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maritime policy

the state of the ocean

Untangling the fishing nets

We need to face the facts: the great blue ocean is not the inexhaustible source of wealth we once thought it to be. And the good image of the fishing profession has slowly become tarnished with the over-exploitation of the sea's resources. Scientists and fishermen are at loggerheads, the former warning us of the catastrophic impacts of overfishing, the latter defending their livelihoods. What everyone does seem to agree on is the need to conserve fish stocks in the long term. But how? Scientific research does not yet have all the answers. And politicians need to take into account the answers that already exist.

Bluefin tuna fishing at Favignana (Sicily – IT) This overexploited nomad species undertakes major migrations in the north Atlantic and adjacent seas, from its feeding grounds in colder regions to its spawning grounds in warmer climates.

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Miraculous catch of fish? Industrial fishing centred on a single species, the orange roughy (New Zealand sea perch)

Has Europe squandered its marine resources? After 25 years of the *Common Fisheries Policy (CFP)*, the situation is increasingly a cause for alarm. FAO⁽¹⁾ reports on the state of the world's fish stocks show that the percentage of permanently fished species has been constantly falling, from 40% in 1974 to just 23% in 2005. And the Union is directly concerned. The north-east Atlantic, from where over two-thirds of Europe's fish catches come, is one of the zones in which biodiversity is most under threat⁽²⁾. Here 46% of all stocks are overfished, impoverished or recovering, compared to 25% of fish stocks worldwide. The CFP "has not delivered sustainable use of fisheries resources and will need to be changed if it is to do so. Its shortcomings can be expressed in conservation, political and economic terms," as stated

back in 2001 in the Commission's Green Paper on the future of the CFP.

At last, an ambitious reform...

Politicians' difficulty in reconciling economic and ecological imperatives is one of the main reasons for this failure. 76% of infringement proceedings against Member States in the CFP area relate to overfishing. The CFP has been applied with a very soft hand. Launched in 1982, it has certainly helped avoid conflicts at sea between national interests, but has at best papered over the cracks when it comes to overfishing. Some will talk of the iron grip of economics, others will blame politicians seeking electoral capital; whatever the reason, politicians have rarely succeeded in imposing fishing quotas in line with the *total admissible catches (TAC)* which are scientifically defined to ensure the renewal of fish populations. Certain subsidies have also aimed at gradually reducing the fleet whilst modernising the remaining vessels. Laudable but ineffective: the reduction in boat numbers has been offset by the growing catch capacity of individual vessels. We know today that ocean biodiversity is based on a complex tissue of synergies between various marine organisms, the survival of which depends on the fragile balance regulating their environments. This complexity was only partly understood when the CFP was set up. For this reason the CFP still assesses the state of fish resources by the sole indicators of population and fishing-induced mortality, stock by stock, independently of the evolution of the ecosystems. The ultimate aim of the CFP, in its revised (2002) format, is to provide a basis for the sustainable exploitation of marine resources. But this calls for more research, because our knowledge of the 'ocean system' is still too limited to effectively introduce the new 'ecosystemic' approach the Commission has adopted.

Counting the uncountable... with errors?

"We are working to assess a resource of which it is impossible to count the individual components one by one. We are therefore forced to gauge the state of fish populations indirectly, with the help of statistical models," Pierre Petitgas explains. This biologist and geostatistician from Ifremer coordinates *Fisboat*, a European project which is seeking to perfect ways of assessing



20% of shark species are in the process of becoming extinct, mainly because of juveniles being caught in nets not intended for them. One of the latest winners of the Smart Gear competition for innovations to support sustainable fishing organised by the WWF has devised a system of magnets to keep them away from trawlers-longliners fishing for tuna and swordfish.

marine resources. The current process is based on a combination of data from sampling undertaken by scientists at sea, and of catch declarations. The biases of sea sampling can be calculated and corrected, but it is impossible to determine to what extent fishermen report the true numbers of catches and rejects. It is therefore imperative to increase the reliability of evaluation methods, based both on scientific samples and the flow of declarations from the fishing profession. "The quantification of uncertainties is part and parcel of scientific recommendations. It is a *sine qua non* for embedding the precautionary approach into the political decision-making process," Ifremer stresses.

Another mistake is to base political decisions on partial data. "Looking only at the demographic indicators is tantamount to producing a partial diagnosis of the real situation. It's like a farmer who examines only one corner of his cornfield without checking that the entire crop is growing at a normal pace," is how Pierre Petitgas describes it. It is this which probably cost Canada the collapse of its cod stocks before declaring a moratorium in 1992. At the time, several biological indicators that scientists were measuring – mortality rates, age of sexual maturity, spatial distribution of the population – had not been included in the reports presented to politicians. Subsequent examination has

shown, however, that indicators of the deterioration of the stocks existed well before civil society was informed of them. Europe's marine industries need, therefore, more reliable and predictive assessments. This is the role of *Fisboat*, the evaluation methods of which will be tested in *ICES*⁽³⁾.

Smart Gear: rethinking fishing technologies

Another major challenge is to develop fishing technologies that are less damaging to the marine environment. This is no mean challenge, given the impressive number of non-target organisms that are caught up accidentally in fishing nets. From 3.8% for the least destructive fishing technologies to 50% for certain vessels, such as bottom trawlers, which also cause inestimable damage to highly fragile marine habitats like coldwater corals. Oceanographers and nature conservation organisations are crying out ever louder against such fishing techniques, the exact consequences of which on the benthic ecosystem, where damage is particularly slow to recover, is still poorly determined.

But we still have to propose other options to fishermen. Since 2005, WWF has organised *SmartGear*, an international competition open to brains from all horizons, professionals, engineers, teachers and students. The objective is to promote ways of fishing that ●●●