

## **An overview of fisheries management in selected countries**

Country specific case studies by their nature focus on the situation dominant in the country or a given fishery, with the necessary degree of detail. It is of reasonable informative value to have an overview of resources management practices in a few countries, albeit less detailed, to understand what the trends in various parts of the world are. It is for this reason that this short overview of Province of Ontario - Canada, The Netherlands, Poland and Japan has been prepared to provide a starting point for considerations and further consultations on appropriate resources management approaches, notably in inland fisheries.

The review of the various countries shows that the key to management approaches are the objectives of the management within the social context of the country or its region. Those objectives, which have as a basic premise the conservation of fishery resources and their sustainable use, may focus on subsistence of small communities, on the improvement of fishermen's incomes, on development of a commercial fisheries sector, but also on the recreational value of fisheries and water bodies. The selection made for this brief overview attempts to provide a good cross-section of the various situations.

### **Province of Ontario, Canada**

The province is extremely rich in lakes and rivers, starting from the Great Lakes to the smallest lakes scattered around the province. Ontario has 200,000 lakes and uncounted thousands of kilometers of fishable streams. The Great Lakes fishery is shared with the United States of America and by that the issues involved in its management are similar to those of marine fisheries. The vast majority of the other lakes, both very large and very small, is the property of the State and therefore the responsibility for their management rests with the Ontario Ministry of Natural Resources. The Ministry has its field offices located in central points of the province and from the fisheries perspective their most visible functions are management of water resources (an extensive system of dams controlling the water level of lakes and its supply to the rivers and canals), management of fishery resources (including stock enhancement as a cooperative effort jointly with the public). All other natural resources and their protection is also the responsibility of the Ministry and its field units.

There used to be and still are conflicts of rights to fish between the Native people and the commercial fishermen. The Native people have rights, under various treaties, to unrestricted fishing for their own needs, for food and food for dogs. Over recent decades, that privilege has undergone changes and now there are more and more cases where the Native people fish also commercially. This of course creates an immediate conflict with the commercial fishermen. Most of the sizeable lakes in the South of the province are considered recreation areas, with vacation homes built along their shores, and their waters being extensively fished by sport fishermen. On such lakes there are no commercial operations. Re-stocking (stock enhancement) of those lakes is done as a cooperative effort between the provincial government and the community. Closed

seasons to protect the spawning are strictly enforced. Until a decade ago or so, sport fishing for residents of Ontario was free, however, fishing rules were in force limiting the daily catch (by species) and the so called "bag content", whereby the person was not allowed to be in possession of more fishes of a given species than allowed by the fishing regulations. However, in an effort to obtain some funds (not to speak of resources rent) for the management of the resources and maintenance of the fish stocks, licenses have been introduced also for residents of the province, at a nominal fee. The primary benefit to the economy of the province is tourism, both national and international, the main source of income of communities outside the main industrial areas, creating a flow of dollars from urban to rural areas.

The management of fishery resources of Ontario, historically went through ups and downs, and the Government decided to elaborate a Strategic Plan for Ontario Fisheries (SPOF), which is being gradually improved and implemented. The key to management decisions is the question of allocation of resources. The SPOF is based on the following three general allocation priorities, as its rationale:

- i. to maintain and / or rehabilitate (in the case of degraded stocks) the fishery resources on behalf of all its residents
- ii. to allocate fish in accordance with the stated fishing rights of Treaty Indians
- iii. to allocate the remaining resource to the benefit of other residents of Ontario based upon an assessment of optimum sustained benefits (multiple uses over long time periods).

It is also considered that access to fishery resources is too nearly free and open and must be replaced by a system which recovers some rent and limits access at levels required for resource maintenance. The new approach to fishery management in Ontario must be characterized generally by maintenance of fish resources in the north and rehabilitation in the south. Resource maintenance, the protection of the self-renewing production of the fishery resource must have priority over direct allocation to fish harvesting and "indirect allocation" on environmental users that involve habitat degradation (i.e. polluters). **Without the resource there can be no allocation to fishermen of whatever group.** The public and fishery administrators must reach general agreement on a stated value system (i.e. the norms and goals) for fishery management.

### **The experience of The Netherlands**

Since 1970 one of the aims of Dutch government policy with regard to sport fishing in inland waters is a division of the fishing rights in such a way that the responsibility for the management of all fish except eel and sometimes tench comes into the hands of the organizations of amateur sport fishermen. The management of the eel and tench stock (where warranted) should be done by professional fishermen.

There are about 25 regional federations of clubs of sport fishermen leasing waters of more than local importance to 1,000 clubs responsible for the management of the fish stock in smaller water

bodies of local importance. The total surface of the 2,000 water bodies of local importance, which can be considered fishery units, is roughly 100,000 ha. The fish stock normally consists of coarse fish; the main species are eel, bream, roach, perch, pike and pike-perch.

There is a growing need for attention to the proper management of fish stocks due to:

- i. rapidly growing number of licensed sport fishermen, as well as youth that does not require license. The growth in the number of sport fishermen means an increasing fishing pressure especially for certain species like pike.
- ii. In a number of waters unbalanced fish populations developed because of fishing conditions as well as because of changes in the ecosystem.
- iii. There is a growing awareness among responsible managers of organized sport fishermen that the management of fish stocks needs priority in their attention.
- iv. In The Netherlands all agreements granting fishing rights, by lease or permit, need the approval of the Chamber for Inland Fisheries. Its main task, as specified in the Fishery Law is to control the agreements so they are effective as related to the whole fishery of a specific water body.
- v. Management plans help identify fishery problems such as research priorities as well as the need for stocking material or regulation of the fishing effort.

In the past management of fish stocks by sport fishermen was mainly limited to stocking on a trial and error basis. The normal complaints of the fishermen were bad catches despite stocking large numbers of fish. The extension service of the Ministry of Agriculture and Fisheries conducted appraisals of the water conditions and fish stocks in various water bodies. This information was used to advise club managers and responsible organizations about what management programme would be appropriate. The follow up, however, was weak. Only larger water bodies, usually state owned, were subject to more intensive sampling of fish stocks over several years.

In order to improve the management practices a large scale survey of the fishermen was conducted and its results allowed to determine more precise actions aimed at the maintenance of stocks at a sustainable level.

### **Polish lakes**

Lakes constitute over 70% of the total area of Poland's inland waters. In view of the multi-purpose uses of inland waters, the allocation of fishery resources is subject to the comprehensive plan of utilization of water resources. Fishery resources are considered an important and utilitarian component of water resources, but are not always its most important part. In this context allocation of water resources, including fishery, is understood as the designation of priorities for the use of particular waters by particular users and the establishment of at least basic rules for the use and protection of the waters. A great attention is paid to the recreational value of water bodies, whether for aquatic sports or sport fishing. Commercial fisheries have their determined place in the overall picture of utilization of the natural resources.

The priorities of water resources allocation are determined following the principles of “functionality of particular lakes”. Five categories are distinguished:

- i. lakes which are or may be used as source of drinking water or as supply of water for food industry that requires high quality water (called cleanwater lakes). Water in these lakes must be preserved maximally clean and any other use of water, including fishing is subordinate to the primary function. The only other permissible use of the lakes is a controlled commercial fishery. Commercial fishery management may be allowed inasmuch as it helps improve the water quality, and anyway would not adversely affect the water quality. Excessive development of a particular fish population may have undesirable consequences such as reported kills from epizootics, and therefore harvesting of such fish is instrumental in the maintenance of water quality. Another possibility of commercial fishery in cleanwater lakes is the introduction of fish species helping control the conditions of the ecosystem, such as plant-feeding fish for the control of phytoplankton or macrophytes, or predatory fish for the control of coarse fish populations. In such a case both the quality of water and the commercial fishermen benefit from the proper management of the cleanwater lakes. Sport fishing and recreational activities are either very limited or not allowed on such lakes. Sometimes protective zones around lakes are introduced, including reforestation of lake shores.
- ii. Lakes classified as nature reserves, or with special natural values, which can constitute specific genetic banks for disappearing species of animals or plants, or else lakes which constitute “unique nature laboratories”. The main role of the latter is to be maintained in an “unchanged state”. All other uses of the water or other natural resources would be subjected to that primary role. Commercial fishing may be allowed solely for the purpose of keeping the fish populations within desirable limits and avoid adverse effects of their “population explosion” impossible to control by natural means.
- iii. Lakes the main function of which is the regulation of water budget in the region. The use of these lakes depends on their importance as clean water sources. If they are a component of the cleanwater supply system, the rules applying to category (i) are in force here as well. Otherwise, these lakes may serve as recreation areas, for commercial fishing, even fish culture (in cages). There may be potential conflicting interests in the use of the lakes as commercial fishing would conflict with recreation and water sports. Decisions as to which of the uses prevails are taken on a case by case basis.
- iv. Lakes attractive for non-fishing recreation. Commercial fishing is ruled out, however, management of fishery resources is necessary at least from the perspective of sport fishing. Pollution pressure from the recreational activities sometimes disturbs the water quality and fishery.
- v. Lake specifically allocated for recreational fishing. The main activity is angling, however, commercial fishing may be allowed, depending on the species composition in the lake. Fishing for vendace, for example, is a clearly commercial operation,

however, it does not interfere with the angling practiced by sport fishermen, and vice-versa, angling does not interfere with the stocks of vendace.

The forms of management depend on the primary function of the lake. For lakes designated as recreational fishing sites, as a rule the management of the resources has been passed on to the Polish Anglers Association (PAA). However, the primary role in managing fishery resources in lakes rests with the inland waters fisheries administration (under the Ministry of Agriculture) represented by district fishery administration units. Scientific support is provided by two research institutes (specialized in inland fisheries). The determination of output levels (TAC) is in the hands of the institutes, cooperating with the fisheries administration. On smaller lakes collectives ("companies") have been given the exclusive use rights of the fishery resources and they are the primary managers of the resources, and a watchdog at the same time, that there is no overfishing. Anglers are obliged to have a license issued by the PAA and the income from licenses is used for stock enhancement in lakes under their jurisdiction.

### **Japan coastal resources management**

Coastal fishery resources in Japan are managed by communities on the principle of territorial use rights. Although the resources are marine, and not inland waters (or specifically lakes) the management principles developed are of great interest to managers of inland fisheries worldwide, and we can find in several countries similarities to those management principles.

The system that evolved in Japan is considered the most elaborate modern system of property rights as a tool of managing coastal marine fish populations. While the historical roots of these programmes go back to feudal times, a large and sophisticated system evolved after World War II. The Japanese system places a stamp of national law on resources allocation decisions made at a fairly low level, such as those made by a local fishermen's cooperative. The system is regulated by a respective fisheries law 1948 (a third in the history of fishery legislation in Japan).

In Japan the system is called Community Based Fisheries Management (CBFM) and is regarded as a system of fisheries management created at the initiative of fishermen. Its activities include the management of fishery resources, effort and grounds. The coastal fishery is defined as a capture fishery and aquaculture operating in coastal waters near fishing communities using boats (powered and non-powered) of less than 10 GRT. This fishery maintains the livelihood of the communities' fishing households.

The community based coastal management system has been successful for two reasons. Firstly, fishing rights conform to the concept of "Territorial Use Rights in Fisheries (TURF). Secondly, allocation of fishery resources to the Fishery Cooperative Association (FCA) or fisherman are based on the Coastal Fisheries Management Plan (CFMP) formed in a democratic manner by a regional fisheries coordination committee. The CFMP is developed at the prefecture level (province) in a very elaborate manner. There are at least five major steps to be taken before a management plan is approved. The FCA, the prefecture government, the fisheries coordination

committee are all deeply involved in the process. A public hearing is held before a final decision is taken. The fishing rights are given for extended periods of time (20 years) to the FCA, thus making sure that the fishermen have an incentive to take care of the resources and exploit them rationally in their area of fishing. The public is informed at every step of the proceedings.

The Community Based Fishery Management succeeded as the fishermen conceived the resources as their own. Property rights may take many forms, for instance TURF, individual catch quota, etc. When fishermen consider fish stocks as their property, they adopt a more positive attitude towards conservation and management measures. Property rights awarded for short periods would not have the same beneficial impact on the attitudes of the fishermen, because they would not care as to “what is left” for their successor, for the next period of a license.

### **Conclusions**

Those examples taken from four countries emphasize a few important aspects that need to be borne in mind when developing fishery resources management schemes. Those may be summarized as follows:

- i. The conservation / maintenance of the fishery resources is the foundation of all management decisions. Unless resources are properly managed to ensure their sustainable exploitation, there may be no resource to allocate to anybody.
- ii. The management measures are based on the primary objectives of the managing organ. Commercial exploitation (with all components like employment, earnings, wealth), community livelihood, sport and recreation or “nature laboratory” as a scientific instrument may be the primary objectives of a management plan.
- iii. Social and cultural conditions need to be considered when developing a management plan.
- iv. Management decisions need to have the support of the public, and therefore need to be transparent. Management based on “property rights” (sport fishing associations in The Netherlands and Poland, FCA in Japan) has an advantage over “top-down” administrative decisions. The modern trends in management tend to resort to the “property rights” concept, although it may take different forms. .