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ON FISHERY MANAGEMENT CRISIS

Among the books, papers, and reports I've been reviewing in this Column during the last 8 years, quite a few were dealing with various aspects of fisheries management. A matter of world importance, fisheries management affects the amount of fish available for marketing and distribution, the state of their resources and environment, and the ways in which benefits derived from those resources are distributed. Its role is ecological, economic, and social-political. Increasingly fisheries management on both sides of the Atlantic is finding itself in a crisis in which stock-collapses, enforcement failures, and credibility gap converge. Recently, EU recognized the problem and published a Green Paper opening a debate of its beleaguered CFP.

The continuing and increasingly heated dispute has been fueled by insistent attempts by various governments to introduce free market for fishing quotas (ITQ) with its socio-economic ramifications bordering on "privatization" of the resource, and by the evident inadequacy of managers to produce, credible, feasible and effective systems.

In my opinion, *fisheries management* involves two different fields of expertise. One is the assessment of either the amount of fish that can be taken off a population, or of the amount of fishing pressure that can be exerted without endangering its reproduction and productivity. It is about well being of the commercial fish resources and about environmental protection of the related habitats and their bio-diversity. The other field is about defining and applying ways and means to make the fishing industry operate approximately within the limits set by the former.

The first field involves knowledge of fishery biology and ecology, population dynamics, and historical data of the fishery and of environmental and associated stock fluctuations in its area. It is mainly about fish and nature. The other field involves negotiations, legislation, technology, and enforcement, and because it is also about distributing the wealth derived from the fishery resources and allocating benefits - political and economical ideology. It is all about people.

The first field requires employment of fishery biologists, aquatic ecologists, and people trained to collect, analyze and interpret statistical, historical, and anecdotal information about the fish in water and their environment. Many of the scientists involved (not all) lack the experience, social touch, and economic and political skills that make good fishery **managers**.

The other field is a matter for social scientists, economists, experts on logistics and enforcement, and the politicians who're making the decisions. This, because we cannot manage directly fish populations and their environment. All we manage is people's actions and activities.

The present problems with fisheries management systems stem from both directions. The various stock assessment methodologies that form the basis for fixing the total allowable catches (TAC) use mathematical models fed mainly with catch and effort data, and sometimes with results of fish sampling and acoustic monitoring. One problem is the often-questionable accuracy of such figures. The other is the validity of the models themselves. Although some of them comprise the trend assumed to express natural fluctuations in the past, they are unable to predict future changes in the trend direction and magnitude, while none are able to express environmental factors and influences. In most of them practically the only variable is the fishing mortality, for natural mortality is usually assumed to be a certain constant, in many cases a fallacy, while fluctuations in recruitment being problematic to monitor are hardly accounted for.

Unfortunately, results obtained on rather shaky basis often represent "the best available science" at the hands of the managers. Thus, no wonder that official TAC recommendations are often questioned by fishing people and scientists, who use to spend time on board fishing vessels and see many things that the models and their operators may be oblivious of.

Whatever their shortcoming, methodologies for stock, TAC, and effort assessment, with appropriate adjustments for single and multi-species fisheries, and for short and long-living species, can be applied universally. Not so management systems. Apart from climatic, geographic, ecological, and other environmental differences, fisheries differ from each other by their vessels, gear, and methods, by the composition, value and size of their catches and marketing system, and above all, by the socio-economic character, culture, technical know-how, and social and political organization and influence of the fishing people and their communities. Therefore, to be effective, fishery management mechanisms must be designed to fit the peculiarities of each individual fishery.

There's a whole catalogue of management systems and technical and administrative methods that managers can use to try to achieve targets set forth by the "best available science". The choice of the system, however, and the manner in which it is applied through legislation, regulation, enforcement, quotas allocation or limits set on effort, is the product of the political attitude of the powers in charge. The political moment consists in the choice of the management solution. For example, whatever is the prescribed TAC, allocating fishing rights to a large number of small-scale fishermen would call for a different management mechanism than allocating them to large-scale businesses. Which brings us to the sphere of economics and politics.

The prevailing trend in the world economics, which measures economic success and efficiency in terms of profits (or *rents*) and preaches all-out privatization, has manifested itself in the world's fisheries in the form of free ITQ market. As a rule, marketable quota systems favour the financially stronger and invariably lead to a gradual displacement of small-scale individual or family-owned fishing enterprises, and sooner or later to the concentration of fishing rights in the hands of a few, either specialized fishing companies, or large holding corporations for whom fishing may be only one branch of a multifarious business. I'd expect that eventually such concentration would occur even where there're legislative attempts at stipulating acquisition of quota by some maximum values. Hence, while ITQ may present a suitable solution for fisheries accessible to only large fishing vessels involving major investments, managers introducing this system into small-scale or mixed fisheries, must take into account their socio-economic and political ramifications.
