

## SUSTAINABLE FISHERIES DEVELOPMENT

### Introduction

The following socio-economic study that sets forth a proposed fisheries management system was prepared in conformity with the aims of the European Fisheries Commissioner, publicly disseminated during her 19 January 2010 confirmation hearing at the European Parliament in Strasbourg, to (i) reduce overfishing; (ii) reduce industrial overcapacity; (iii) increase fisheries revenues and profits; (iv) include rather than exclude fishers who represent all types of vessels such as trawlers, mid-size vessels and coastal fishing boats, as each type of vessel serves a unique purpose in the diverse European territory; (v) develop employment stability and optimal capitalisation throughout the entire succession of fisheries industry sectors, especially including the fish harvesting and processing sectors; (vi) address the needs of multi-species and single species fisheries; and (vii) modify the allocation of the €4.3 billion annual European Union fishing subsidies to conform to the current requirements of the fisheries industry.

In addition, the fisheries reform proposal (a) addresses the socio-economic needs of those excluded from future participation in the fisheries industry through a provision enabling such individuals once reliant upon commercial fishing for gainful employment to benefit through education, re-training, employment opportunities and other social benefits, (b) contains a provision for supplementary fisheries regulation enforcement, and (c) provides a mechanism for the replacement of nets damaged by marine mammals, all of which can be funded by the private sector as part of the reform program and do not require public sector funds.

It is hoped that the provisions contained in the following proposal will generate ideas and discussions among government officials and stakeholders which will further the development of sustainable fisheries management systems for the benefit of the fisheries industry and the renewable natural resources on which the entire industry is reliant for its long term future.

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## **Danish Fisheries Case Study**

### **Reason for Case Study Selection**

The Danish fisheries industry case is noteworthy because, along with other proven Catch Share Program benefits, it demonstrates the variety of management tools such as Fishpools and Catch Quota Management that can be used by the program management in concert with private fishing cooperatives to: improve share holder profitability and share investment value; ensure enforcement of fishing rules; reduce discards, especially in multi-species fisheries when the allowable quota for one or a few of the species has been reached; facilitate business planning; and utilise catches that exceed an individual's share quota allowance without resorting to discards through the use of active market share trading and leasing.

### **National Fishery Industry Problems**

For 2 decades following the mid-1980s, the Danish government attempted to reduce fishery capacity and overfishing through vessel decommissioning, policies limiting vessel entry as well as vessel investments, and regulations limiting fishing mortality such as by restricting the number of days at sea.

From 1989 to 2006, 1,272 vessels were removed at a total public cost of 1.4 billion Danish kroner (US\$245.3 million). According to the government, this reduced gross tonnage but did not produce a corresponding increase in fishing efficiency nor did the decommissioning contribute to the rehabilitation of marine habitats or fish stocks.

From 1994-2002 overall catches and catch rates steadily declined providing evidence that the fleet reduction program and other government policies aimed at reducing overfishing and restoring depleted fish stocks were unsuccessful, the modified fisheries management system did not provide enhanced catch opportunities for the remaining fishermen, and the vessel decommissioning did not eliminate the causal factors that led to Danish fishing overcapacity.

### **Danish government response**

In response to the continuing decline in their fishery industry despite national attempts to improve the economic sector and foster the rehabilitation of depleted fish stocks, the Danish government converted their long-standing fisheries management system for certain fisheries to a Catch Share Program framework. By 2007, the government had developed Individual Transferable Quota (ITQ) programs for pelagic and demersal fisheries in order to achieve the following aims:

- balance fleet capacity with fishing opportunities;
- create economic growth in the fishing sector to establish a viable economic sector for the long term;
- reduce discards by removing excess capacity and also providing a means for re-allocation of catches that exceed share quotas using private market trading and leasing of share quota belonging to share holders;
- benefit the coastal fisheries on which many Danish communities are dependent; and
- provide opportunities, especially for young fishermen, to enter the industry.

Denmark introduced the Catch Share Program in 2003 under the name of Individual Transferable Quota system for the Danish herring (*Clupea harengus*) fishery. Based on successful trials, the Danish extended the program in 2007 to include demersal fisheries under an ITQ-Demersal Program and additional pelagic

species under the ITQ-Pelagic Program such as mackerel (*Scomber scombrus*), horse mackerel (*Trachurus trachurus*), sprat (*Sprattus sprattus*), pout (*Trisopterus esmarki*), sandeel (*Ammodytes marinus*) and blue whiting (*Micromesistius*

*poutassou*). The ITQ-Demersal Program includes the lobster fishery and the demersal fish stocks of Atlantic cod (*Gadus morhua*), saithe (*Pollachius virens*), plaice (*Pleuronectes platessa*), haddock (*Melanogrammus aeglefinus*), European hake (*Merluccius merluccius*), whiting (*Merlangius merlangus*), Dover sole (*Solea solea*), turbot (*Psetta maxima*) and monkfish (*Lophius piscatorius*). In addition to the marine areas associated with these species, a number of fishing areas are further sub-divided into zones based on designations under the auspices of the International Council for the Exploration of the Sea (ICES).

These Danish programs are consistent with fisheries management provisions under the authority of the European Commission, in which catch limits for certain species are established within defined areas of the European Union in order to achieve maximum sustainable yields for European fisheries. By this method, catch limits are allocated to the relevant EU Member States, such as Denmark, according to a fixed percentage. These annual Member State quotas are transferrable among other EU Member States provided that the Commission is given prior notice.

Danish fisheries are comprised of various vessel types ranging from industrial size ships to small skiffs that utilise a wide range of fishing gear in the North Sea, the Skagerrak, the Kattegat and the Baltic Sea which are areas in which the European Commission also limits the days-at-sea and the total kilowatt hours per year in the industry.

In 2007, the value of Danish landings exceeded US\$450 million, 90% of which were under ITQ (Catch Share) Programs – 55% in pelagic and 35% in demersal fisheries.

### **Danish Catch Share Programs**

Under the two Danish Individual Transferable Quota (ITQ) Catch Share Programs – the ITQ-Pelagic Program and the ITQ-Demersal Program, individual registered fishermen who derive more than 60% of their earnings from fishing are eligible to receive shares for use on a registered fishing vessel. This aims to ensure that only active fishermen can use the quotas on active fishing vessels thereby enabling benefits from the operations to accrue to the fishing communities in which the fishermen are based.

Initial shares were allocated on the basis of a weighted catch history for 2003, 2004 and 2005 using 20%, 30% and 50% weights for each of the 3 years, respectively. An appeals process that allowed potentially disenfranchised fishermen to explain an atypical catch period due to factors such as illness or vessel damage was considered by the government to be an important component in the effort to incorporate fairness during the initial share allocations.

Shares have no expiration date but can be revoked upon 8 years' prior notice. (This provision relates to the issue of whether the government is granting a public resource right in perpetuity and privatising a public resource.) Each year, an allocation of the maximum landing weights for species is made to each share holder based on the total allowable catches for the species which can vary from year to year based on scientific recommendations.

The concentration of shares is limited which, along with share transferability, avoids exclusivity and promotes the practice of inclusiveness among eligible fishermen; however, the share ownership limits are higher for the industrial and the pelagic fishery where large holdings are more prevalent and the limits are lower in the demersal fishery where business operations are usually smaller and tied to local communities.

Danish coastal fishery share holders must remain in this sector for a minimum of 3 years, operate on registered vessels that are under 17 metres in length, and engage in a majority of fishing trips that are less than 3 days in duration to receive the coastal fishery share holder status and corresponding benefits that include a supplemental quota for sole and cod. As a fixed quota (e.g. 10%) is allocated to coastal fisheries for certain species and since eligible fishermen and their vessels can voluntarily enter this sector, the allocation that each fisherman receives depends on the number of operators in this fishery. The individual coastal fishery share holder quota allocations can, however, be modified. While coastal fishermen are prohibited from transferring their quota outside of the coastal fishery, they are allowed to transfer shares among their own coastal fishery members or they can purchase additional quota from the non-coastal fishery sector. This ensures that the coastal fishery share quotas do not fall below a fixed minimum amount thereby ensuring coastal fishery representation that could be increased through share transfers and leases.

The Danish ITQ Programs require all landed fish to be deducted from participants' shares. In a separate action, Denmark introduced a pilot program entitled Catch Quota Management, which has been used in the U.K., Sweden, Germany and the Netherlands, to achieve a complete accounting of all catches and landings through the use of electronic logbook registration, on-board cameras, and a monitoring system using electronic sensors. The 2008/2009 results revealed that, as a result of this new program, fishermen fish more selectively to reduce discards and increase long term earnings rather than maximise short term profits by catching and then releasing lower value fish, many of which fail to survive following release and would have supported commercial fisheries if they had not been captured by virtue of their inherent contributions to marine ecosystems.

In Britain and Denmark, the Catch Quota Management trials included a provision which required a multi-species fishery to stop fishing as soon as the quota for any one of the species was reached. This motivated the fishermen to plan, select and innovate fishing practices and gear to fish selectively in order to optimise catches of each species of a multi-species fishery. To the extent that the fishermen are unable to achieve the precise quota limitations, the flexible ITQ Catch Share Programs permit trading or leasing of quota that increases the potential profitability as well as efficiency of each unit of fishing effort, eliminates or reduces a potential waste of natural marine resources and accommodates the fishermen's need to refrain from exceeding (or endeavouring to reach, as the case may be) strictly enforced catch quotas.

Three methods for introducing new participants, including young fishermen new to the business and fishermen who did not initially receive a quota allocation, were implemented under the Danish ITQ system:

1. Shares are transferable and, as a result, can be purchased by new entrants;
2. the Fishfund was established to set aside shares for new participants who make an investment in the fishery such as purchasing a fishing vessel; and
3. new entrants are allowed to join a Fishpool and can access the pooled quota for a fee.

A Fishpool is a privately established cooperative that coordinates and facilitates short term transfers and annual leases between share holders. Each Fishpool is managed by a "pool master" who must be approved by and registered with the Danish Directorate of Fisheries, and each Fishpool is responsible for ensuring that aggregate member landings do not exceed total quota shares. Since the inception of the ITQ system in Denmark, there have been at least 11 Danish Fishpools in operation through which up to 80% of the share quota has been the subject of short term share transfer transactions. A main feature of the Fishpools is that members are not

permitted to discard fish due to lack of quota as long as the pool has quota for that species. Fishermen who exceed their quota can endeavour to lease their excess quota through the Fishpool upon their return to the harbour. The result has been a substantial reduction in discards.

Fishpools use an on-line system accessible at [www.puljefiskeri.dk](http://www.puljefiskeri.dk) to conduct trades which, together with private brokerages, provide an efficient market (in which the government does not participate) for the benefit of all share holders and their annual quotas.

In the interest of transparency, all share allocations and trading are published on the Danish Directorate of Fisheries' webpage.

### **Program Results**

Although statistical data gathering and analysis from the newly-established ITQ Programs are continuing, initial data revealed that Danish fisheries capacity was reduced by 25% without the use of public funds for decommissioning. Profits increased from 9-20% and fishermen doubled their investments in value-added efforts rather than in catch maximisation technology which was largely responsible for fueling the former "race for fish". Each year following the introduction of coastal fishery sector ITQ provisions, the coastal fishermen produced landings that exceeded the historical average. The coastal fisheries increased their shares from the initial allocation thereby revealing the stakeholder satisfaction with the fisheries management conversion.

In its support of market access development for sustainable fisheries, the Danish government is investing in fish tracing technology, full documentation of total catches through camera and sensor monitoring, and the establishment of a complete database to facilitate sustainable fishery certification and to supply retailers with all relevant data and documentation in preparation for the Danish fisheries' certification of sustainability in 2012.

On 31 August 2009, the Danish Fishermen's Association announced that by 2012, all fish and seafood from Danish fisheries will be certified by the standards established by the Marine Stewardship Council. As 90% of the Danish-landed fisheries value in 2007 was derived from Catch Share Programs, this announcement reflects increasing recognition by fishery industry producers that wholesale and retail purchase decisions in support of sustainable fisheries are fast becoming an important guide to the fishing gear and methods selected by fishermen who are being held increasingly accountable for their actions which can denigrate or contribute to the rehabilitation and conservation of our marine environment.