

# Socio-Economics of Portuguese Cod Fisheries: Past, Present and Perspectives for the Future

Manuel Pacheco Coelho<sup>\*1</sup>, José António Filipe<sup>#2</sup>, Manuel Alberto Ferreira<sup>#3</sup>,  
Rui Junqueira Lopes<sup>#4</sup>

<sup>\*1</sup>*SOCIUS & ISEG/UTL – Portugal* (coelho@iseg.utl.pt)

<sup>#2,#3</sup>*UNIDE/ISCTE - Portugal* (jose.filipe@iscte.pt, Manuel.ferreira@iscte.pt)

<sup>#4</sup>*Dep. Economia, Univ. Évora - Portugal* (rjlopes@uevora.pt)

**Abstract - Property rights are in the center of fisheries management difficulties. Portuguese cod fisheries give good examples of this kind of management problems. This paper studies the socio-economic impacts of the institutional change of cod fisheries framework in Portugal and asks for the perspectives of future development of this segment of Portuguese fisheries.**

**In one decade (from 1976 to 1986) this segment of the Portuguese fisheries had to face two essential restrictions to the development of fishing activities: the new regime of the 200 miles and the adhesion to European Community with the consequent integration in the Common Fisheries Policy.**

**After a profound downsizing process we are still confronted with an overcapacity problem. The possible enlargement of Economic Exclusive Zones and the rehabilitation of the Continental Platform statute constitute the main change that severely can affect the future of these fisheries.**

## 1. Introduction

Property rights are in the center of fisheries management difficulties and Portuguese cod fisheries give good examples of this kind of management problems (Coelho et al, 2011a); Coelho, 1999; Coelho e Lopes, 1999).

Consideration of the effect of changes in the rules of access to resources has normally been undertaken from the standpoint of coastal states. However it is obvious that these changes can have much more dramatic effect upon countries which undertake long distance fishing.

The “creeping jurisdiction” process that we’ve been attending in the international scene, that is, the slowly side to the coastal states jurisdiction of areas and resources that used to be *res-nullius* /open access, generate a lot of problems.

Many maritime potencies whose fleets worked in several areas where rules of access allowed from fishing without restrictions are progressively confronted with the impossibility of accessing the resources. In many cases, that traditional use created genuine “historical rights”, but now what rests is a tremendous overcapacity problem. In fact, the dimension of those fleets and its high economic and

technological efficiency in capturing the resources seems to be over-balanced by the disposable resources. The institutional change and the new forms of ocean governance that we’ve been assisting since the 50s, suggest new game rules and a new operation-  
mode.

The stagnation of long distance fisheries and the associated problems of some coastal areas are not peculiar to Portugal. It happened worldwide as a result of far-reaching alterations in the juridical and bio-economic framework of fisheries (Leal, 1984). However, in Portugal, given the important contribution of fishing to GDP, the high consumption of fish of Portuguese population and the dependence of some coastal fishing populations on this type of fisheries, this situation is more acute.

In global terms, in the 90s, Portuguese national fishing fleet lost more than 35% of the tonnage, a third of the fishermen and almost 30% of the production. From 1990 to 2010 the number of embarkations went from 16.244 to 8492, that is, a reduction of about 48%. From 1992 to 2010, the production of the sector reduced in 32% going from about 265.000 tonnes to 178.000 tonnes. In the same period the number of fishermen went from 36.337 to 16.920, a reduction of about 53%.

At the same time, the population maintained a high level of fish consumption (25/26 Kg per person); so, the commercial fisheries deficit almost duplicated only in the first half of the nineties.

The segment of distant water fisheries, especially of the cod, it is accompanying this crisis in the fisheries sector as a whole. In one decade (from 1976 to 1986) this segment of the Portuguese fisheries had to face two essential restrictions to the development of fishing activities: the new regime of the 200 miles and the adhesion of Portugal to European Community with the consequent integration in the Common Fisheries Policy. The purpose of this paper is to study the socio-economic and impacts of the institutional change of cod fisheries framework in Portugal and to ask for the perspectives of future development of this segment of Portuguese fisheries.

### 1.1 “Cod Campaign” and Corporativism

The cod fisheries segment grew (in the 30s and 40s) in the logic of “corporativism”, with strong

intervention and State protection. It had, underlying, the condition of open access to the resources.

In the thirties, a new organization model inspired in the corporate principles of the so called Estado Novo was implemented. Between 1934 and 1939, Ship-owners Guilds/ Associations were created in each of the main fishing segments (cod included), as well as Fishing Houses and the respective Central Board, Guilds of trade, of exporters/importers, of canned fish, and the bodies of economic co-ordination. In the case of cod the most important regulation body would be the CRCB – the Cod Business Regulating Board.

The New Fishing Policy was marked by the state interventionism throughout all economic activity:

- At the level of corporate initiative: it was introduced a conditioning process where the necessary official approval for investments and integration in the Government Plans strongly determinate the evolution of cod fleet and trawling industries,
- In the state organization of fishing corporate associations (capital or labor),
- In the system of commerce, through price control at production level and customs protection against fishing imports.

A regulation from 1934 (DL 23968) instituted the co-ordination board and defined the guidelines of the so called "Cod Campaign". The purposes of this campaign were:

- the increase in national production,
- currency retention through the reduction of imports
- the protection of the industries downstream (naval construction) and upstream (especially the drying industry).

This campaign would follow a strategy of benefiting consumption in order to bring back traditional ways of consuming cod<sup>1</sup>.

In fact, the analysis of the "all" economic policy framework of Estado Novo indicates that the final purpose was to keep food cheap to create a situation of social "equilibrium", without great reaction from workers. Cheap food permitted the setting of low wages and that was essential to the industrialization process. Low wages were essential in the first phase

of the industrial development with a model of imports' substitution. The creation of new industries required competitive conditions: less labor costs and a defensive repertory of trade-fees with third countries. But, also, after a period of protection of nascent industries, when Portugal enter the EFTA (in the final 50s), the low wages were a fundamental competitive factor in the development of a new model of economic growth with the accent in the exports. Of course, the main Portuguese exportation products were assented in the low unit costs of labor (textiles, shoes, wine, etc)

In this strategy, the role of the cited CRBR was fundamental in the setting of prices on the domestic market and in the regulation of the tensions between producers and importers. This implied the obligatory purchase by the importers of percentages of national cod at an officially fixed minimum price.

From a sociological point of view, an interesting thing to highlight is that all this new policy was integrated in the usual ingredients of the Regime's ideological propaganda "in a form that had no parallel in other countries" (Garrido, 1977). The cod was called the "Faithful Friend". Every year, the "take off" of the fleets to the Newfoundland was a real spectacular theater session with holy missal and the Government attending departure. Government, Church, Army, all the significant powers, were involved in a passionate ceremony of grandiosity. And, of course, all the poor people of coastal communities. The "romantic character" of the fishermen that went to the long distance waters of Newfoundland and Greenland ("brave men fighting against nature") was celebrated. At the same time, the Regime was also imposing his propagandistic vision of one Government (really confounded with the spirit of the Nation) that was putting (again) Portugal in the direction of those glory days of the "Navigation discoveries" (sec. XV/XVI).

The fact is that the results were significant:

Up to the mid-sixties, when the sector was partially liberalized, the changes were notable. 1964 was the year of largest national catch of cod (near 97300 tonnes). While, in 1934, the percentage of domestic production was 16% of the consumption level (the other 84% were imported), in 1966 the situation was reversed, more than 82% of the domestic consumption was covered by national production.

The fleet grew in number and tonnage. From 1938 to 1961, the renewal of the fleet took for 66 vessels in the end, equivalent to more than 69000 gauging tones. Fishing capacity rose by 700% (Moutinho, 1985). State supported this reorganization with subsidies and credits for construction and modernization of vessels.

The numbers of workers in cod fisheries reached near 4200 in 1965. More than 10% of those fishermen were aged less than 21 years.

<sup>1</sup> Since the Medieval era it was usual to eat cod in "1000 ways". This is explained with the fact that Portugal was a Catholic country and in the Lent, before Easter, people of Faith should not eat meat, so cod was a very good alternative.

Cod, after being dried, can be consumed after a long period because of its high capacity of conservation. This put also the cod as an important food product for our navigators along the important period of navigation and worldwide discoveries (XV to XVI centuries).

## 2. Facing Extended Fisheries Jurisdiction

There was an underlying condition to that productive and organizational system: the free access to the resources. That was ending in the near times...

By the end of the seventies, the overall sector of world cod fisheries was threatened by two problems: overfishing and overcapacity. The pressure put on the cod stocks, the catch of immature fish and the difficult renewal of the species were giving signals of biological overfishing in the traditional bancs of Newfoundland and other areas of North Atlantic. An immense fleet from several maritime potencies, strongly equipped, turn the cod fisheries into a "race for fish", revealing the overcapacity problem.

Since the end of the Second World War, a real process of institutional change was also arriving.

The first step was the Truman Proclamations reclaiming the property rights over the Continental Platform (and its resources) for coastal states. It then turn, step-by-step, to the coastal states exigency of introducing new rules of access and of the creation of exclusive fishing rights in the coastal areas.

Portugal strongly defensive position of the "historic rights" for Portuguese long distance fleet in Newfoundland in the first and second CNUDM – United Nations Conferences on the Law of the Sea, were significant and revealed the concern of Portuguese Government with the new international attitude.

In what concerns with Portuguese cod fisheries at those turbulent times, production still increase between 1965 and 1967 and the modernization process continued.

But some signs of stagnation and crisis were emerging:

- only 75% of the potential capacity was used,
- the profitability began to decline,
- catches included now less "adult" fish (revealing the pressure over the stocks and its difficult recovery).

The liberalization of commerce imposed in 1967 by our relation with EFTA and the Revolution of 1974 (with the extinction of Fishing Houses and the creation of democratic Associations of Ship-owners and Trade Unions from Fishermen) also introduced special changes in this segment.

An interesting element of the analysis is that the number of vessels began to decline, from 91 vessels in 1965 to only 55 in 1973, but the investment, at constant prices, increased between 1966 to 1973 at an average rate of 6,25 %. This means that the modernization of the fleet continued: more tonnage, more technology of catch and so on. Curiously, the overcapitalization process was also a sign of those stagnation times.

This situation is not unusual. This means that the development of cod fisheries and its results have been achieved at a high price in terms of the long-term viability of the sector and with inefficiencies in the allocation of resources that, perhaps, could have been more profitable if they were addicted to other sectors in the global economy.

This is a situation that persists in many fisheries worldwide. The critical problem is that the fleet profitability is jeopardised by the under-utilisation of investments. The excess capacity and a more-or-less constant value of landings to be shared between a large numbers of actors, reduces the capacity of each vessel to earn an adequate income. In this context, the subsidies policy, artificially reducing the costs and risks of investment, in an already over-capitalised industry, promoted over-supply of capital.

The introduction of more capital intensive technology resulted in the reduction in employment in the segment. Between 1960 and 1976 employment reduced by half in spite of the increase in the wages.

Following the general practice of the extension of jurisdiction to 200 miles, in 1977, Portugal and Canada adopted the new regime that became to be legally defined in the new Law of the Sea of 1982 (UNCLOS, 1982).

The introduction of the regime of the 200 miles altered the rules of the game deeply, creating new property rights and putting the traditional fishing zones (most of them in the area of Newfoundland) under Canada's jurisdiction.

In the first phase, Portugal tried to cross this restriction through the accomplishment of bilateral agreements that, maintaining substantial quotas, minimized the negative effects of the new economic and juridical context in international fisheries. It was not, however, enough to hide the problems of overcapacity of cod segment and to avoid the current social difficulties of the adjustment process.

Foreseeing the difficulties, already in 1976, Portugal signed a deal with Canada. It was a 10 years agreement that could be extended for further 6 years. In exchange of the access to the Canadian waters, the Portuguese economy opened to the importation of fish products from Canada. Other agreements with USA, South Africa and Norway followed. Through these agreements it was possible to maintain acceptable quotas for long-range fishing. Between 1982 and 1986, quotas attributed in the waters of Canada, Norway and in the area of NAFO jurisdiction were around 77.000 tonnes, for the main species: cod, redfish and squid.

An interesting management scheme was the so called "Co-operative Agreement" developed with Canada, through which Portuguese vessels were authorized to fish from Canadian quotas for delivery to local processing factories, or to purchase fish from the local fishing fleet to be processed on board of the Portuguese fleet for sale in Portuguese market.

Catches in 1984 rounded 11.680 tonnes (curiously less than the quotas attributed - more than 20.000).

The fall of overall catches were evident: from 40.000 tonnes in 1977, to 14.667 tonnes in 1984, considering all the NAFO area (according to FAO).

The problem of overcapacity was clear. Let's look at some OECD data on the development of the fleets of several countries. According to this Organization, considering the evolution of the gross annual tonnage Index with a fixed basis in 1976 (1976 =100), in 1982, the indexes of Portugal, Norway and Iceland were, respectively, 94, 90 and 115. Those were the countries that persisted with high indexes of fleet dimension and modernization. At the same time the same index for France was 33. Note that this last value reflects a process of adaptation of fleet size much more drastic. In the cases of Norway, or Iceland, given the large existence of disposable resources in their own waters, the problem does not seem so serious. But, in the case of Portugal, given the evolution of Ocean governance and fish rules of access it seems much more preoccupant.

### 3. The Integration in the Common Fisheries Policy

With the adhesion to EEC (European Economic Community), the situation of the sector became worse. In the origin of this aggravation we can find:

- the transposition of the bilateral agreements for the supra-national management of European Commission; Portugal could not have a bilateral agreement with Canada but only to have access of a defined proportion of the European quota in Canadian waters;
- the mid 80s bad fishing relationships between EEC and Canada affecting the disposable quotas
- overfishing and severe decrease of the cod stocks in the 90s; most of the stocks in Newfoundland were put in a situation of fishing "moratoria".
- subsidies evil-guided through the Policy of Structures of CFP (Common Fisheries Policy), reinforcing the problems of over-investment.

Some insecurity in the definition of the Fisheries Policy to proceed, for this segment, on the part of the national public powers, was also a significant part of the problem.

In its multilateral relations, Portugal was replaced by the Community. Portugal found itself in a potentially more serious position as, from that time on, it ceased to have its privileged access which the previous agreements had guaranteed, enjoying only a part of the community quota. The "Principle of Relative Stability", in force in the Commons Fisheries Policy, guaranteed a privileged position for Portugal in the context of the division of quotas for such species, given the historic of catches and the great dependence of some coastal areas from this kind of fisheries (as it was the case of Aveiro). In

terms of access to waters under NAFO jurisdiction available quotas reduced from 110 thousand tonnes in 1988 to only 39 thousand in 1990, to the Community States. The part attributed to Portugal, in this last year, was of 14.530 tonnes.

Already in 1995, the quotas attributed in the NAFO meeting to Portugal were of 2.155 tonnes of cod which represented a reduction of 30% on the quota of 1994. That made the ADAPI (the Confederation of Portuguese sheep-owners of industrial fishing) to considered that was clearly insufficient and put in evidence the form that the European Commission was not considering the interests of long range fishing.

In 1996, the fishing production went on 234.357 tonnes. From this, the fish production in foreign waters was 41.313. In 1992, the same statistics were, respectively, 402.914 and 159.796. That was an indicator of the perfect crisis that was rolling in the fisheries sector and the more significant "fall-down" of long distance fisheries.

The essential conclusion of the analysis was that, in 1986, when Portugal adhered to the European Community, in spite of the 200 mile regime was already in force, about 40% in quantity, and more than a half in value, was fished outside Portuguese waters. Ten years later, this has reduced to around 20%. In relation to cod, for a domestic consumption of 300.000 tonnes, the quota represented no more than 3%. The overcapacity of the fleet was evident.

The difficult situation of many cod stocks in the Newfoundland area (many of those stocks were in a so bad capacity of renewal, that the fisheries were closed in 1992) doubled the problem.

Also, given the vertical integration which is typical in this segment of the fleet, the problems grew in dimension and complexity. The less availability of fish is not important only in terms of Portuguese catches. Even the possibility of buying fresh cod to the Canadians to transform it on board was closed because they also did not have sufficient catches.

So, finally, a process of reduction in the capacity went through using the Funds that were disposable from the Community to retire vessels from activity. From Dec. 1989 to Dec. 1996, the Gross Annual Tonnage of the fleet operating in the open Sea reduced more than 52%. At the same time, the introduction, in the context of the Commons Fisheries Policy, of the so-called Pluri-Annual Orientation Plans for the Community Fleet, aiming to diminish the problem of overcapacity and determining goals for the reduction in the installed capacity by country, went in the same direction. In million of Escudos, in 1996, the approved awards to definitive immobilization were of 1.570. In 1992 this value attended the incredible number of 5.228 million Escudos.

Of course, this situation had strong impacts in the coastal areas. The number of fishermen registered

for cod fishing was reduced by more than a half in the first decade of CFP integration (from 1470 fishermen in 1986 to only 633 in 1996).

In the last decade, the situation seems not to show a great difference in terms of evolution. The difficult situation of cod stocks in the North-west Atlantic, where we had tradition of fishing, did not permit a special change in the path-standard of our long distance fisheries. There were some efforts to introduce a reorientation to the waters of East North Atlantic but the quotas in the Iceland area or in the Norway area were insufficient. Even, the key of repartition of the quotas between the member states of the EU, given the Stability principle, are not particularly advantageous to Portuguese fleet. So, the process of downsizing of the fleet continued and the reduction of the employment persisted.

In 2007, the Portuguese fishing fleet consisted of 4806 licensed vessels accounting for a total of around 85.600 GT and 304.300kW. The total number of vessels decreased 9,3% between 2003 and 2007, while kW and GT followed a broadly similar trend (5% and 7% of decrease, respectively). Employment in the overall sector went from 20454, in 2003, to 17021 fishermen, in 2003. According to the Scientific, Technical and Economic Committee for Fisheries, that meant a positive evolution in the economic performance of the overall sector of Portuguese fisheries.

Anyway, while the stocks rebuild, and given that the time of the nature is very different from human time, the Public managers cannot stop defining and executing, social and cultural support policies for the affected populations and try to maintain the memory and the important traditions/ ways of living associated. Knowing the national importance of this traditional product and its related activities, it is not a surprise if we find a lot of persistent effects (social and economic, but also cultural) in the coastal areas, especially in those that have a special link with cod fisheries.

One special example of an area mostly affected is Ílhavo/Aveiro (see Coelho et al., 2011a). "The Sea for Tradition" is the slogan of the City Hall to present Ílhavo to the visitors that attests very well the strong connection of the municipality to the sea. The guidelines for public management highlight the role of fisheries in the local development (anchored in reasons of geographical and historical nature) and the continuous exaltation of the maritime culture, with its maximum expression in the Maritime Museum and in other cultural manifestations of cod-oriented traditions (as religious festivities).

In the municipality, fisheries have been developing according to the guidelines designed in the Common Fisheries Policy. In fact, after a strong reduction of the population utilized in the distant fishing (in the decades of 1970/80), Ílhavo has, nowadays, in his Port, all of the big units of industrial fishing of Portugal; now, in a situation of

stabilization. Identical situation seems to be verified with the coastal fishing and the artisanal fishing.

In relation to cod fisheries, this activity has, nowadays, a small importance when compared to the glory passed days. By the contrary, the industrial activity of cod transformation, with about 20 companies, has a great importance, for the job and for the wealth that generates. Most of the cod that is processed comes from imports of frozen cod or salty green of Norway, Iceland and Russia. This business represents a financial volume of more than 500 million euros/ year.

A Report, recently made (see Ministério da Agricultura, do Desenvolvimento Rural e das Pescas, 2010), about the Internationalization of the Agro-Food and Forest sector, put in evidence the potentialities of the fisheries sector which attended a value of 419 million Euros of Exports in 2006. From this total value, the exports of dried or salted fish (most of it is cod) represented 20% of the total of exports from fish products. So it seems that Portuguese are re-orientating this activity mostly to the product transformation.

#### 4. Perspectives for the Future

The perspectives, in the short/medium period, are not smiling.

The cod stocks in the Newfoundland bancs don't show clear signs of recovery. The shares in the area of NAFO jurisdiction are insufficient and the scientific information about the stocks in the Northeast Atlantic is also a motive of preoccupation. So, this segment of long range fishing will pass therefore a period of great difficulties, unless someone opens up new perspectives of activities reorientation for new areas and new products.

What is depressing, in this case, is that this segment is, perhaps, the most efficient in the Portuguese fisheries. After a profound downsizing process (from a large fleet of almost hundred units we are now reduced to no more than a dozen of big vessels) we are still confronted with an overcapacity problem.

Meanwhile, another interesting situation of institutional change is now putting this segment under discussion. In fact, the enlargement of Economic Exclusive Zones and the rehabilitation of the economic and juridical statute of the Continental Platform have been proposed in several occasions.

Extended Fisheries Jurisdiction gave the coastal states property-rights and the potential of a sustainable management of fisheries. However, the general evolution towards more coastal exclusive rights didn't mean the exclusion of open access regimes in international fisheries. The Law of the Sea (1982) doesn't exclude the principle of the "freedom of the seas" which remains in force in the High Sea, besides the limits of 200 miles of Economic Exclusive Zones.

One of the most penetrating subjects that emerged as a consequence of this particular statute was the management of the straddling stocks. Given that the fish are endowed with mobility, it was inevitable that the coastal states, after the establishment of Economic Exclusive Zones, 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 Seas, where they were subject to the exploitation of distant water fishing fleets from other countries. There is no rigorous typology: we can designate this last category of fishing resources as straddling stocks. Cod in the Newfoundland area is an example.

The High Sea remains with a statute where the regime of Open Access still persists. Then, potentially, we are able to find a “Commons Tragedy”- overexploitation of the resources and overcapacity of the fleets, besides the 200 miles limits. And that’s what we’ve been observing.

The problems of “unfinished business” in the New Law of the Sea (UNCLOS, 1982) - namely, the imprecise definition of use rights in the areas of High Seas adjacent to the EEZs and the consequent difficulties in the management of the straddling stocks, were in the roots of many “fish wars”, in the 90s. We remember, for example, the so-called “turbot-war” between Spain and Canada, in the mid nineties. The dispute went about a straddling stock (the turbot) usually captured in the “Nose” of the Newfoundland banc, in the area adjacent to the Canadian EEZ.

This war went on an interesting period when, in the United Nations, a solution for these problems of transboundary species management was discussed. The call for such a discussion came from the Rio de Janeiro Summit of 1992 and put in evidence the preoccupation of the international community about this complex situation.

The proposed solution was the cooperation between interested countries, in the context of a Regional Fisheries Organization, as NAFO. This answer could be seen as an approach of “*res-communes*” type-solution. The members of the organization would agree in the rules of resource access, use and management. In the sense of Bromley, “property of all, managed by all”. However, note that the question of access (especially the question of the possibility of a new-entrant in the Organization) is still unsolved.

The U. N. Agreement (1995) on Transboundary Stocks and Highly Migratory Species pretended to be this formula of cooperation among interested states. Curiously, in the European Union, USA and Canada it was well received, but in Portugal it was seen with reserves.

Despite some interesting results, this Agreement continues to be the motive of discussion, especially in

the context of NAFO. The debate is now turning to the problematic of the enlargement of EEZs.

Facing the weak results obtained in the recovery of the cod stocks, the leaders of the organizations of fishing of the Newfoundland have been proposing the enlargement of the EEZ to the limit of the 350 miles making it to coincide with the limits of the Continental Platform. For some policy makers a new extension of EEZ would be a logical step in the process that took to the establishment of EEZs, recognising that it was not enough to assure the necessary conservation of the stocks. To extend EEZ for the waters above the continental platform would be in agreement with the rules that govern the bed of the Platform. These rights belong to the coastal State of whose terrestrial mass the Platform is the natural extension.

The United Nations recognise that the limit of the 200 miles doesn't make any biological sense. As a matter of fact, the statute of EEZ is much more of functional type. On the contrary, the Continental Platform has a geomorphologic unquestionable existence. The coastal countries consider it an extension of their territory.

Does Portugal have advantages to align in this process of “creeping jurisdiction” so wanted by Canada or Norway?

In the context of Portuguese fisheries, extension of EEZs would have undesirable effects. Portugal would loose fishing opportunities for long distance fleet, without granting additional benefits or resources, given the closeness of our Platform. Is it possible that other advantageous impacts over-balance these effects? It’s an issue for further research.

## 5. Conclusions

Property rights are in the centre of fisheries management difficulties. In the 90s only, Portuguese national fishing fleet lost more than 35% of the tonnage, a third of the fishermen and almost 30% of the production. The segment of distant water fisheries, especially of the cod, is accompanying this crisis. This segment had to face two restrictions to the development of fisheries: Extended Fisheries Jurisdiction and the integration in the Common Fisheries Policy.

The cod segment grew (in the 30s and 40s) in a corporative logic of strong intervention and State protection. It had, underlying, the condition of open access to the resources. The introduction of the 200 miles Regime changed the rules of the game deeply, putting the traditional fishing zones under Canada’s jurisdiction. With the EU adhesion, the situation worsened. The transposition of the bilateral agreements for the supra-national management of European Commission, the problems of overfishing and severe decrease of cod stocks, the evil-guided policy of subsidies; all were factors of aggravation.

After a profound downsizing process we are still confronted with an overcapacity problem, face to the disposable quotas.

The possible enlargement of Economic Exclusive Zones and the impacts on Portuguese fisheries is already a fundamental topic for further discussion and research in this domain.

Another interesting issue for further developments in this area came from the process of discussion of Common Fisheries Policy Reform (2012). In the discussions of the Green Paper on the Reform and of the proposal of Regulation presented by the Commission, an innovative instrument was proposed: the introduction of fees for the utilization of stocks in the area of Regional Fisheries Organizations. That means that an organization (as NAFO) not only should have the capacity to introduce TACs and quotas and the capacity of enforcement of other conservation measures (as it is contemplate in the UN Agreement of 1995), but should have also the capacity of introducing fees-payments-for-the-access of the stocks. That means that we are trying to surmount the problems derived from the common property nature of international fisheries besides the limits of EEZs. In fact, if that was accepted, we were creating tools that introduce a form of internalizing the effects of externalities. It's an effort that almost every fisheries economist will receive in an enthusiastic manner. In this case, it seems that the proposal has a fundament in the Pigouvian approaches that deserves a further discussion. It also introduces a new dimension in the discussion about the problem of the "New Entrant" in the Regional Fisheries Organizations. The introduction of fees can be understood as a form of property right. The effects of such a proposal of Institutional change, in the way those organizations are constructed and the rules of game introduced in their operational development, is an issue to be discussed at an international level (UN).

## References

- [1] Acheson, J. (1981), "Anthropology of Fishing", *Annual Review of Anthropology*, Vol. 10, pp 275-316.
- [2] Anderson, J & Guillen J. (2009) (eds.), *The 2009 Annual Economic Report on the European Fishing Fleet*. Scientific, Technical and Economic Committee for Fisheries; European Commission, Institute for the Protection and Security of the Citizen.
- [3] Armstrong, C. (1994), "Cooperative Solutions in a Transboundary Fishery: The Russian-Norwegian Co-Management of the Arcto-Norwegian Cod Stock", *Marine Resource Economics*, Vol. 9, pp 329-351.
- [4] Arnason, R. (1994), "Fishery Management in Iceland" in BANCO MUNDIAL (ed), *Managing Fishery Resources*, Banco Mundial, Nº 217, Fisheries Series.
- [5] Azevedo, M. (1982), "O bacalhau na economia portuguesa", *Revista de Marinha*, Nº 110, Fev.
- [6] Bromley, D. (1991), "Testing for Common Versus Private Property: Comment", *Journal of Environmental Economics and Management*, Vol. 21, Nº 1, pp 92-96.
- [7] Cauvin, D. (1979), "Regulating Access in Canada's Inland Fisheries", *Journal of the Fisheries Research Board of Canada*, Vol. 36, Nº 7, pp 827-836.
- [8] Chan, K. (1978), "The economic consequences of the 200-mile seabed zone: The replenishable resources case", *Canadian Journal of Economics*, Vol. 11, Nº 2, pp 314-318.
- [9] Charles, A. (1996), "The Atlantic Canadian Groundfishery: Roots of a Collapse", *Dalhousie Law Journal*, Vol. 18, pp 64-83.
- [10] Charles, A. (1997), "Fisheries Management in Atlantic Canada", *Ocean & Coastal Management*, Vol. 35, Nº 2/3, pp 101-119.
- [11] Clark, C. (1985), *Bioeconomic Modelling and Fisheries Management*, John Wiley & Sons.
- [12] Coelho, M. (2010), "Rights Based Management and the Reform of the Common Fisheries Policy: An Evaluation of the Portuguese Experience", Departamento Economia /SOCIUS- ISEG WP 18/2010/DE/SOCIUS
- [13] Coelho (2006), "Creeping Jurisdiction - O estatuto da Plataforma Continental revisitado?"; *Jornadas do Mar, Colóquio: Os Oceanos, uma Plataforma para o Desenvolvimento*, Escola Naval.
- [14] Coelho, M. (2002), "Blue Europe" Revisited: The Reform of the Common Fisheries Policy", *Proceedings do 5º Encontro Internacional de Economia Europeia*, CEDIN/ISEG, FCT, Lisboa.
- [15] Coelho, M. (1999), *A Tragédia dos Comuns Revisitada, A Pesca do Bacalhau na Terra Nova, Consequências do Regime das 200 Milhas*, Tese de Doutoramento, ISEG/UTL, Lisboa.
- [16] Coelho, M. (1989), *Gestão e Conservação dos Recursos da Pesca*, ISEG/UTL, Lisboa.
- [17] Coelho, M., Lopes R., Filipe, J. A., Ferreira, M. A. M. (2011a) "Cod and Tradition, Cultural Effects of Cod Fisheries in Portugal", ESA (European Sociological Association) Conference, Geneva, University of Geneva.

- [18] Coelho, M., Filipe, J. A., Ferreira, M. A. M. (2011) "The "Turbot War" revisited: Game Theory and High Seas Fisheries Management", *PJQM-Portuguese Journal of Quantitative Methods*, Forthcoming
- [19] Coelho, M., Filipe, J. A., Ferreira, M. A. M. (2011) "Applications Of Game Theory To Natural Resources Management: The case of High Seas Fisheries", *Aplimat-Journal of Applied Mathematics*, Forthcoming
- [20] Coelho, M., Filipe, J. A., Ferreira, M. A. M. (2011) , "Rights Based Management and the reform of the Common Fisheries Policy : The Debate" , *International Journal of Latest Trends in Finance and economic Sciences*, Forthcoming
- [21] M. Coelho, M., Filipe, J. A., Ferreira, M. A. M. (2010) " On Commons, Anticommons and Tragedies, In *Homenagem ao Professor Doutor Adelino Torres*, Coleccção Económicas, Série II, Nº 14 , Romão, Silva & Ferreira (Eds), Almedina, Lisboa, pp.587-600.
- [22] M. Coelho, M., Filipe, J. A., Ferreira, M. (2010), "Straddling Stocks Management and the Enlargement of Exclusive Economic Zones", *IAES- 69th International Atlantic Economic Conference, Prague* (IAES).
- [23] Coelho, M., Filipe, J., Ferreira, M. (2009), "Tragedies on Natural Resources: A Commons and Anticommons Approach", Working Paper, Departamento de Economia; ISEG/UTL, Nº21/2009/DE/SOCIUS.
- [24] Coelho, M., Filipe, J., Ferreira, M. (2009), "The Quota Hopping Case: Common Fisheries Policy between Market and Law", *Proceedings of 9th ESA Conference*, RS06 Maritime Sociology, Lisboa.
- [25] Coelho, M., Lopes, R. (1999); "Overcapacity and overcapitalisation in the Portuguese cod fleet", in HATCHER, A. and ROBINSON, R. (edt), *Overcapacity, Overcapitalisation and Subsidies in European Fisheries*, CEMARE, University of Portsmouth.
- [26] Conrad, J. (1999), *Resource Economics*, Cambridge University Press.
- [27] European Commission (2009), *Reflections on further reform of the Common Fisheries Document*, Commission Working Document.
- [28] Eurostat & Ocde (2010), *Fishery Statistics , Data 1999-2008*, OCDE and FAO.
- [29] Filipe, J. , Coelho, M. E Ferreira, M. (2007), *O Drama dos Recursos Comuns*, Sílabo Ed, Lisboa.
- [30] Fraser, C. E Jones, J. (1989), "Enterprise Allocations: The Atlantic Canadian Experience", in NEHER, ARNASON e MOLLETT (eds), *Rights Based Fishing*, Kluwer Academic Publishers.
- [31] Garrido, A. (2009), *Henrique Tenreiro, Uma Biografia Política*, temas e Debates, Círculo de Leitores.
- [32] Garrido, A. (1997), "O Estado Novo e as pescas - "A Campanha do Bacalhau", *Vértice*, Nº 78, pp. 73-85.
- [33] Garrod, D. (1986), "North Atlantic Cod: Fisheries and Management to 1986" in GULLAND, J. (ed), *Fish Population Dynamics*, 2<sup>nd</sup> edition, John Wiley & Sons.
- [34] Gordon, H. S. (1954), "*The Economic Theory of a Common Property Resource: The Fishery*", *Journal of Political Economy*, Vol. 62, pp 124-142.
- [35] GUEDES, A. (1989), *Direito do Mar*, Instituto de Defesa Nacional, Lisboa.
- [36] Hannesson, R. (1996), *Fisheries Mismanagement: The case of the North Atlantic Cod.*, Fishing News Books, Oxford.
- [37] Hardin, G. (1968), "The Tragedy of the Commons", *Science*, Vol. 162, pp 1243-1247.
- [38] Industrias Pesqueras (1998), "Canadá, la hora de la verdad", *I.P.* Nº 1700, pp 3-9.
- [39] Kaitala, V., Munro, G. (1995), "The Management of Transboundary Resources and Property Rights Systems: the Case of Fisheries" in HANNA, S. e MUNASINGHE (eds.), *Property Rights and the Environment*, the World Bank.
- [40] Kirby (Chairman) (1982), *Navigating Troubled Waters: A New Policy for the Atlantic Fisheries*, Report of the Task Force on Atlantic Fisheries, Ottawa: Supply and Services.
- [41] Kurlansky, M. (1997), *O Bacalhau, Biografia do Peixe que mudou o Mundo*, Terramar.
- [42] Leal, M. (1984), *As Pescas Portuguesas face à Integração Europeia*, Banco de Fomento Nacional, Lisboa, Estudos 22.
- [43] Limpo Serra, M. (1981), "A Zona Económica Exclusiva, História e Aspectos Jurídicos", *Boletim da Sociedade de Geografia de Lisboa*, Série 99ª, Nº 7-9, pp 210-226.



- [44] Lopes, R. (1985), *L'Économie des Ressources Renouvelables*, Económica, Paris.
- [45] Oliveira Martins, (s/d), *Portugal e o Mar, II*, Edições Ulmeiro.
- [46] Mcrae, D. E MUNRO, G. (1989), "Coastal State "Rights" within the 200 - Mile Exclusive Economic Zone" in NEHER, ARNASON e MOLLETT (eds) *Rights Based Fishing*, Kluwer Academic Publishers, Dordrecht.
- [47] Ministério da Agricultura, do Desenvolvimento Rural e das Pescas (2010), *Internacionalização dos Sectores Agro-Alimentar e Florestal*, Gabinete de Planeamento e Políticas.
- [48] Moutinho, M. (1985), *História da Pesca do Bacalhau, por uma Antropologia do "fiel amigo"*, Editorial Estampa, Imprensa Universitária, Lisboa.
- [49] MRAG, IFM, CEFAS, AZTI, Tecnalia & PoIEM (2007); *An Analysis of existing Rights Based Management Instruments in Member States and on setting up best practices in the EU*, Parts I & II, European Commission, FISH/2007/03.
- [50] Munro, G. (1980), *A promise of abundance: Extended Fisheries Jurisdiction and the Newfoundland Economy*, Minister of Supply and Services, Canada.
- [51] Munro, G. (1990), "The Optimal Management of Transboundary Fisheries: Game Theoretic Considerations", *Natural Resource Modeling*, Vol. 4, Nº 4, pp 403-426.
- [52] NAFO (2011), *Annual Report, 2010*, Dartmouth, Canada.
- [53] NAFO (1993), *Changes in Abundance and Biology of Cod Stocks and their possible Causes*, *Scientific Council Studies*, Nº 18, Dartmouth, Canada.
- [54] Needler, A. (1979), "Evolution of Canadian Fisheries Management Towards Economic Rationalization", *Journal of the Fisheries Research Board of Canada*, Vol. 36, Nº 7, pp 716-724.
- [55] Neher, P. (1994), "Fishery Management in Canada" in BANCO MUNDIAL (ed), *Managing Fisheries Resources*, Banco Mundial, Nº 217 Fisheries Series.
- [56] Neher, P.; Arnason, R., Mollett, N. (Eds) (1989), *Rights Based Fishing*, Kluwer Academic Publishers, Dordrecht.
- [57] Pearse, P. (Commissioner) (1982), *Turning the Tide: A new Policy for Canada's Pacific Fisheries*, Commission on Pacific Fisheries Policy.
- [58] Pinho, A. (1998), *Pescas Nacionais. Pedços de uma década perdida*, Maribérica / Liber - Editores, Lisboa.
- [59] Poseidon Aquatic Resource Management, Ltd & Pew Environment Group (2010), *FIFG 2000-2006 Shadow Evaluation*, UK, Hampshire.
- [60] Ribeiro, M. (1992), *A Zona Económica Exclusiva*, Universidade Técnica de Lisboa / Instituto Superior de ciências Sociais e Políticas.
- [61] Santos, F. (2000), "As Pescas em Portugal Continental", *Revista da Faculdade de Letras\_ Geografia*, Vol. XV/XVI, Porto, pp. 49-61.
- [62] Schlager, E., Ostrom, E. (1992), "Property-Rights Regimes and Natural Resources: A Conceptual Analysis", *Land Economics*, Vol. 68, Nº 3, pp 249-262.
- [63] Schrank, W. (1995), "Extended Fisheries Jurisdiction: Origins of the current crisis in Atlantic Canada's fisheries", *Marine Policy*, Vol. 19, Nº 4, pp 285-299.
- [64] Scott, A. (1955), "The Fishery: The Objectives of sole Ownership", *Journal of Political Economy*, Vol. 63, pp 116-124.
- [65] Serra, J. (1987), *"Uma Política para o Mar"*, Instituto de Estudos para o Desenvolvimento, Lisboa, Cadernos CEE-3.
- [66] Varão, A., Garcia, A. (1975), *Pesca Marítima: Situação e Perspectivas de Desenvolvimento*, Banco de Fomento Nacional, Lisboa, Estudos: 8.
- [67] Wise, M. (1984), *The Common Fisheries Policy of the European Community*, Methwen & Co, London / New York.