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CODE OF PRACTICE FOR RECREATIONAL FISHERIES

| | |
|--------------------------------------------------|----|
| Preparation of this document | 2 |
| Introduction | 3 |
| ARTICLE 1 – Nature and Scope | 4 |
| ARTICLE 2 – Objectives | 4 |
| ARTICLE 3 – Implementation and Updating | 5 |
| ARTICLE 4 – General Principles | 6 |
| ARTICLE 5 – Environmental Stewardship and Ethics | 7 |
| ARTICLE 6 – Policy and Institutional Frameworks | 8 |
| ARTICLE 7 – Compliance and Enforcement | 9 |
| ARTICLE 8 – Recreational Fishing Practices | 10 |
| ARTICLE 9 – Fish Welfare | 12 |
| ARTICLE 10 – Stakeholder Interactions | 15 |
| ARTICLE 11 – Management | 15 |
| ARTICLE 12 – Research | 18 |
| ARTICLE 13 – Awareness, Education and Training | 20 |

Preparation of this document

Upon request by the European Inland Fisheries Advisory Commission (EIFAC), the present Code of Practice (CoP) for Recreational Fisheries has been prepared by R. Arlinghaus (Leibniz-Institute of Freshwater Ecology and Inland Fisheries and Humboldt-University of Berlin, Germany), with the collaboration of I. Cowx (International Fisheries Institute, Hull, UK) and R. van Anrooy (FAO), on the basis of comments and suggestions received on a draft CoP at a workshop held November, 5-6, 2007 in Bilthoven, The Netherlands. Selected stakeholders from academia, national and international fisheries bodies, fisheries and non-fisheries governmental and non-governmental organizations (NGOs) and specific recreational fisheries stakeholders were invited to this workshop and 28 delegates attended.

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Introduction

Recreational fishing constitutes the dominant or sole use of many freshwater stocks in the EIFAC region. Its importance is also increasing in economies in transition of that region. Yet little attention has been paid in international policy documents to the responsible management of recreational fisheries. This creates confusion among policy makers, national and regional bodies, and organizations responsible for fisheries management. As a consequence, the issues faced by this sector are often overlooked or undervalued by policy makers and in public discussion about the future of the world's fisheries. The present document aims at addressing this imbalance.

The EIFAC 'Code of Practice (CoP) for Recreational Fisheries' is intended to complement and extend the 'FAO Code of Conduct for Responsible Fisheries', and is framed specifically towards recreational fisheries practices and issues. It serves as the core document that describes the minimum standards of environmentally-friendly, ethically-appropriate and - depending on local situations - socially-acceptable recreational fishing and its management. Although it is clear that many, if not all, of the issues presented in this CoP are already addressed through national fisheries legislation and regional fisheries management regulations in many countries in the EIFAC region, an EIFAC CoP could help make these approaches more coherent. The present CoP is a voluntary instrument adopted and disseminated by the European Inland Fisheries Advisory Commission (EIFAC).

ARTICLE 1 – Nature and Scope

- 1.1 The Code of Practice for Recreational Fisheries (hereafter abbreviated as CoP) is voluntary. It is directed towards the entire recreational fisheries sector¹ and all entities, parties, organizations and individuals in the EIFAC region that directly or indirectly impact or depend on aquatic ecosystems, recreational fisheries resources and recreational fishing activity.
- 1.2 The CoP provides generic principles and best practice standards applicable to the conservation, management and development of recreational fisheries. It also includes human activities that support recreational fisheries, such as aquaculture production of fish for stocking, the manufacture of gear, the tourism industry, the media, as well as fisheries management and research.
- 1.3 The CoP is to be interpreted and applied in conformity with the relevant rules of various international and national agreements and legislation relating to the aquatic environment and fisheries, other voluntary agreements such as the FAO Code of Conduct for Responsible Fisheries and their follow up Technical Guidelines, as well as other more detailed national, regional and local Codes of Conduct or Best Practice Guidelines that exist for recreational fisheries.
- 1.4 It is hoped that interested parties in countries outside the EIFAC region may consider this CoP as a useful reference and even as a possible model for the regulation of the activities of their own recreational fishing sector.

ARTICLE 2 – Objectives

¹ Further in the document also referred to as “Sector”.

The objectives of this CoP are:

- 2.1 to establish best practice and management principles for responsible recreational fisheries, among nations, regions, organizations or individual recreational fishing communities in the EIFAC region, in accordance with the relevant rules of international, national and regional legislation, while taking into account their relevant biological, technological, economic, social, cultural and environmental aspects.
- 2.2 to serve as a guiding instrument of reference in establishing or improving the institutional and policy framework required to exercise responsible management of recreational fisheries.
- 2.3 to promote international exchange of knowledge and experiences on recreational fisheries, on their management and sustainable development.
- 2.4 to facilitate and promote cooperation among public bodies, non-governmental organisations and individual stakeholders in the conservation, management and development of recreational fisheries resources, including the aquatic ecosystems of which they are an intrinsic part.
- 2.5 to promote recreational fisheries in the long-term by outlining and facilitating best practices within the sector for long-term sustainability, and for the responsible use of all ecological services generated by aquatic ecosystems and aquatic organisms.
- 2.6 to promote understanding of the importance of recreational fishing as a socio-economic factor among public bodies, non-governmental organisations and individual stakeholders involved in conservation, management and development of aquatic ecosystems.
- 2.7 to improve communication and mutual understanding among recreational fisheries stakeholders and with other parties.
- 2.8 to promote research into recreational fisheries as well as on associated aquatic ecosystems and the relevant environmental factors which influence recreational fisheries.

ARTICLE 3 – Implementation and Updating

- 3.1 The recreational fishing sector should collaborate in the promotion and implementation of the objectives and principles contained in the CoP among international and national policy makers.
- 3.2 EIFAC members, relevant international bodies and national organizations should promote understanding of the CoP among those involved in recreational fisheries, particularly local anglers and other recreational fishers.
- 3.3 In its region, EIFAC, in collaboration with government agencies and angling associations, will monitor the application and implementation of the CoP and its effects on recreational fisheries among its member countries.
- 3.4 In its region, EIFAC, as appropriate, will revise the CoP periodically, taking into account new developments in recreational fisheries, with full consultation of relevant stakeholders.

ARTICLE 4 – General Principles

- 4.1 Relevant international, national and regional administrations, fishing rights holders and other parties and persons that own or are responsible for fisheries resources shall protect, promote and encourage access to recreational fisheries while ensuring exploitation is sustainable and that potentially conflicting societal demands are taken into account.
- 4.2 The fisheries sector and other non-fishery sectors in charge of management of water and aquatic ecosystems and their supporting terrestrial habitats (e.g. riparian zones) should ensure that recreational fisheries interests, including the need to conserve the resources and supporting habitats, are taken into account along with the other multiple uses of aquatic ecosystems. Recreational fisheries stakeholders should be integrated into all decision-making processes that affect aquatic ecosystems.
- 4.3 The opportunity for recreational fishing carries with it the obligation to do so in a socially and ecologically responsible and overall sustainable manner to ensure wise use, conservation, management and development of wild living aquatic resources and the aquatic ecosystems and fisheries habitats for present and future generations.
- 4.4 The recreational fisheries sector supports and implements measures which aim at addressing undesirable impacts of recreational fishing practices and management actions on individual fish, fish populations and the aquatic ecosystems as a whole. Particularly, the sector aims at avoiding irreversible, costly or slowly reversible changes to aquatic biodiversity, fish populations and aquatic ecosystems.
- 4.5 Where recreational fisheries exploit the same waters as commercial fisheries, conflicts between the two sectors should be minimized and fisheries should be so managed that the combined exploitation is sustainable.

ARTICLE 5 – Environmental Stewardship and Ethics

Each stakeholder within the recreational fishing sector should:

- 5.1. know that aquatic animals, including fish, occur in aquatic ecosystems within natural limits and that recreational fishing mortality and other actions associated with recreational fishing have the potential to negatively affect fish populations and individual fish.
- 5.2. accept that aquatic animals are part of an interrelated web of life and aquatic ecosystems that provide various ecological services to society in addition to the opportunity to fish.
- 5.3. be aware that familiar practices within recreational fishing and recreational fisheries management might be subject to change based on new scientific knowledge, as well as in response to ecological and sociopolitical changes.
- 5.4. engage in actions that extend the pursuit of going fishing to, for example, educate other people, raise public awareness and the profile of recreational fishing, participate in recreational fisheries management, conservation and enforcement.
- 5.5. be aware that the behaviour of each individual engaged in recreational fishing related activities is representative of the action of all others, and act accordingly.
- 5.6. accept that environmental stewardship is the overriding ethical principle to which recreational fishing practice and its management will be judged by others.

ARTICLE 6 – Policy and Institutional Frameworks

With regard to recreational fisheries, governments, national, regional and international administrations and individual decision-makers, within their competencies and capabilities, should:

- 6.1 establish, and regularly review and update, the policy and regulatory frameworks for the management and development of recreational fisheries nationally, regionally and locally, and where necessary, internationally, to protect and promote the opportunities for recreational fishing and the sustainable use of recreational fisheries resources.
- 6.2 provide the necessary resources, information and infrastructure for sustainable management, conservation and development of the sector.
- 6.3 ensure that representatives of the recreational fisheries sector are consulted in the decision-making processes and involved in other activities related to aquatic ecosystem management, conservation and planning.
- 6.4 promote the establishment of procedures and mechanisms at the appropriate administrative level to settle conflicts that might arise within the recreational fisheries sector, between fisheries resource users and between other direct and indirect users of aquatic ecosystems.

ARTICLE 7 – Compliance and Enforcement

The competent authorities, the recreational fishing sector and each individual fisher should:

- 7.1 provide the resources, mechanisms and management tools (e.g. sanctions) to ensure compliance with and the enforcement of environmental and fisheries legislation and other relevant regulations.
- 7.2 communicate the applicable legislation and regulations, as well as other relevant information, to recreational fishers in an easily understandable and timely way. However, it is the responsibility of the individual fisher/angler to be informed about local, national and regional rules and customs and to act accordingly.
- 7.3 comply with local, regional, national and international regulations, requirements, customs and codes, and report violations of fishing regulations and damage to the ecosystem (e.g. fish kills, habitat degradation) to the relevant authorities and organisations in a timely way.

ARTICLE 8 – Recreational Fishing Practices

Each recreational fisher should:

Safety

8.1 be aware of, and comply with, local and national safety rules and regulations.

Fish

8.2 not sell or otherwise trade fish or other aquatic products harvested during the pursuit of recreational fishing.

8.3 not take more fish or aquatic organisms than needed.

8.4 only keep fish or other aquatic organisms that will be eaten within the family or within the network of relatives and friends; other fish should be released alive in agreement with national and regional legislation, needs and local customs and in accordance with Article 9 of this CoP.

8.5 not leave fishing gear unattended with the exception of recreational fishing techniques that cannot be continuously observed (e.g. gill netting, traps).

8.6 always use fishing tackle and methods that comply with national regulations.

8.7 preserve the quality of fish that are removed for consumption such as by putting them on ice, immediate removing and disposing of the entrails, quick storage in freezers or early consumption; dead fish should not be left in the environment.

Litter

8.8 not litter the environment; it is best not to bring material to the water that could litter the environment and to pack all equipment, bait and food in recycling boxes.

8.9 if feasible, remove litter left by other people and leave the fishing location litter-free; always bring a container to collect litter at the fishing site.

Environment

8.10 immediately report pollution incidences, distressed or dead fish, the presence of unusual species, non-native species and other environmental impacts/observations to the relevant authorities.

8.11 not stock, introduce or transfer live fish or other aquatic organisms within or between catchments without permission from the authorities. This applies particularly to non-native organisms.

8.12 avoid damage to riparian vegetation caused by accessing the fishing location, construction of fishing sites, piers, removal of woody debris, trampling or felling of firewood.

8.13 avoid disturbance or possible disturbance to wildlife and waterfowl, in particular avoid fishing near nesting birds and avoid using hook bait that might be ingested by waterfowl.

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- 8.14 minimize the use of lead weights on the fishing line and use alternatives to lead where possible and when appropriate.
 - 8.15 minimize boat travel, speed, noise and boat wash when these may disturb and potentially damage fish, riparian vegetation, waterfowl and other water users.
 - 8.16 anchor boats only in areas that are not environmentally sensitive.
 - 8.17 avoid wading in streams and lakes during fish and other aquatic wildlife's reproductive periods.
 - 8.18 moderate the amount of groundbait introduced to water bodies and do not use potentially toxic chemicals (e.g. preservatives, colouring agents) in ground bait and hook bait.
 - 8.19 use bait, particularly live bait, only in agreement with local or national regulation, and use aquatic organisms only in the water body from which these were collected. Never transfer aquatic live bait from one water body to another.
 - 8.20 when collecting bait adopt environmentally friendly practices to minimise disturbance to habitats and the environment (e.g. backfill holes on the foreshore that are dug in the process of bait collection).

ARTICLE 9 – Fish Welfare

Each participant in recreational fishing and the recreational fishing sector as a whole should:

- 9.1 accept that, by nature of the activity recreational fishing may result in killing, will induce physical damage and may induce a stress response in individual fish during the process of capture, handling and possibly release, which may affect the fitness of the individual fish.
- 9.2 be aware that captured live or dead fish may be vectors for spreading of notifiable fish and other diseases.
- 9.3 use tackle and gear that is appropriate for the size and type of fish or other aquatic organism that is targeted. In recreational angling, chose tackle and gear in a way that:
 - a. minimizes landing duration
 - b. minimizes air exposure
 - c. minimizes injury
 - d. avoids hooking outside the mouth region if technically possible
 - e. allows safe landing, while avoiding deep-hooking whenever possible
- 9.4 after landing a fish, restrain it gently but firmly to control it during unhooking.
- 9.5 immediately anaesthetize and, if possible before unhooking, kill the fish that is to be taken, by an appropriate method such as a sharp blow to the cranium and then exsanguination (bleeding-out).
- 9.6 if fish are to be held alive after capture, use devices that provide sufficient space and water quality and keep the fish for the shortest time possible. Suitable devices include keepnets, live-wells and similar fish-retention equipment; stringers or very small metal cages should not be used. Avoid holding different fish species and sizes together if this might result in damage to the skin through abrasion or crushing or lead to predation.
- 9.7 use live baitfish only in jurisdictions where this is legally allowed. To ensure fish welfare recreational fishers should encourage use of alternative bait.
- 9.8 develop and promote practices that cause the least physical, physiological and behavioural impact on fish if they are to be assessed (e.g. weighed) and released after capture, as in some recreational fishing competitions and tournaments. If the fish are to be brought to a central weighing station, reducing weigh-in stress by minimizing air exposure and crowding/compromised water quality at the weigh-in facility. Afterwards, release the fish as close as possible to the original capture site. Encourage use of alternative fishing success criteria that do not depend on bringing live fish to a central weighing station.
- 9.9 release fish and other aquatic organisms after capture in the best condition possible and only if legal according to national and regional legislation. Specifically, in recreational angling this entails :
 - a. obtaining, reading and observing regionally-available best practice catch-and-release guidelines.
 - b. using appropriate landing devices to avoid mucus loss and damage to the skin and other fish organs.
 - c. carrying and using appropriate unhooking devices such as pliers, forceps, side cutters.
 - d. assessing the size of fish while keeping it under water, if possible.

- e. avoiding extended periods of air exposure, preferably unhooking the fish in the water and touching fish only with wet hands.
- f. avoiding touching the fish's gills and eyes while unhooking.
- g. never squeezing a fish or using unnecessary force while unhooking.
- h. releasing deeply-hooked fish by cutting the leader and only if survival is likely.
- i. not releasing fish that show signs of impaired function or severe injury.
- j. using validated and legal techniques to increase chances of survival when fish show signs of barotraumas.
- k. avoiding fishing when the intention is to catch-and-release fish in situations that are known to substantially reduce the chances of post-release survival (e.g., for some species, a particularly high/low water temperature).
- l. avoiding catching-and-releasing fish during their reproductive period.
- m. reviving fish before release by moving water over the fish's gills if necessary.
- n. releasing fish as quickly as possible by placing them gently into the water.

ARTICLE 10 – Stakeholder Interactions

The recreational fishing sector and all other parties responsible for aquatic ecosystem management should:

- 10.1 ensure that the decision-making processes are transparent, and that all stakeholders have an opportunity to provide input prior to making decisions on legislation, policies and regulations related to recreational fisheries management and the aquatic ecosystem.
- 10.2 understand that some human activities are of higher social priority than recreational fishing, even if they negatively impact fish and fisheries.
- 10.3 respect the value systems and perspectives of all stakeholders, even if they contradict values held by the recreational fisheries community.
- 10.4 respect the rights of those who own or use the fisheries/aquatic resource, land or harbours adjacent to the water that is fished.
- 10.5 respect other people's privacy, space, values, customs and objectives (commercial/subsistence) while fishing, accessing the fishery or moving through a fishery.
- 10.6 avoid conflicts, both within the sector and between other user groups. Should conflicts arise, work cooperatively with other stakeholders to develop a common solution based on factual evidence or compromise.

ARTICLE 11 – Management

- 11.1 The over-arching goal of recreational fisheries management is to ensure the long-term sustainability of fisheries resources thereby safeguarding the availability of these resources for future generations. Sustainability of fisheries resources includes conserving biodiversity at all levels, including genetic diversity, as well as supporting terrestrial and aquatic ecosystems.
- 11.2 Sustainable recreational fisheries management is based on an ecosystem approach to fisheries and a precautionary approach. Such management is holistic and integrated in orientation and differs from the more traditional narrow focus on one component of interest, such as a targeted fish stock.
- 11.3 Management of recreational fisheries is multi-dimensional, multi-disciplinary and sometimes multi-jurisdictional, and it requires recognition of the complexities of the resource system, the interactions between social and ecological subsystems of recreational fisheries, and effective communication and cooperation among stakeholders.
- 11.4 In some situations, recreational fisheries are essentially unregulated, e.g. no management is in place. It is recommended that the need for dedicated management is investigated in such situations.
- 11.5 Management decisions should be based on the best available science while recognizing traditional ecological, socio-economic and cultural knowledge and the need to balance competing demands. Lack of scientific information should not preclude management from decision making.
- 11.6 Recreational fisheries management decisions must consider the need for high quality fishing opportunities while balancing the needs of other parties, respecting the ecological limitations of the supporting ecosystem, and acknowledging the socio-economic needs of society.
- 11.7 Management decisions should include all parties that may directly or indirectly influence the fisheries resources.
- 11.8 Successful recreational fisheries management requires clear identification of goals and objectives. Such goals and objectives are highly dependent on societal values and should be developed in consultation with all stakeholders.
- 11.9 Management decisions should be implemented within an adaptive framework to allow structured, life-long learning from each management decision. Formal decisions on fisheries management should be based on the best understanding of the system being managed using both scientific and traditional knowledge.
- 11.10 Development of management plans is important for successful implementation of management actions. A management plan should consist of well-defined, measurable objectives; analysis of the current state and the problems requiring attention; suggested actions to overcome the identified problems; required human and financial resources for implementation of the proposed management actions; and proposed time scale and monitoring approach.
- 11.11 Monitoring of the fisheries ecosystem is necessary to inform management decisions in the future. Evaluation of the effectiveness and appropriateness of management actions, as well the

collection and verification of information and the dissemination of information to all interested stakeholders, is critical for the sustainable use of fisheries resource and to allow capacity-building and should be conducted whenever possible.

- 11.12 Cost-benefit and risk analyses of possible management decisions should be conducted to help minimize potential detrimental impacts on the fisheries resource and supporting ecosystems, as well as to reduce potential conflicts with other resource user groups.
- 11.13 Information generated by, or amassed for, the management of recreational fisheries shall be verified and disseminated to interested parties through accessible and relevant media and in a timely manner.
- 11.14 Appropriate assistance should be provided as needed to countries in the EIFAC region that lack experience with recreational fisheries resource management, at the local, regional or national level, in the development of protocols and programs to establish a more coherent approach to recreational fisheries management.
- 11.15 As responsible users of the fisheries, recreational fishers should encourage management actions, and actions by fellow recreational fishers, that avoid intentional or unintentional detrimental change to aquatic biodiversity. This may be achieved by such actions as: discouraging excessive fishing mortality; carrying out appropriate habitat improvement activities; stocking fish based on ecologically-sound principles; and preventing the introduction of non-native species.
- 11.16 Recreational fisheries managers should seek alternative qualified advice when uncertain about likely outcomes of a planned management intervention.
- 11.17 Recreational fishers and other parties interested in the fisheries resources and its supporting ecosystem should recognize that fisheries management operates at three levels: (1) the fish habitat; (2) the people and fishing practices; and (3) the fish stocks at population or community levels.

Management of Fish Habitat

- 11.18 All parties interested in the fisheries resources should support measures to enhance fish habitats, including spawning, nursery, feeding and shelter areas and the connectivity between them.
- 11.19 Protection of fish habitat is important to maintain naturally-reproducing wild fish populations. Emphasis should be given to habitat protection measures in areas that have functioning fish habitat, before stocking actions are considered.
- 11.20 Modification or manipulation of fish habitat for the sustainability of a fishery and its ecosystem is a long-term solution that may be preferred to other forms of management intervention.

Management of the People and Fishing Practices

- 11.21 Recreational fisheries management measures that target the fishing public should aim at providing a diversity of fisheries to meet the needs of distinct fisher groups and other stakeholders, where this is biologically and ecologically feasible.
- 11.22 Implementation of scientifically-based, people-oriented management measures should aim at maximizing the social and economic benefits generated by recreational fishing while preventing overexploitation of the fisheries resources. It is acknowledged that the definition of overexploitation and determination of the level of sustainable fishing effort/mortality depends on data availability and management objectives. Ultimately, this is system-specific.
- 11.23 People-oriented management measures should be designed on a system-specific basis to account for the local and regional diversity in ecological and social conditions. They include the use of input control measures such as assigning areas closed to fishing and seasonal fishing closures (effort controls), output controls such as size-based harvest limits or bag limits (catch/harvest controls) and other incentive-based management tools. No actions, particularly effort control measures that limit access to a fishery, should be taken in an ad-hoc manner without a scientific or pertinent social justification.
- 11.24 When making management decisions for a given fishery, the potential behavioural responses of the fishers to particular management measures should be taken into consideration as such responses might curtail the success of management on a particular system.

Management of the Fish Stocks

- 11.25 Stakeholders should recognise that management of fish stocks can include addition to and removal of components of the stock, as well as culling of undesirable species and biomanipulation of the system using indigenous species. These actions might require environmental impact assessments and should occur only within a framework to protect ecosystem functions, services and aquatic biodiversity.
- 11.26 Many recreational fisheries are based on stocking programmes to maintain or enhance stocks of popular fish species. However, stocking should be the last option of many to maintain or enhance fisheries quality. Introductions of fish should follow national and international guidelines to avoid unintentional adverse consequences, particularly genetic contamination and spreading of diseases. Alternative management measures to fish stocking, such as habitat improvement, diseases and predator control, harvest regulations or regulation of fishing effort, should be preferred in most situations.
- 11.27 Introduction of non-native species to create fisheries should be avoided. Where proposed, they must comply with the EIFAC Code of Practice on Species Introductions and be reviewed by qualified, independent experts.

ARTICLE 12 – Research

- 12.1 Research activities on recreational fisheries are encouraged. These should support policy decision making as regards the aquatic environment, to reduce the risk of negative effects on recreational fisheries and to support and improve recreational fisheries management.

- 12.2 Recreational fisheries will need to adopt a multidisciplinary, interdisciplinary and transdisciplinary approach to problem solving. Research programmes should promote study designs that will succeed across research disciplines. Modern recreational fisheries research extends the traditional fisheries biology research domain and explicitly integrates the social and economic sciences.
- 12.3 Research programmes should work across multi-level governance systems at local, regional, national, and international levels, as well as involving various bodies with management and research responsibilities, such as universities, consulting and private sector organizations, local agencies, national institutes, and international fisheries organisations.
- 12.4 Adequate resources, including research facilities and trained staff should be provided for recreational fishery research programs. These programmes should be provided financial support from public sources and from a variety of self-sustaining funding mechanisms, such as user-pay initiatives and cost-recovery mechanisms.
- 12.5 Capacity building is essential to ensure that fishery research programmes are effective. States and relevant international organisations that have the ability to provide capacity-building support should work towards provision of resources to developing countries' fishery research programmes, such as technical training.
- 12.6 Development of frameworks to identify meaningful recreational fishery research questions is important for successful fishery management. These frameworks should incorporate traditional ecological knowledge of recreational fishers and other concerned stakeholders to ensure that their research needs are met. Researchers should take final responsibility for development of appropriate research proposals and approaches to answer these questions.
- 12.7 Research must use robust and accurate data collection and analysis strategies that incorporate appropriate standardized methods. Completed analyses should be published in a timely fashion and data made available subject to intellectual property and confidentiality being respected. If possible, results should be published to allow dissemination of the information internationally, but local and regional research reports are equally important for information of local end-users. Fishery research results should be shared with stakeholders using clear language and concise communication approaches that match the needs of the stakeholders.
- 12.8 Recreational fisheries organisations and agencies should monitor and assess the stocks under their responsibilities, including the impact of ecosystem changes resulting from land use, urbanization, climate change, habitat alteration, and other anthropogenic sources. Successful implementation of fisheries management programmes rely on development of broad-based monitoring schemes. These should collect pertinent data on the habitat, fishery, and fish stocks to assure that progress towards management goals and objectives can be documented. Researchers should encourage the fishers to contribute actively to the monitoring of fish populations by reporting relevant data and other observations to fisheries managers and researchers.
- 12.9 Recreational fisheries research should include an understanding of the social, economic, marketing, and institutional factors affecting recreational fishers and fisheries.
- 12.10 Recreational fisheries research results should be used to establish management objectives, reference points, performance criteria and to formulate and update management plans.

Fisheries research results should be used as the baseline for development of adaptive management approaches, and outputs of research are essential for evaluation of management effectiveness.

- 12.11 Given the limited financial and human resources available, recreational fisheries research efforts may need to focus on a subset of fisheries. Where recreational and commercial fisheries co-exploit the same fish stocks collaborative research should be established.

ARTICLE 13 – Awareness, Education and Training

The recreational fishing sector should:

- 13.1 promote awareness of the present CoP to encourage responsible recreational fisheries through targeted information, education, and training of recreational fishers, managers, policy makers and other stakeholders.

- 13.2 publicize conservation and management measures and ensure that laws, regulations and policies governing their implementation are effectively disseminated and explained in layman's language.
- 13.3 ensure that local fishing communities and individual fishers are involved and aware of policy formulation and the associated implementation, enforcement and evaluation process, while facilitating awareness and implementation of the CoP.
- 13.4 make effort towards and invest in recruiting new recreational fishers and anglers, especially young people and children, instilling a sense of environmental stewardship with new recruits.
- 13.5 invest funds and manpower into development of education and training programs for fishers and managers to be informed about recent developments in recreational fisheries science, management and policy.
- 13.6 collaborate with relevant experts in developing awareness and education programmes aimed at improving attitudes towards recreational anglers and further promoting resource stewardship within the sector.
- 13.7 objectively and routinely communicate recent advances in recreational fisheries science, management and conservation. In the long term, objective communication of both the economic and ecological benefits, as well as the negative impacts of recreational fisheries practices, strengthens the sector and encourages critical debate which will further benefit the fish and the environment, those that enjoy recreational fishing and dependant commercial activities.

Definitions

Aquatic biodiversity: the diversity of aquatic organisms at all levels (genetic, species, communities and populations).

Best practice: planning, organization, managerial and/or operational practices that have proven successful in particular circumstances in one or more regions in the field and which can have both specific and universal applicability.

Catch-and-release: the process of capturing a fish, usually by angling, and releasing it alive. Catch-and-release ranges from legally required mandatory release of protected sizes and species to voluntary catch-and-release of fish that could have been retained.

Commercial fisheries: fisheries whose primary aim is to generate resources to meet nutritional (i.e. essential) human needs; in both full-time and part-time commercial fisheries, fish and other aquatic organisms are sold on domestic and export markets. Commercial fisheries include fisheries that supply feed to the aquaculture and agriculture sectors and raw material to other industrial sectors (e.g. the biomedical sector).

Ecosystem approach to fisheries: an ecosystem approach to fisheries strives to balance diverse societal objectives by taking into account the knowledge and uncertainties about biotic, abiotic and human components of ecosystems and their interactions, then applying an integrated approach to fisheries within ecologically meaningful boundaries.

Ecological services: ecological services are all services humans derive from aquatic ecosystems and fish stocks. They comprise four categories: supporting (e.g. nutrient cycling), regulating (e.g. water quality), provisioning (e.g. fish yield; recreational fishing experience) and cultural (e.g. existence value, spiritual and education dimension) services.

Environmental stewardship: environmental stewardship involves the wise and sustainable use of natural resources. It can be defined as the moral obligation to care for aquatic environments and the actions undertaken to provide that care. This means that recreational fisheries stakeholders strive to maintain, enhance and protect fish populations and aquatic ecosystems. Any kind of damage to aquatic biodiversity and aquatic ecosystems is to be avoided and where it, for whatever reasons, occurs it should be managed with the best resources available.

Fish welfare: good welfare means that an individual fish is in good health, with its biological systems functioning properly and with no impairment of fitness.

Ground bait: bait scattered on the fishing site to attract fish.

Hook bait: bait that is attached to a hook, as opposed to groundbait.

Institutions: the humanly devised constraints that structure human interactions (rules, laws, constitutions), informal constraints (norms of behaviour, conventions, self-imposed codes of conduct) and their enforcement characteristics.

Introduction: species or races of fish and other aquatic organisms that are intentionally or accidentally transported and released by humans into an aquatic environment outside their natural range set by biogeographic barriers.

Live bait: use of live invertebrates (e.g., crayfish), vertebrates (typically teleost fish) and worms and maggots as bait in recreational fishing.

Precautionary approach: a term used in fisheries management to denote prudent foresight to avoid unacceptable or undesirable situations in the face of uncertainty, taking into account that some changes in fisheries systems are only slowly reversible, difficult to control, not well understood and subject to change in the environment and human values.

Recreational fisheries sector: the entire network of stakeholders involved in or fully or partly dependent on recreational fisheries including amongst others fisheries ministries and agencies, managers, non-governmental organizations (e.g., umbrella angling associations and clubs), anglers, non-angling recreational fishers, tackle shops and tackle manufacturers, bait suppliers, charter-boating industry, recreational boat builders and chandlery suppliers, marina operators and specialised angling and fishing media, recreational fishing tourism and other related business and organisations as well as all other enterprises supporting recreational fisheries including aquaculture operations that produce stocking material or commercial fishing enterprises that sell angling tickets on their waters. A range of

other stakeholders and managerial regimes are not included in this definition though they may run or advocate activities and developments that have a direct impact on the recreational fishing quality and the recreational fisheries sector, the sector's viability and growth potential (e.g., hydropower generation, water management, irrigation).

Recreational fishing: fishing of aquatic animals that do not constitute the individual's primary resource to meet nutritional needs and are not generally sold or otherwise traded on export, domestic or black markets. The unambiguous demarcation between pure recreational fisheries and pure subsistence fisheries is often difficult. However, using fishing activity to generate resources for livelihood marks a clear tipping point between recreational fisheries and subsistence fisheries. Globally, angling is by far the most common recreational fishing technique, which is why recreational fishing is often used synonymously with (recreational) angling.

Recreational fishing effort: the amount of recreational fishing with gear of a specific type used on the fishing grounds over a given time span, typically normalized per area fished.

Recreational fishing mortality: the part of the total mortality rate acting on a fish stock that is due to recreational fishing.

Recreational fishing quality: a subjective evaluation by a recreational fisher of the perceived fulfilment of the needs that the fishing experience was supposed to provide.

Subsistence fisheries: fishing for aquatic animals that contribute substantially to meeting an individual's nutritional needs. In pure subsistence fisheries, fishing products are not traded on formal domestic or export markets but are consumed personally or within a close network of family and friends or traded on black or other informal markets. Pure subsistence fisheries sustain a basic level of livelihood and constitute a culturally significant food-producing and distributing activity.

Stocking: the release of cultured or wild caught aquatic species into the wild.

Sustainability: the management and conservation of the natural resource base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations. Such sustainable development concerns land, water, plant and animal genetic resources and is environmentally non-degrading, technically appropriate, economically viable, and socially acceptable. The four pillars of sustainability are social, economic, ecological and institutional sustainability.

Transfers: species or races of fish and other aquatic organisms that are intentionally or accidentally transported and released by humans into an aquatic environment within their natural range but from which they were previously absent.