

“COBECOS”

Analysing costs and benefits of increased enforcement in different fisheries control schemes

In fisheries, some form of management, i.e. restrictions on fishing activity, is necessary to secure benefits from fish resources. An integral part of any such fisheries management regime is the enforcement of these restrictions. If compliance is poor, the management system cannot be effective. However, in most fisheries, there is limited knowledge and certainly very little published material about the level of compliance with management measures. According to an ICES study group however, illegal, unreported and unregulated (IUU) fishing would represent the single largest potential source of unrecorded fishing mortality for stock assessment.

The most important drivers for this IUU fishing are economic factors and poor enforcement of international and national regulations which are often exacerbated by the fisheries management systems that are chosen.

In deciding whether to violate a particular fisheries management measure, a fisher will compare the expected benefits from doing so with the expected costs. These costs include the possibility of official sanctions but also other items such as impacts on reputation, conscience etc. If the expected costs are high enough (compared to the benefits), violations will be few, i.e. compliance high. If the expected costs are low (compared to expected benefits), violations will be many, i.e. compliance low.

The purpose of fisheries enforcement is to increase compliance, i.e. reduce the number and extent of violations. But fisheries enforcement is often costly compared to the value of the fisheries. A given level of compliance should therefore be achieved at minimum enforcement costs. As different fisheries management systems require different types of enforcement, and thus different enforcement costs to achieve this given level of compliance, enforcement costs need to be

taken into account when setting management measures.

Hitherto, fisheries management has been focusing on setting harvesting targets (e.g. catches) or fishing effort targets, instead of trying to set the right level of enforcement taking into account the associated costs. A consistent theory and empirically tested models to help managers set the optimal level of enforcement for a given fishery and a given mix of enforcement tools are missing.

Therefore, the EU-funded **COBECOS** project will **conduct what amounts to a cost-benefit analysis of control schemes for management strategies relevant to the EU Common Fisheries Policy (CFP)** and, based on this analysis, **infer the potential economic benefits which might accrue from proper enforcement of the management measures**. As a part of these tasks, the COBECOS project will:

- develop an appropriate theory of fisheries enforcement;
- conduct empirical research involving intensive case studies and estimation of theoretical relationships; and
- develop a practical computer model of fisheries enforcement (based on the theory and empirical estimations).

Project acronym:

COBECOS

Full title of Project:

Costs and Benefits of Control Strategies.

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<http://cobecos.jrc.it>

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The theoretical understanding of compliance, enforcement and management developed within COBECOS will be tested through analysis of a number of very different fisheries operating under a number of different management regimes (see Table).

On this basis, it is expected that COBECOS will contribute significantly to answering questions such as:

- What are the costs and benefits of increased enforcement effort in particular fisheries?
- Given a certain fisheries management system, what is the optimal mix of enforcement intensity for the different enforcement tools available.
- If compliance alters (exogenously) in certain fisheries what will the costs and benefits be?

- What are the impacts of increased penalties for violations of fisheries rules?
- How do different control schemes compare when the cost of enforcement is taken into account?

This will help fishery managers to make more reliable estimates of the costs and benefits of different fishery enforcement policies, thus helping them to put in place the appropriate regime. Moreover, the COBECOS advice on more cost-effective enforcement regimes will help mitigate biological and economic problems afflicting European fisheries.

“COBECOS WILL HELP FISHERY MANAGERS TO MAKE MORE RELIABLE ESTIMATES OF THE COSTS AND BENEFITS OF DIFFERENT FISHERY ENFORCEMENT POLICIES, THUS HELPING THEM TO PUT IN PLACE THE APPROPRIATE REGIME”

Case study	Enforcement issues
1. Northern hake	Minimum mesh sizes
2. The Bay of Saint-Brieuc Scallops	Input restrictions
3. CCAMLR South Georgia/ Kerguelen	IUU
4. Ligurian and Northern Tyrrhenian Sea bottom trawling fishery	Net size, seasonal and area closures, mixed fishery
5. Norwegian fisheries	Technical restrictions, TAC-restrictions, individual quotas
6. Icelandic cod fishery	Time/area closures, minimum fish size restrictions, no discarding rules, effort restrictions and individual transferable quota
7. Dutch beam trawl	Quotas, input restrictions, technical measures
8. Kattegat & Skagerrak nephrops fishery	Undersized lobsters and illegal bycatch
9. (Western) Channel Fisheries	Gear and access restrictions

FISHERIES, OPERATING UNDER DIFFERENT MANAGEMENT REGIMES, TO BE ANALYSED DURING THE COBECOS PROJECT.