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للأمم المتحدة

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et
l'agriculture

Organización
de las
Naciones
Unidas
para la
Agricultura
y la
Alimentación

COMMITTEE FOR INLAND FISHERIES OF AFRICA

Thirteenth Session

Entebbe, Uganda: 27 – 30 October 2004

SEMINAR: ELEMENTS OF TECHNICAL GUIDELINES FOR THE CONTROL AND RESPONSIBLE USE OF ALIEN SPECIES IN FISHERIES AND AQUACULTURE: KEY ISSUES AND OPPORTUNITIES FOR AFRICA

INTRODUCTION

Alien species have been used to improve production and value from fisheries and aquaculture systems for thousands of years: early Romans introduced the common carp to some areas of Europe and the practice was continued by clerical workers, lay persons and monks during the middle ages. In the 19th and 20th centuries many European colonists brought native species of salmon and trout with them to establish fisheries as they settled in Latin America and Africa. More recently with the development of aquaculture, fish farmers have transferred species around the globe in hopes of improving production and creating new markets. Africa has provided a source of alien species that has contributed to aquaculture development, especially in rural areas, throughout the globe.

However the use of alien species has also generated controversy in that they are now recognized as one of the most significant threats to native aquatic biodiversity. Adverse impacts may arise from predation, competition, and interbreeding between alien and native species, as well as from habitat degradation brought about by alien species.

TECHNICAL GUIDELINE SERIES AND THE CCRF

It has been recognized that internationally coordinated approaches are necessary for the responsible use and control of alien species in fisheries and aquaculture. The Convention on Biological Diversity (CBD) contains numerous references to alien species and importantly Article 8(h) requires, "Each Contracting Party shall, as far as possible and as appropriate: ... Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species". The CBD recognizes the contribution that alien species have made to agriculture in the form of agro-biodiversity.

The Food and Agriculture Organization of the United Nations (FAO) addresses alien species in the Code of Conduct for Responsible Fisheries. 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.

FAO has developed the “Technical Guidelines” series in order to implement the CCRF (http://www.fao.org/fi/eims_search/advanced_s_result.asp?series=116&lang=en&sortorder=5&form_c=AND). Guidelines on a specific subject are drafted by relevant experts in association with FAO staff and with input from relevant FAO fora. The guidelines have no formal status, are intended to be used on a voluntary basis and support the implementation of the CCRF. Furthermore, although the guidelines strive for scientific and technical rigor, they are meant to be flexible to accommodate diverse situations and to be capable of evolving as experience is gained.

Recognizing that alien species are being used in fisheries development and that good decisions on when use alien species in fisheries are needed, several international meetings and resource management institutions have recently called for increased awareness and improvement of existing guidelines on the responsible use and control of alien aquatic species. These fora identified the elements listed below as topics to be included in the Technical Guidelines.

KEY ELEMENTS TO BE INCLUDED IN THE GUIDELINES

The following elements, drafted at a recent FAO co-sponsored workshop¹, were thought to of major importance and should be included in the Technical Guidelines:

- **Preamble** – This section will describe relevant decisions on aliens species major international conventions and organizations, e.g. the CBD and CCRF.
- **Summary of agreements and other guidelines/codes of practice on alien species** – This section will briefly review the various international agreements with a complete listing in the Annex.
- **Description of an ICES-like code adapted to developing country conditions** (see Annex 1) – This section will describe the key elements of the ICES code with the addition of new elements appropriate for developing countries.
- **Summary of risks and benefits on using alien species in fisheries** – This section will describe the dangers and advantages in ecological and social/economic terms.
- **Risk assessment procedures including social and economic risks as well as environmental and ecological risks** – This section will summarize risk assessment procedures.
- **Decision trees** (see Opinionnaire, Annex 2) – This section will describe how to make informed decisions based on the above ICES codes.
- **The development of a set of criteria in order to establish a list of alien species of special concern in the region that could further promote awareness and responsible use** – This section will describe what biological characters of a species and what environmental characteristics of a habitat are important in establishing lists of species that should not be

¹ FAO/NACA/MRC/UC SeaGrant/AIT/IUCN workshop *International Mechanisms for the Control and Responsible Use of Alien Species in Aquatic Ecosystems*, held 27-30 August 2003, in Xishuangbanna, People's Republic of China.

imported, could be imported under special circumstances, or that could be imported with no risk.

- **Recommendations for national implementation** – This section will describe what national actions are needed for responsible use and control.
- **Regional coordination** – This section will describe various modes and suggestions for coordinated regional action, (for an example, which will not appear in the final guidelines see Annex 3, **MEMORANDUM OF UNDERSTANDING** between the Governments of BURUNDI, THE DEMOCRATIC REPUBLIC OF CONGO, TANZANIA, and ZAMBIA on the Control of Aquatic Alien Species in Lake Tanganyika
- **Recommendations for zoning areas where introductions can or can not be made,** – This section will describe how geographic areas may be zoned for use by aquaculture and alien species based on a variety of criteria. This will be similar to OIE zoning based on disease status
- **Special procedures for on-going practices, i.e. the continued use of alien species** –This section will describe procedures for the continued use of alien species in areas where they are already present, e.g. stocking programmes, ornamental fish, or aquaculture.
- **Monitoring, fish health, and reporting** – This section will complement the one above and describe how and what to monitor and report, and the quarantine, diagnostic and treatment procedures necessary.
- **Annexes** – This section will contain details on many of the general sections in the main body of the Guidelines. For example:
 - List of international instruments
 - ICES Codes
 - Opinionnaire

SUGGESTED ACTION BY THE COMMITTEE

The Committee is invited to review the above elements and comment on their appropriateness for inclusion in the Technical Guidelines. The Committee is further invited to suggest additional elements that are missing from the above. The Committee, and specifically Members of the Lake Tanganyika Sub-Committee, are invited to comment on the draft Memorandum of Cooperation (Annex 3).

Annex 1**Structure and basic content of the ICES/EIFAC Codes of Practice & the current ICES Code².**

These codes apply to the purposeful movement of aquatic species, for example, in fisheries, biological control, aquaculture, and for research. Therefore, someone, some organization, some private business, or some government agency must knowingly engage in the act of transporting the species. Guidelines and policy concerning species introduced inadvertently through ballast water or on ship's hull's are addressed elsewhere, for example the International Maritime Organization. Development projects that involve geographic changes, such as river diversion, dredging of canals to connect distinct water bodies, etc. also may involve the subsequent introduction of exotic species and therefore this framework could also be used in the review and evaluation of those projects.

The basic code contains the requirements that:

- i) the entity moving an exotic species develop a PROPOSAL, that would include location of facility, planned use, passport information, and source of the exotic species;
- ii) an independent REVIEW 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 would be evaluated;
- iii) ADVICE and comment 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 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.

² International Council for the Exploration of the Sea. 1995. ICES Code of Practice on the Introductions and Transfers of Marine Organisms - 1994. ICES Co-operative Research Report No. 204.

Turner, G. editor. 1988. Codes of Practice and Manual of Procedures for Consideration of Introductions and Transfers of Marine and Freshwater Organisms. - EIFAC Occasional Paper No. 23. European Inland Fisheries Advisory Commission. Food and Agriculture Organization of the United Nations, Rome, Italy.

Annex 2

Opinionnaire A Review and Decision Model for Evaluating Proposed Introductions of Aquatic Species

Opinionnaire for appraisal of introductions of aquatic organisms from Kohler and Stanley (1984). Each member of an evaluation board or panel of experts circles the number most nearly matching his/her opinion about the probability for the occurrence of the event. If information is unavailable or too uncertain “don’t know” is marked .

Response

	No	Unlikely	Possibly	Probably	Yes	Don't know
1. Is the need valid and are no native species available that could serve the stated need?	1	2	3	4	5	x
2. Is the organism safe from over-exploitation in its native range?	1	2	3	4	5	x
3. Are safeguards adequate to guard against importation of disease/parasites?	1	2	3	4	5	x
4. Would the introduction be limited to closed system?	1	2	3	4	5	x
5. Would the organism be unable to establish a self-sustaining population in the range of habitats that would be available?	1	2	3	4	5	x
6. Would the organism have mostly positive ecological impacts?	1	2	3	4	5	x
7. Would most consequences of the introduction be beneficial to humans?	1	2	3	4	5	x
8. Is data base adequate to develop a complete species synopsis?	1	2	3	4	5	x
9. Does data base indicate desirability for introduction?	1	2	3	4	5	x
10. Based on all available information, do the benefits of the exotic fish introduction outweigh the risks?	1	2	3	4	5	x

Annex 2 (cont.)**Review and Decision Model for Evaluating Proposed Introductions of Aquatic Species**

	Review level	Opinionnaire value	Decision
	I		
1.	Is the need valid and are no native species available that could serve the stated need?	≤ 2 > 2	- <u>reject</u> - to next question
2.	Is the organism safe from over-exploitation in its native range?	≤ 2 > 2	- <u>reject</u> - to next question
3.	Are safeguards adequate to guard against importation of disease/parasites?	≤ 2 > 2	- <u>reject</u> - to next question
4.	Would the introduction be limited to closed system?	≥ 3 < 3	- <u>approve</u> - to review level II
	II		
5.	Would the organism be unable to establish a self-sustaining population in the range of habitats that would be available?	≥ 3 < 3	- <u>approve</u> - to review level III
	III		
6.	Would the organism have mostly positive ecological impacts?	≤ 2 $> 2, < 3$ ≥ 3	- <u>reject</u> - to review level IV - to next question
7.	Would most consequences of the introduction be beneficial to humans?	≤ 2 $> 2, < 3$ ≥ 3	- <u>reject</u> - to review level IV - to next question
	IV		
8.	Is data base adequate to develop complete species synopsis?	< 3 ≥ 3	- conduct detailed lit. rev. 1) - to next question
9.	Does data base indicate desirability for introduction?	≤ 2 $> 2, < 3$ ≥ 3	- <u>reject</u> - conduct research 2) - <u>approve</u>
10.	Would benefits exceed risks?	≤ 2 ≥ 3	- <u>reject</u> - <u>approve</u>

- 1) Thereafter next step question 9.
- 2) Research focused on potential impact on indigenous species and habitats. Thereafter question 10. Value $> 2, < 3$ restart research.

Annex 3*Draft***MEMORANDUM OF UNDERSTANDING**

among the

MINISTRY OF FISHERIES

of

BURUNDI, THE DEMOCRATIC REPUBLIC OF CONGO, TANZANIA, & ZAMBIA

The Government of Burundi, the Government of Tanzania, the Government of Zambia, and the Government of the Democratic republic of Congo, collectively referred to as “the Parties”

Recognizing the interest of all Parties to achieve the sustainable development and conservation of the aquatic resources in the Lake Tanganyika Basin based on the principles provided for in the Code of Conduct for responsible Fisheries;

Mindful of their interest in supporting the efforts of their countries to promote regional cooperation with respect to the management of alien aquatic species in the Lake Tanganyika basin, with a view in particular to cooperating and harmonizing policies and legislation relating the introduction, use and control of alien aquatic species in the lake Tanganyika;

Recognizing that there is extensive scope for cooperation between the parties in order to achieve responsible use and control of alien aquatic species within Lake Tanganyika Basin;

Following the recommendations of the tenth session of the FAO CIFA Sub Committee for Lake Tanganyika (Lusaka, Zambia, October 2003) that called for development of a Memorandum of Understanding between the four lacustrine countries on the responsible use and control of alien species in fisheries within the Lake Tanganyika Basin.

Hereby agree to strengthen their collaboration as follows:

Article 1 – Purpose of the Memorandum of Understanding

The purpose of this memorandum of Understanding is to ensure cooperation between the Parties by coordination of effort, mutual assistance and joint action in fields of introduction, use and control of alien aquatic species.

Article 2 – Scope of cooperation

The cooperation between the Parties shall be directed at but not necessarily limited to:

- Implementing the precautionary approach to aquatic alien species introductions;
- Establishing a management authority that will be responsible for evaluating proposed introductions in accordance with international standards, codes such as the ICES Code of practice, the FAO Code of Conduct for Responsible Fisheries and for monitoring the effects of introduction;
- Promoting the development and maintenance of a database on past and future introductions such as the FAO Database on Introductions of Aquatic Species ;

- Developing specific procedures and protocols on the mechanisms for the management of introduced aquatic alien species under the relevant competent government agencies with authority to address issues of compliance, duties, and liability consistent with relevant international instruments;
- Promoting education, training and awareness creating programmes on harmful aquatic alien species introductions through, *inter alia*, disseminating as widely as possible international standards, codes such as the ICES Code of practice and advising authorities responsible for fisheries and other related sectors of these international standards and codes.

Article 3 Consultation

- a. The Parties will consult, through respective designated officers(?), on matters referred to in articles 2 and 3 above that are of mutual interest to them.
- b. The parties, prior to the introduction of an aquatic alien species will consult and notify each other of such intended/planned introduction.

Article 4 Exchange of Information and Documents

The parties will arrange for the exchange of information and documents concerning matters of common interest and relating to the introduction, use and control of alien aquatic species in the Lake Tanganyika Basin.

Article 5 Joint action

Whenever desirable, the Parties may seek each other's technical cooperation with a view to promoting the development of collaborative activities in the fields relating the introduction, use and control of alien aquatic species in the Lake Tanganyika Basin.

Article 6 Responsibilities

This memorandum defines in general terms the basis on which the Parties will cooperate and, as such, does not constitute a financial obligation to serve as a basis for expenditures. Expenditures of funds, human resources, equipment, supplies, facilities, training, public information, and expertise will be provided by each Party to the extent that their participation is required and resources are available.

Article 7 Enter into Effect

- a. This memorandum shall become effective on the date of the last signature of the authorized representatives of the Parties.
- b. Any Party that desires to terminate this Memorandum can do so in writing to the all other Parties. Such written communication shall have immediate effect.