperation prevail in resource management, it will result in overexploitation.

The consideration of the possibility of establishing alliances between partners of the same organization and of the eventual accession of a "new entrant" in the Organization, introduces an added complexity in the analysis. There are various alternatives of cooperative management, depending on the viability of alliances between members and their own ability to transfer property to any new interested player [See Kaitala and Munro (1996)]. In practice, this is the key issue of the design and operation of institutions. And of the multiple implications, at the political and economic level, that can be introduced by the operationalization of the rules of the game. The defi-

dition of the RFMOs (Regional Fisheries Management Organizations), their constitution and possible subsequent accessions, rules of action, powers, legal procedures of control and enforcement, etc., are central issues in this debate.

### >> 3. THE UN AGREEMENT ON THE MANAGEMENT OF TRANSBOUNDARY RESOURCES AND HIGHLY MIGRATORY SPECIES

Trying to solve or mitigate the problems we have designated as the "unfinished business of UNCLOS 1982, the International Community introduced important changes in the legal framework. In 1992, in the Rio Summit, the United Nations accepted the accomplishment of a Conference on the Management of Transboundary Resources and Highly Migratory Species. The final Agreement came in August, 1995.

In the negotiations, *two thought schools* emerged. For both it seemed obvious that the management regime of the stocks in the areas adjacent of High Seas should be the same that guided the portions of that stock in the EEZs. The first school supported the "consistency-principle". This simply states that the applied regime to the portion of the stock in the area adjacent of High Sea should be consistent with the established regime for the portion of the stock inside the EEZ. Innocuous (or maybe not!!), the principle seemed to repeat the need of no divergence in the management regimes for the same stock. Be noticed, however, that the relationship, just as it was put, had not the two senses. By the article 56, the coastal country determines the management regime in his EEZ and, consequently, if it goes acceptance the consistence need, it owes the same regime to be in force for the remaining part of the stock. The preferences of the coastal State appear as dominant. Miles and Burke (1989), great defenders of this solution, maintained that the article 116 of the Convention established that the coastal State had a superior right, responsibility and interest in the management of the straddling stocks.

For the marine potencies that principle was just a reflex of the "Creeping Jurisdiction" that shaped the recent evolution in the Maritime International Laws. Distant water fishing nations stressed that some coastal countries, especially those with extensive continental platforms (like Canada or Norway), intended to maintain, or simply to waive, that principle of dominance to value their negotiation power. By the contrary, the distant waters fishing nations spoke about co-management and justified their important and non-substitutable role in the determination of a management regime for those stocks. However, if such a rule was established, for consequence of the basic principle - "same regime in and out of EEZs", the marine potencies could influence the administration regime out of EEZs, and inside of them.

For the coastal countries, this position, designated "School of Art<sup>o</sup> 64", limits the sovereignty in their EEZs.

In this context, a commitment emerged. The fundamental guidelines can be summarised:

- It maintains the free access over the 200 miles and guarantees to the Regional Organizations the regulation power in the areas adjacent to EEZs. The largest innovation is the capacity of those Organisations to extend their rules to the non-members.
- It was not solved the problem of the "new entrants". The Agreement just defined that any state with a "real interest" can be member and it should be encouraged to integrate the Organization. However, it was not defined what means, in practice, "real interest".
- To the Regional Fisheries Organizations, the right is checked of establishing capture shares and controlling the number of boats for a given stock or area. But the Agreement doesn't say anything concerning the procedures about the decision process, namely about how should be the decision, if for consensus, if for majority. Once again, it will depend on the practice.
- The enforcement is another problem. A single state, by itself, cannot apply the international law, out of his territory. The commitment concedes that each country member will have the inspection right on the ships of any other country. However, the legal action against an eventual infraction only can be taken by the country of origin of the ship found in fault. So, it seems that the potential effect of the enforcement is broadly bounded. And that's here that we find the interlopers issue.



## >> 4. THE "INTERLOPERS" ISSUE. PERSPECTIVES FOR THE FUTURE.

The problem of interlopers can be seen as a different way of looking at the problem of the "new entrant". Suppose that a possible "new entrant" decides not to join the RFMO and maintain a situation of free riding, more or less overt, capturing one straddling stock in areas of the High Seas and benefiting from the better results arising with the cooperative management of these stocks by RFMOs. With the current rules of the game may the co-managers impose and enforce rules to non-members? This is the problem which is posed: surveillance on the "interlopers" (defined as non-members who are active in the logic of free access to the High Seas).

It is clear that without a real ability to control and supervision (since the detection of situations of illegal fishing, until the application of penalties to the offenders), cooperative efforts among members of the RFMO will eventually result in disappointment and more incentives to free riding, even for members previously in RFMO. The text of the 1995-Agreement is not sufficiently explicit on these issues. According to established norms, to RFMO is guaranteed the "regulation" in their area of intervention, which requires the ability to monitor the activities of "interlopers", in particular vessels flying "*flags of convenience*". But the development of the judicial process that would lead to the conviction of the offender and the application of sanctions rests, according to international standards, to the country of origin of the vessel. The effects of this "regulation" appear as largely circumscribed. The use of the term "regulation" instead of the term "enforcement", characterizes this fragile situation in terms of control and supervision.

So, what can be done? This is an interesting area for further investigation, theoretical and practical. Most of the literature on Fisheries Management assumes that the law can be enforced perfectly and without cost. Even when the costs of enforcement and market imperfections are recognized, they are not incorporated into the analysis to show how regulatory policies are affected by their presence.

The issue of illegal fishing can, however, be treated with a model that combines the basic analysis of the Fisheries Economics with the theory of "Crime and Punishment" of Gary Becker<sup>1</sup>.

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<sup>1</sup> See Sutinen and Andersen (1985) and, for an extensive review of the literature on fisheries regulation enforcement, see Nostbakken (2008) and Sumaila et al (2006)).

The starting idea (see Coelho et al, 2008) is quite simple. Here, we simplify the analysis.

The fundamental problem in fisheries management is to obviate the tendency towards overexploitation of the resources under open access. Regulation methods used to curb this tendency of overexploitation and overcapacity includes gear restrictions, area and seasonal closures, TACs, ITQs, limiting entry and other forms of reducing fishing effort.

Let's assume that, whatever means are applied to reduce catch rates, any catch level above the level of the permitted quota for a certain fishing,  $q^*$ , is illegal.

If we suppose a system of individual non-transferable quotas, the amount of the individual firm catch above its quota ( $q_i - q_i^*$ ) is illegal. If detected and convicted, a penalty fee is imposed on the firm in an amount given by  $f$ ,  $f=f(q_i-q_i^*)$ , where  $f>0$ , if  $q_i>q_i^*$  and  $f=0$ , otherwise; and  $\partial f/\partial q \geq 0$ ,  $\partial^2 f/\partial q^2 \geq 0$ ,  $\forall q_i > q_i^*$ .

We assume that the function  $f(\cdot)$  is continuous and differentiable for all  $q_i^* > q_i$ . This penalty fee has a finite upper bound and each firm is assumed to face the same penalty fee schedule.

An individual firm's profit before penalty is given by  $\Pi_i(q_i, x) = pq_i - c_i(q_i, x)$

$p$  denotes the price of fish,  $x$  is the size of fish stock and  $c(\cdot)$  is the cost function. We assume that firms are price takers.

In an imperfect law enforcement regime not every violator is detected and convicted. Let the probability of detection and conviction be given by  $\theta$ , and, to simplify, let us assume that all firms face the same probability. If detected and convicted of a violation, a firm's profit will be  $\Pi_i(q_i, x) - f(q_i - q_i^*)$ ; if not,  $\Pi_i(q_i, x)$ .

Expected profits are  $\theta[\Pi_i(q_i, x) - f(q_i - q_i^*)] + (1 - \theta)\Pi_i(q_i, x)$ .

Assuming firms are risk neutral and maximising expected profits, each  $q_i$  is determined by the first order condition (subscripts other than  $i$  denote partial derivatives)

$$\Pi_q^i(q_i, x) \geq \partial f_q(q_i - q_i^*)$$

This solution has a clear economic meaning. The model sustains a rule of optimal behaviour for a rational operator: For a given stock size ( $x$ ), the firm sets its catch rate at a level in excess of its quota, where marginal profits equal the expected marginal penalty. If there were no penalty for fishing beyond legal quota, or if there were no probability of being detected and convicted ( $f=0$  or  $\theta=0$ ) the firm would set its catch at the open access catch rate. Firms with no quota have an expected net gain for entering, illegally, in

the fishery, if their expected marginal penalty schedule begins below their marginal profit schedule.

This approach also reveals the importance of empirical studies trying to estimate the factors that ensure compliance with the regulation. These studies give important basis for public authority decision about the actions to be implemented. Stigler (1970) argues that public authorities have four basic means to improve compliance:

- minimise the chances that violations will go undetected,
- maximise the probability that sanctions will follow the detection of violations,
- speed up the process from time to detection to assignment of sanction,
- make the sanctions large.

There is dispute among experts about the best alternatives. Some scholars have argued that the probability of being detected is more important than the size or magnitude of the sanction, while others argue that making the charging time follow as closely as possible to the detection of illegal behaviour is the most important factor in enhancing compliance. Others put in evidence the level of expenditure oriented to monitoring activities (Tietenberg (2003)).

The analysis of "Crime and Punishment" can be integrated into a bio-economic model in which the cost function of "enforcement" is explicitly introduced (in line with the studies of Prof. Sutinen, in the mid-80s). The next step translates into making the application of routine dynamics of Optimal Control. The fundamental result of this analysis (See Sutinen and Andersen, 1985) points to the following: By comparison of the golden rules of the modified model with and without enforcement costs, it can be concluded that the presence of higher enforcement costs imply an optimal lower stock level. (Tietenberg, 2003).

The consideration of different players and the introduction of Game Theory can be a task of great complexity in mathematical terms and it is an important area for further investigation. The discussion of useful rules of behavior control and supervision and more explicit setting of standards for a code of responsible conduct (in line with the code defined by FAO), as well as empirical studies to identify the factors contributing to greater compliance with existing regulations, constitute also important routes for future research.

## >> 5. FINAL REMARK

Implementing common policies involving RFMO Members and trying to extend control rules to non-members is a never easy task, especially when myopic individual interests do not match long term collective interests. Fishermen do not have a greater propensity to altruism than the rest of the society; so, they are little inclined to refrain catches, for the sake of a clear conscience, if they think their competitors are less scrupulous. That is, without a clear and effective policy of control and enforcement, it is certain that the "Tragedy of the Commons" will result and that overfishing and overcapacity will occur. The problem of control can, then, be put in terms of ethical reasons: Enforcement is the only way to assure that the sacrifices of some fishermen in the recovery of the stocks are not in vain because of the irresponsible action of others.

According to Becker, individuals rationally decide whether or not engage in criminal activities by comparing the expected returns to crime with the legitimate business. The main thesis is that crime is less attractive if the government increases the probability and severity of punishment. Taking all the variables of this complex game of High Sea fisheries, our proposal is to give a special attention to the increase of the probability of detection as a means to deter criminal behaviour and increase compliance with regulation. In our perspective, the introduction of severe penalties is not a priority. Of course they have to be considered and an important effort must be made to define and make clear the legal procedures to penalise the violators. However, the severity of penalties may be not in the centre of the resolution of this problem. Our justification stands on this: Legal administrations, in the RFMO members and in the non-members, have significant differences. Judicial administration framework and "machinery" have a great inertia. Also, the capacity and efficiency of member and non-member states' justice is not just a question of financial means devoted to his mission. It has cultural and historical roots. It's virtually impossible to put all the states in a uniform position in terms of speed and severity in the application of penalties.

We believe that the financial support to the teams of independent agents of control created in the domain of RFMOs (the NAFO case is a good example) will guarantee the indispensable means of surveillance and control and this will increase the deterrence capacity of control, in a uniform and centralized way), improving the transparency and trust between players.

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