Contributed papers II

International instruments

FAO mechanisms for the control and responsible use of alien species in fisheries

Devin M. Bartley
Felix J.B. Marttin
and Matthias Halwart

"The control and responsible use of alien species in fisheries can help the implementation of FAO's strategic objectives"

Introduction

The Food and Agriculture Organization of the United Nations (FAO) has pledged to assist its Members achieve three overarching global goals: i) access of all people at all times to sufficient, nutritionally adequate and safe food, ii) continued contribution of sustainable agriculture (including fisheries and forestry) and rural development to economic and social progress and well being, and iii) the conservation, improvement and sustainable use of natural resources for food and agriculture. FAO has developed five major strategies to accomplish these goals:

- contribute to the eradication of food insecurity and rural poverty;
- promote, develop and reinforce policy and regulatory frameworks for food, agriculture, fisheries and forestry;
- create sustainable increase in the supply and availability of food and other products from the crop, livestock, fisheries and forestry sectors;
- support the conservation, improvement and sustainable use of natural resources for food and agriculture; and
- improve decision making through the provision of information and assessments and fostering of knowledge management for food and agriculture.

The control and responsible use of alien species in fisheries can help the implementation of the above strategies. Alien species have been used effectively to increase production and value from aquatic ecosystems. However, the importation of alien species for fisheries has also led to economic loss and loss of native biodiversity from disease impacts,

increased predation, competition, habitat destruction, and genetic degradation of local stocks. In order to maximize the benefits from alien species and minimize the harmful impacts of alien species, the FAO Fisheries Department has undertaken a variety of activities and partnerships that constitute a framework for the control and responsible use of alien species in fisheries. The purpose of this document is to review and promote awareness of the main mechanisms of that framework.

Framework for the control and responsible use of alien species in fisheries

The framework for the control and responsible use of alien species in fisheries consists of:

- An over-arching international agreement (the Code of Conduct for Responsible Fisheries [CCRF], [FAO, 1995]);
- technical guidelines on how to implement the articles of that agreement in relation to alien species (the International Council for the Exploration of the Sea [ICES 1995] and the Code of Practice on the Introduction and Transfer of Marine Organisms [EIFAC, 1988]);
- further technical guidelines on how to address fish health concerns (the Asia Regional Technical Guidelines and Beijing Consensus [FAO/NACA, 2000]);
- an information source to help with assessing possible positive and negative impacts (the FAO Database on Introductions of Aquatic Species [DIAS, 2003]); and
- a mechanism to deal with lack of information (i.e. uncertainty) by application of a precautionary approach to species introductions.

The CCRF and the ICES guidelines are reviewed here; the mechanisms dealing with fish health are reviewed by Subasinghe *et al.* (this volume) and DIAS is reviewed by Marttin (this volume).

Code of Conduct for Responsible Fisheries

The FAO Committee on Fisheries (COFI) in 1991 called for the development of new concepts which would lead to responsible and sustained fisheries and aquaculture. Following significant developments in international fishing, such as, *inter alia*, the International Conference on Responsible Fishing in Cancun (1992, Mexico), the 1992 UN Conference on Environment and Development (UNCED) in Brazil, and the UN Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks in New York, the FAO Governing Bodies recommended the formation of a global Code of Conduct for Responsible Fisheries which would be consistent with these instruments, and in a non-mandatory manner, establish principles and international standards of behaviour for responsible practices with a view to ensuring the effective conservation, management and development of living aquatic resources, with due respect for the ecosystem and biodiversity. The CCRF was unanimously adopted on 31 October 1995 by the FAO Conference and is now the cornerstone for the work of the FAO Fisheries Department (FAO, 1995b). Although the CCRF is non-mandatory, countries, as members of FAO, are committed to its implementation to the extent possible. Certain parts of it are based on relevant rules of international law, including those reflected in the United

Nations Convention on the Law of the Sea of 10 December 1982[1]. The Code also contains provisions that may be or have already been given binding effect by means of other obligatory legal instruments amongst the parties.

The CCRF contains several articles that deal with alien species. General principles relating in a non-specific manner to alien species are in Article 2f) to promote the contribution of fisheries to food security and food quality, giving priority to the nutritional needs of local communities and in Article 2g) promote protection of living aquatic resources and their environments and coastal areas. Article 7.2.2 (d) requires that fishery management should provide that biodiversity of aquatic habitats and ecosystems is conserved and endangered species are protected. Thus, the CCRF recognizes its obligation to improve production and protect the environment.

Aquaculture was found to be the main reason that aquatic species are purposely moved outside of their native range (Welcomme, 1988; Bartley and Casal, 1998). Therefore, Article 9, Aquaculture Development, contains several sections relating to alien species.

Article 9.1.2 "States should promote responsible development and management … including an advance evaluation of the effects of aquaculture development on genetic diversity and ecosystem integrity, based on best scientific evidence.

Article 9.2 addresses responsible development of aquaculture including culture-based fisheries within transboundary aquatic ecosystems. Particularly important under this article are:

9.2.3 "States should consult with their neighbouring States, as appropriate, before introducing non-indigenous species into transboundary aquatic systems;

9.2.4 that calls on states to create mechanisms such as databases and information networks to collect and share information on aquaculture development and

9.2.5 "States should cooperate in the development of appropriate mechanisms, when required, to monitor the impacts of inputs used in aquaculture". The input here would be alien species.

- Article 9.3 summarizes much of the overall position of the CCRF in regards to alien species:

9.3.1 States should conserve genetic diversity and maintain integrity of aquatic communities and ecosystems by appropriate management. In particular, efforts should be made undertaken to minimize the harmful effects of introducing non-native species or genetically altered stocks used for aquaculture including culture-based fisheries into waters, especially where there is a significant potential for the spread of such non-native species or genetically altered stocks into waters under the jurisdiction of other States as well as waters under the jurisdiction of the State of origin. States should, whenever possible, promote steps to minimize adverse genetic, disease and other effects of escaped farmed fish on wild stocks.

[1] Full text of the United Nations Convention on the Law of the Sea of 10 December 1982 available at http://www.un.org/Depts/los/index.htm

9.3.2 calls for States to "cooperate in the elaboration, adoption and implementation of international codes of practice and procedures for introductions and transfers of aquatic organisms".

9.3.3 States should, in order to minimize risks of disease transfer and other adverse effects on wild and cultured stocks, encourage adoption of appropriate practices in the genetic improvement of broodstocks, the introduction of non-native species, and in the production, sale and transport of eggs, larvae or fry, broodstock or other live materials. States should facilitate the preparation and implementation of appropriate national codes of practice and procedures to this effect.

The CCRF acknowledges that information will never be complete and development decisions will often need to be taken with a certain degree of uncertainty as to their impacts. Article 7.5 describes a precautionary approach wherein preference is given to protecting the aquatic environment. The absence of adequate scientific information on the impacts of an activity, e.g. the use of alien species, should not be used as a reason for postponing or failing to take conservation and management measures. FAO and the Government of Sweden convened an expert consultation in order to define a precautionary approach in operational terms (FAO/Sweden, 1995). This consultation noted that due to the high probability that the impacts of an alien species in the natural environment are unpredictable and difficult, if not impossible to reverse, many species introductions are not precautionary. The consultation therefore recommended the use of codes of practice, such as the ICES/EIFAC codes described below as good precautionary measures.

In summary, the CCRF promotes the conservation of biological diversity and ecosystems through, *inter alia*, impact assessment, monitoring and evaluation, creation of useful databases and information sources, and calls on Members to cooperate in the process of using alien species through consultation and the creation of guidelines and codes of practice. Where there is uncertainty of impacts or lack of scientific information, the CCRF advocates a precautionary approach that gives preference to environmental conservation.

Codes of Practice: International Council for the Exploration of the Sea (ICES) and the European Inland Fishery Advisory Commission (EIFAC)[2].

The International Council for the Exploration of the Sea (ICES) and the European Inland Fishery Advisory Commission (EIFAC) are two inter-governmental bodies that acknowledge the necessity of international cooperation in order to conserve and use responsibly living aquatic resources. The groups noted the great success derived from the growth of marine and freshwater aquaculture and established a set of procedures (EIFAC, 1988; ICES, 1995) to be followed in the European and North Atlantic region to address three main challenges from alien species: 1) to reduce the chance of disease transfer from the movement of aquatic species; 2) to reduce impacts of alien species on native aquatic biodiversity and 3) to address the impact that genetically altered stocks may have on related natural populations. These codes and procedures have been endorsed by the CCRF and have been adopted in principle by other regional bodies of FAO.

[2] Based on Bartley, D.M., R. Subasinghe & D. Coates, 1996.

The basic code contains the requirements that:

i) the entity moving an exotic species develops a PROPOSAL, that would include location of facility, planned use, passport information, and source of the exotic species;

ii) an independent REVIEW is made that evaluates the proposal and the impacts and risk/benefits of the proposed introduction, e.g. pathogens, ecological requirements/interactions, genetic concerns, socio-economic concerns, and local species most affected;

iii) ADVICE and comments are communicated among the proposers, evaluators and decision makers and the independent review ADVISES to either accept, refine, or reject the proposal so that all parties understand the basis for any decision or action. Thus proposals can be refined and the review panel can request additional information on which to make their recommendation;

iv) if approval to introduce a species is granted QUARANTINE, CONTAINMENT, MONITORING, AND REPORTING PROGRAMMES are implemented; and

v) the ONGOING PRACTICE of importing the (formerly) exotic species becomes subject to review and inspection that check the general condition of the shipments, e.g. checking that no pathogens are present, that the correct species is being shipped, etc.

The Code is general and can be adapted to specific circumstances and resource availability, but it should not lose any of the above requirements nor should it lose the rigor at which the requirements are applied. For example, a regulatory agency may require a proposal to contain a first evaluation of the risk/benefits and this evaluation would then be forwarded to an independent review or advisory panel; or the advisory panel could make the first evaluation of a proposal. Similarly, states may require quarantine procedures to be explicitly described in the proposal before approval is granted.

"Codes" are generally perceived as being cumbersome, bureaucratic, a hindrance to development and generally not very user-friendly. Thus, they tend to be ignored by those who need them the most, the local resource managers and fisheries/aquaculture developers. In fact, application of the above, even if not completely rigorous, should help promote good decisions, avoid costly mistakes, increase community/consumer satisfaction, and help improve the standard of life for the communities concerned.

Rigorous application of these principles will be more difficult, but can be facilitated by implementation guidelines and other mechanisms. One such mechanism to help with the decision to introduce an alien species is the opinionnaire (Annex III), (Kohler and Stanley, 1984).

The absence of adequate scientific information on the impacts of alien species, should not be used as a reason for postponing or failing to take conservation and management measures

References

Bartley, D.M., Subasinghe, R. & Coates, D. 1996. Draft framework for the responsible use of introduced species. EIFAC Publication EIFAC/XXIX/96/ Inf.8. Rome.

Bartley, D.M. &. Casal, C.V. 1998. Impact of introductions on the conservation and sustainable use of aquatic biodiversity. FAO Aquaculture Newsletter No 20. Rome.

DIAS. 2003. Database on Introductions of Aquatic Species. FAO. Available at http://www.fao.org/fi/statist/fisoft/dias/index.htm.

FAO. 1995a. Code of Conduct for Responsible Fisheries. Rome.

FAO. 1995b. Report of the Twenty-first Session of the Committee on Fisheries. Rome. 10-13 March 1995. FAO Fisheries Report No, 524, paragraphs 23-29.

FAO/NACA. 2000. The Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals and The Beijing Consensus and Implementation Strategy. FAO Fisheries Technical Paper No. 402. Rome.

FAO/Sweden. 1995. Precautionary Approach to Fisheries. Part 1: Guidelines on the precautionary approach to capture fisheries and species introductions. FAO Fisheries Technical Paper 350/1. Rome.

ICES. 1995–1994. ICES Co-operative Research Report No. 204. Copenhagen.

Kohler, C.C. & Stanley, J.G. 1984. A suggested protocol for evaluating proposed exotic fish introductions in the United States. *In* W.R. Courtney, Jr. and J.R. Stauffer, Jr. eds. Distribution, biology, and management of exotic fishes, pp.387-406. Baltimore. Johns Hopkins University Press.

Welcomme, R.L. 1988. International Introductions of Inland Aquatic Species. FAO Fisheries Technical Paper No. 294. Rome.