

# ***Marine Aquarium Council***

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## **Core Ecosystem and Fishery Management International Performance Standard for the Marine Aquarium Trade**

**Issue 1 – July 1, 2001**

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# MAC Standards Review and Committees Responsible for This Standard

This Core Standard for Ecosystem and Fishery Management (EFM) with accompanying guidance is to be used on a global basis for third party certification of the marine aquarium trade.

In order to meet the immediate need for certification, the Marine Aquarium Council has split the MAC Standard's development and implementation process into two phases as follows:

## 1 Core Standards

These MAC Standards are contained in three stand-alone documents: Ecosystem and Fishery Management (EFM); Collection, Fishing, and Holding (CFH); and Handling, Husbandry, and Transport (HHT). Accompanying these Core Standards documents will be MAC Best Practice Guidance documents.

The Core Standards and supporting documents will be applied until the Full Standards and Best Practice Guidance documents are completed. Implementation of the Core Standards will contribute to development of the Full Standards and Best Practice Guidance documents and certification methodology. The Core Standards will be in effect until at least July 1, 2003.

The Core Standards were prepared through several rounds of review and revision by an international, multi-stakeholder Standards Advisory Group (SAG). The draft Core Standards were then made available for public review and revised based on the feedback received, followed by a final review and revision by the SAG. The Core Standards will be used in a series of test certifications, the feedback from which will be reviewed at a MAC Certifiers Workshop. Suggested amendments will be forwarded to the MAC Standards Committee for their review.

## 2 Full Standards

The Full Standards will be contained in four stand-alone documents: Ecosystem and Fishery Management (EFM); Collection, Fishing, and Holding (CFH); Handling, Husbandry, and Transport (HHT); and Mariculture and Aquaculture Management (MAM). Accompanying these Full Standards documents will be four stand-alone MAC Best Practice Guidance documents.

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## **Foreword**

Coral reef ecosystems contain some of the richest biological diversity and habitats on earth. Coral reefs support thousands of species of fish, invertebrates, algae, plankton, sea grasses, and other organisms. They have great commercial, recreational, cultural, and aesthetic value, such as shoreline protection, areas of natural beauty, and sources of food, jobs, and pharmaceuticals. They are the focus of a wide variety of activities, including education, research, recreation, tourism, and fishing.

Many coral reef ecosystems around the world are being degraded and severely threatened by human activities including land-based pollution, overfishing, destructive collection and fishing practices, reef mining, coastal development, vessel groundings, siltation, and climate change. The international trade in live coral, other reef invertebrates, reef fish, live rock, live sand, and coral gravel can, if not properly managed, contribute to the decline and degradation of coral reefs through destructive collection and fishing practices and overexploitation of resources.

Marine aquarium fisheries provide a livelihood for many thousands of fishers in coastal communities around the world, in areas where there are few alternatives, and the marine aquarium trade represents a valuable source of income for exporting countries. Responsible management of these fisheries is needed to ensure sustainable use of marine resources and the conservation of coral reefs for the benefit of future generations. Some industry operations and fishery management systems already demonstrate that sustainable marine aquarium fisheries are possible, although to date there has been no independent, objective system available to verify this internationally.

The Marine Aquarium Council (MAC) is an independent, not-for-profit, non-governmental international organization. The mission of Marine Aquarium Council is to conserve coral reefs and other marine ecosystems by creating standards and certification for those engaged in the collection and care of ornamental marine life from reef to aquarium.

MAC Certification is based upon third party certification that will play an important role in conserving and restoring coral reef ecosystems. MAC Certification will help to ensure that the global trade in coral reef organisms contributes to the conservation of coral reef and does not degrade or deplete coral reef ecosystems or coral reef organisms.

MAC Standards are international performance standards prepared under the direction of the MAC Standards Committee. They are subject to a broad and inclusive stakeholder review and consultation process within and outside the marine aquarium sector.

## **Introduction**

MAC Standards are produced through an international consultation process. Standards development is the first step in the procedure to develop internationally accepted independent accredited third party certification.

The MAC Core Standards cover:

- **Ecosystem and Fishery Management (EFM):** including collection area ecosystem and fishery management and conservation;
- **Collection, Fishing, and Holding (CFH):** including fish, coral, live rock, other coral reef organisms, and associated harvesting and related activities, e.g., field handling and holding practices; and
- **Handling, Husbandry, and Transport (HHT):** including holding, husbandry, packing, transport, etc. at wholesale, retail, and all other components of the marine aquarium industry not covered by the MAC Standards above.

Best Practice Guidance documents are available for each of these Core Standards to provide advice on specific action(s) that may be taken to improve the ability to comply with them.

## **Scope**

This Core Ecosystem and Fishery Management Standard addresses the management of the marine ecosystem(s) where fish, corals and other marine invertebrates, and plants are harvested through non-destructive means for the marine aquarium trade and the management of the stocks of these organisms.

## **Terminology**

Wherever possible, this Core Standard and the accompanying Best Practice Guidance document employ terminology that has wide international or industry acceptance and use. These terms are underlined to alert the reader that this term is defined in the Definitions section following the Certification Requirements section.

## Core Standard I: Ecosystem and Fishery Management Certification Requirements

### 0.1 Purpose

To verify that the collection area is managed according to principles of ecosystem management in order to ensure ecosystem integrity and the sustainable use of the marine aquarium fishery.

### 1 Management Principles

- 1.1 Marine aquarium organism collection and fishing shall be managed so that
  - 1.1.1 the collection and fishing of target marine aquarium organisms are undertaken according to the principles of sustainable use;
  - 1.1.2 destructive collection and fishing practices are prohibited;
  - 1.1.3 collection and fishing activities within the collection area support the conservation of biological diversity in the collection area;
  - 1.1.4 basic principles of environmental management and ecosystem management are applied in the collection area; and
  - 1.1.5 collection and fishing are undertaken in a planned and organized manner.

### 2 Collection Area Management Plan

- 2.1 Those managing the fishery shall produce and implement a Collection Area Management Plan consistent with the above management principles.
- 2.2 The Collection Area Management Plan shall be consistent with any management plans that encompass the collection area and/or fishery produced by the appropriate authority.

### 3 Components of a Collection Area Management Plan

- 3.1 The Collection Area Management Plan shall include the following significant components (see Annex 1 for full description):
  - 3.1.1 geographical boundaries of the collection area;
  - 3.1.2 ownership and political boundaries of the collection area;
  - 3.1.3 identification and listing of all stakeholders relevant to the collection area;
  - 3.1.4 basic annual catch data for the marine aquarium organisms collected or fished in the collection area;
  - 3.1.5 collection and fishing history of the collection area;
  - 3.1.6 listing of significant organisms not collected or fished in the collection area;

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- 3.1.7 a process for monitoring the collection area including the detection and reporting, to the appropriate legal authorities, of the use of destructive collection and fishing practices; and
- 3.1.8 a process for ensuring no collection and fishing of unsuitable species (see Annex 4).

**4 Effectiveness of a Collection Area Management Plan**

**4.1 Periodic Audit of the Collection Area Management Plan**

- 4.1.1 Those managing the fishery shall have periodic audits of the Collection Area Management Plan undertaken by the appropriate authority on the timeframe specified in the plan to ensure its proper implementation.

**4.2 Review of the Collection Area Management Plan**

- 4.2.1 Those managing the fishery shall at regular intervals review the Collection Area Management Plan on the timeframe specified in the plan to ensure its continuing suitability, adequacy, and effectiveness. The review shall address the need for amendments to the plan resulting from changing circumstances and audit results.

**5 Communication**

**5.1 Stakeholder Communication**

- 5.1.1 Clear lines of communication between all stakeholders in the collection area shall be demonstrated.



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### Definitions

We have, where possible, provided a definition for terms used in the Core Standards and Best Practice Guidance documents. Each definition below is meant to provide an overarching description of the term being defined. Where possible, we have tried to use terminology and definitions that have wide international acceptance and use.

Where possible, the definitions below were taken from the following sources:

- Convention on Biological Diversity (CBD)
  - Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
  - UN Environment Program's Global Biodiversity Assessment (GBA)
  - UN Food and Agriculture Organization (FAO)
- (1) The term "acclimatization" means to slowly adapt an organism from the water quality parameters it was shipped in to conditions for optimal health and normal healthy behavior of the organism, with special emphasis on pH, temperature, and salinity levels.
  - (2) The term "*accreditation*" means a procedure by which an authoritative body gives formal recognition that a body or person is competent to carry out specific tasks.
  - (3) The term "*biological diversity*" means the variety and variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems. Diversity indices are measures of richness (the number of species in a system) and, to some extent, evenness (variances of species' local abundance). They are, therefore, indifferent to species substitutions, which may, however, reflect ecosystem stresses (such as those due to high fishing intensity). (FAO)
  - (4) The term "*buyer*" means all purchasers of marine aquarium organisms at any stage of chain of custody, e.g., middleman/woman, exporter, importer, transshipper, retailer, consumer.
  - (5) The term "*certification*" means the procedure by which a third party gives written assurance (certificate of conformity) that a product, process, or service conforms to requirements specified.
  - (6) The term "*certification traceability*" means the documentation and other evidence by which a certified organism can be traced back from each certified buyer to each certified supplier through the chain of custody all the way to the certified collection area from which it was collected.
  - (7) The term "*certifier or certification organization*" means a third party independent organization that assesses, on a commercial basis, other organizations or individuals for their compliance to the MAC Standards. Competence to do so is accredited by the Marine Aquarium Council.
  - (8) The term "*chain of custody*" means the sequence of commercial operations or people responsible for the collection and trade in marine aquarium organisms. This begins with the collectors and extends to the retailer-sale and to the end buyer. For the retailer to be able to offer certified marine aquarium organisms, all components of the chain of custody handling the organisms must be certified.
  - (9) The phrase "*collection and fishing*" means the removal of live marine fish and corals and other marine invertebrates and plants from their natural environment for commercial purposes for use in aquariums as live organisms.
  - (10) The term "*collection area*" means the geographical area of reef or other natural marine ecosystem or the geographical area defined by natural, political, social, and/or ownership boundaries from which the marine aquarium organisms are collected or fished. For certification purposes, the collection area defines the physical space covered by the Collection Area Management Plan.

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- (11) The term "Collection Area Management Plan" means a document or collection of documents, usually prepared by those managing the fishery, the purpose of which is to ensure the collection area is managed according to the principles of the MAC Standards.
- (12) The term "collector" means an individual engaged in the activity of removing marine aquarium organisms from their natural habitat for commercial purposes.
- (13) The term "co-mingled" means certified and uncertified marine aquarium organisms are mixed so that the origin of the organisms cannot be traced to a certified supplier and collection area.
- (14) The term "conservation" means:
- (a) the judicious use and management of nature and natural resources for the benefit of human society and for ethical reasons. (GBA)
  - (b) the management of human use of the biosphere so that it may yield the greatest sustainable benefit to current generations while maintaining its potential to meet the needs and aspirations of future generations. Thus conservation is positive, embracing preservation, maintenance, sustainable utilization, restoration, and enhancement of the natural environment. (CBD)
- (15) The term "conservation of biological diversity" means the management of human interactions with genes, species, and ecosystems so as to provide the maximum benefit to the present generation while maintaining their potential to meet the needs and aspirations of future generations; it encompasses elements of saving, studying, and using. (CBD)
- (16) The term "coral" means any living or dead specimens, parts, or derivatives or any organisms containing specimens, parts, or derivatives of any organisms of the following taxonomic groups belonging to the phylum Cnidaria:
- (a) all species of black corals (Antipatharia), stony corals (Scleractinia), soft corals (Alcyonacea), thorny corals (Gorgonacea/Scleraxonia and Holaxonia) , organ pipe corals (Stolonifera), and blue coral (Coenothecalia/Helioporacea) of the class Anthozoa; and
  - (b) all species of the fire corals (Milleporina) and lace corals (Stylasterina) of the class Hydrozoa.
- (17) The term "coral reef" means any reef, shoal, or other natural feature composed in part of the solid skeletal structures in which corals are major framework constituents.
- (18) The term "coral reef ecosystem" means the interacting complex of organisms and nonliving variables associated with coral reefs and their habitats, including sea grass beds, sand flats, mangroves, and algal plains, that function as an ecological unit in nature.
- (19) The term "coral reef organism" means:
- (a) any plant or animal (including algae, sea grasses, invertebrates, and vertebrates, but excluding mammals, reptiles, or birds) that lives in, on, or in association with coral reefs and is directly dependent on the coral reef ecosystem for feeding, reproduction, or growth; and
  - (b) live rock.
- (20) The term "curio coral" means coral collected and sold without intent to supply the organism as live.

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- (21) The term "DAA" means "Dead After Arrival," i.e., from acclimatization through the holding period until the organism is packed for onward shipping. For organisms such as colonial invertebrates, algae, and live rock, "dead" means the entire organism or rock mass is no longer living or, if partially alive, is not likely to be able to be restored to optimal health following a reasonable period of good faith efforts by those responsible for acclimatization.
- (22) The term "*declared shipping time*" means the maximum period of time an organism can maintain optimal health in a closed container for shipping. The supplier, e.g., exporter, must determine this time, pack the shipment accordingly, and inform the receiver of this time.
- (23) The term "*destructive collection and fishing practices*" means the collection and fishing of live marine aquarium organisms through methods that are environmentally destructive or harmful, including but not limited to practices such as of the use of poison/toxins, other deleterious materials, and explosives; reef dredging; and physical damage to non-target organisms, especially corals or other sessile invertebrates.
- (24) The term "DOA" means "Dead On Arrival," i.e., upon receipt and opening of the shipping container at the beginning of the acclimatization period. For organisms such as colonial invertebrates, algae, and live rock, "dead" means the entire organism or rock mass is no longer living or, if partially alive, is not likely to be able to be restored to optimal health following a reasonable period of good faith efforts by the receiver.
- (25) The term "*documentation system*" means the collection of written policy statements, procedures, work instructions, and records that make up the formal objective evidence to show that an organization or individual complies with the requirements of the MAC Standards.
- (26) The term "*ecosystem*" means:
- (a) a dynamic complex of plant, animal, fungal, and micro-organism communities and their associated non-living environment interacting as a functional unit; and/or
  - (b) the organisms living in a given environment (such as a tropical forest, a coral reef, or a lake) and the physical part of the environment that impinges on them. (Adapted from CBD and GBA)
- (27) The term "*ecosystem integrity*" means the ability to support and maintain a balanced, integrated, adaptive biological community having a species composition, biological diversity, and functional organization comparable to that of natural habitat in the region. (FAO)
- (28) The term "*ecosystem management*" means management taking due account of all living organisms and their environment in the management area. In practice, this means management ensuring sustainability of target, dependant, and associated species. (Adapted from FAO)
- (29) The term "*environmental management*" means management and control of the environment and natural resources systems in such a way so as to ensure the sustainability of development efforts over a long-term basis. (FAO)
- (30) The term "*exporter*" means any buyer of marine aquarium organisms from the collector or other supplier - whether an individual (e.g., middleman/woman), company, or other business entity - who exports all or some of those organisms to another country or state (e.g., from Hawaii).
- (31) The term "*fisher*" is a gender-neutral name for a person (male or female) participating in the catching, taking, or harvesting of fish or other aquatic organisms.
- (32) The term "*fishery*" means:
- (a) the sum (or range) of all fishing activities on a given resource. It may also refer to the activities of a single type or style of fishing. The fishery can be artisanal and/or industrial, commercial, subsistence, and recreational and can be annual or seasonal; and

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- (b) the activity of catching marine aquarium organisms from one or more stocks that can be treated as a unit for purposes of conservation and management and that are identified on the basis of geographic, scientific, technical, recreational, social, or economic characteristics and/or method of catch.
- (33) The term "fishery management" means the integrated process of information gathering, analysis, planning, decision-making, allocation of resources, and formulation and enforcement of fishery regulations by which the fishery management authority controls the present and future behavior of interested parties in the fisheries in order to ensure the continued productivity and well being of the living resources. (FAO)
- (34) The term "habitat" means the place or type of site where an organism or population naturally occurs. (CBD)
- (35) The term "harvest" means to capture, catch, or collect marine aquarium organisms from their natural environment for commercial purposes.
- (36) The term "hookah" means an air supply system that consists of a portable compressor that pumps air to the diver through a hose to a demand regulator. An alternative system may consist of an onboard tank of compressed air that is delivered to the diver through a rubber hose. The diver's teeth regulate the intake.
- (37) The term "importer" means a buyer of marine aquarium organisms from an exporter or other supplier (whether an individual, company or other business entity) who pays for those organisms to be brought into another country or state (e.g., from the Philippines into Germany or from Hawaii into California).
- (38) The term "live rock" means any hard substrate that is attached to and supports any organisms identified in subparagraph (a) of the definition of "coral reef organisms."
- (39) The term "MAC Accredited Certifier" means formal recognition by the Marine Aquarium Council that a body is competent to carry out certification to the MAC Standards.
- (40) The term "MAC Certified Industry Operator" means an individual or organization that has been successfully assessed by a MAC Accredited Certifier as being in compliance with the requirements of the MAC Standards.
- (41) The term "MAC Certified Marine Aquarium Organism" means a marine aquarium organism that has been passed entirely through a chain of MAC Certified Industry Operators from "reef to retail."
- (42) The term "MAC Label" means the registered trademark of the Marine Aquarium Council. The MAC Label is licensed to organizations after they have successfully been assessed to the MAC Standards.
- (43) The term "MAC Label Pack" means a document that contains the rules and conditions of use of the MAC Label and includes artwork samples in paper and electronic formats.
- (44) The term "MAC Standards Committee" means the committee and sub-committees established and designated by the MAC Board of Directors to have authority for the international standards-setting activities of the Marine Aquarium Council.
- (45) The term "make weights" means an addition of organisms to a shipment that was not included in the original order instructions.
- (46) The term "managed towards sustainability" means managed in ways so as to obtain sustainability of the resource being used and the biological diversity of the ecosystem(s) being impacted by the use of that resource.
- (47) The term "marine aquarium organism(s)" means any marine fish, coral and other marine invertebrate, or plant removed from its natural environment for commercial purposes for use in an aquarium as a live organism.

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- (48) The term "*monitoring*" means:
- (a) the intermittent (regular or irregular) surveillance to ascertain the extent of compliance with a predetermined standard or degree of deviation from an expected norm (CBD and GBA); and
  - (b) the collection of information for the purpose of assessing the progress and success of an area-use plan. Monitoring is used to assess performance of a management plan or compliance scheme in order to revise it or to gather experience for future plans. (Adapted from FAO)
- (49) The term "*optimal health*" means the condition of well being for marine aquarium organisms expected from implementing the MAC Standards and Best Practice Guidance in Collection, Fishing, and Holding and in Handling, Husbandry, and Transport that does not result in reduced survivability of the organism or mortality of greater than 1% DOA and 1% DAA.
- (50) The term "*order instructions*" means the number and type of certified marine aquarium organisms requested by the buyer, the order date, and the requested delivery date.
- (51) The term "*planned and organized manner*" means collection and fishing activities are consistent with the Collection Area Management Plan and make the plan operational.
- (52) The term "*precautionary approach*" means a set of agreed cost-effective measures and actions, including future courses of action, that ensures prudent foresight and reduces or avoids risk to the resource, the environment, and the people, to the extent possible, taking into account existing uncertainties and the potential consequences of being wrong. (FAO)
- (53) The term "*reef mining*" means the large-scale removal of living reef corals and fossilized limestone from the coral reef ecosystem for use as building materials, lime production, aggregate, or other construction purposes.
- (54) The term "*retailer*" means any company, individual, or hobbyist group that buys from an importer and/or transshipper or directly imports marine aquarium organisms for the supply, use, or benefit of the final consumer.
- (55) The term "*significant organisms*" means species whose status provides information on the overall condition of the ecosystem and of other species in that ecosystem. They reflect the quality and changes in environmental conditions as well as aspects of community composition. (CBD and GBA)
- (56) The term "*species*" means:
- (a) a group of organisms capable of interbreeding freely with each other but not with members of other species (CBD); and
  - (b) a group of animals or plants that have common characteristics, are able to breed together to produce fertile (capable of reproducing) offspring, and maintain their separateness from other groups. (FAO)
- (57) The term "*stakeholders*" means an individual or group of individuals, whether at an institutional or personal level, who have an interest or claim that has the potential of being impacted by or having an impact on a given activity. This interest or claim can be stated or implied and direct or indirect. Stakeholders and stakeholder groups can be at the household, community, local, regional, national, or international levels. (Adapted from FAO)
- (58) The term "*supplier*" means all providers of marine aquarium organisms at any stage of the chain of custody, e.g., collector, fisher, middleman/woman, exporter, importer, and transshipper.
- (59) The term "*sustainable use*" means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining the potential of the components to meet the needs and aspirations of present and future generations. (CBD)

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- (60) The term "*third party*" means a person or body that is recognized as being independent of the parties involved, as concerns the issue in question.
- (61) The term "*third party certification*" means a procedure by which an independent third party gives written assurance that a product, process, or service conforms to requirements specified.
- (62) The term "*those managing the fishery*" means:
- (a) the government authority with the mandate, responsibility, and capacity to develop a management plan and/or actively manage the marine aquarium fishery or collection area where the fishery takes place; or
  - (b) the individuals, groups, or commercial entities with the necessary authorization or permission from the appropriate authority (e.g., government, community, and/or owner) to conduct the marine aquarium fishery in the collection area if the appropriate government authority does not exist; does not have the appropriate mandate, responsibility, and capacity; or has not yet produced a management plan consistent with the MAC Standards.
- (63) The term "*transshipper*" means any importer of marine aquarium organisms who has contracted access to (but does not operate) a wholesale facility capable of holding and acclimatizing imported organisms and whose primary role is to receive shipments and prepare them for immediate re-transport to other wholesale or retail operations ensuring that they will still arrive within the declared shipping time.
- (64) The term "*unsuitable species*" means species that have been determined by the MAC Committee on Unsuitable Species to be inappropriate for the trade in marine ornamentals.

## **Bibliography**

The concepts contained within the following standards and publications have been considered in the development of this document.

Food and Agriculture Organization of the United Nations—Code of Conduct for Responsible Fisheries.

Food and Agriculture Organization of the United Nations—FAO Fisheries Technical Paper No. 347 Reference Points for Fisheries Management.

Food and Agriculture Organization of the United Nations—FAO Technical Guidelines for Responsible Fisheries Series.

Food and Agriculture Organization of the United Nations Fisheries Glossary, <<http://www.fao.org/fi/glossary/glossary.asp>>.

Forest Stewardship Council Principles and Criteria for Sustainable Forestry.

The Institute of Economic Affairs - Green Goods? (Consumers, Organisms, Labels and the Environment).

ISO GUIDE 60: ISO/IEC Code of good practice for conformity assessment.

ISO GUIDE 61: General requirements for assessment and accreditation of certification/registration bodies.

ISO GUIDE 62: General requirements for bodies operating assessment and certification/registration of quality systems.

ISO GUIDE 65: General requirements for bodies operating organisms certification systems.

ISO 9001:1994. Quality systems. Model for quality assurance in design, development, production, installation, and servicing. Soon to be superseded by ISO 9000:2000.

ISO 14001:1996. Environmental management systems—Specification with guidance for use.

ISO 14010:1996. Guidelines for environmental auditing—General principles.

ISO 14011:1996. Guidelines for environmental auditing—Audit procedures—Auditing of environmental management systems.

Marine Stewardship Council Principles and Criteria for Sustainable Fishing.

O.A.T.A.—Code of Conduct.

Organization for Economic Co-operation and Development—Towards Sustainable Fisheries (Economic Aspects of the Management of Living Marine Resources).

## **Annex 1**

### **Contents of a Collection Area Management Plan**

The following items and content are required for the Collection Area Management Plan:

1. Title
2. Geographical area of operation of the marine aquarium fishery, and the jurisdiction under which it falls.
3. History of collection and management.
4. Particulars of the stakeholders with interests in the marine aquarium fishery.
5. Details of consultations leading to the management of the marine aquarium fishery.
6. Arrangements for on-going consultations with stakeholders.
7. Details of decision-making process or processes, including the recognized participants.
8. Objectives for the marine aquarium fishery:
  - (a) resource,
  - (b) environmental,
  - (c) biological diversity and ecological,
  - (d) technological,
  - (e) social, and
  - (f) economic.
9. List of the marine aquarium organisms collected and the quantities and sizes involved.
10. Overview of collection and fishing methods.
11. Basic description of the aquatic ecosystem, its status, and any particularly sensitive areas, features, or species influencing or affected by the marine aquarium fishery.
12. Description of other legitimate uses of the collection area that impact on the collection area ecosystem(s).
13. Details of those individuals or groups granted rights of access to the marine aquarium fishery, and particulars of the nature of those rights.
14. Basic description for measures agreed upon for the regulation of the collection and fishing of marine aquarium organisms within the designated collection area. These may include general and specific measures, precautionary measures, contingency plans, mechanisms for emergency decisions, etc.
15. Details of any critical environments or sources of concern and required actions to address them.
16. Arrangements and responsibilities for regular monitoring, control and surveillance, and enforcement. New management, monitoring, and surveillance methods that prove to be beneficial to minimizing ecosystem impact and organism mortality shall be adopted.
17. Details of any planned education and training for stakeholders.
18. Date and nature of next review and audit of the Collection Area Management Plan.



## **Annex 2**

### **MAC Approved Training Courses**

The use of a MAC approved training course is not a mandatory requirement for MAC Certification. However, competence in meeting the appropriate requirements of certification will be required for successful MAC Certification in the following areas:

- 1 Ecosystem and Fishery Management
- 2 Collection, Fishing, and Holding
- 3 Handling, Husbandry, and Transport

It is the responsibility of the certification client to provide evidence of training (equivalent to that offered by MAC approved training organizations) to the MAC Accredited Certifier.

It should be noted that training courses and training providers are not certified directly by the Marine Aquarium Council but by an independent third party certifier accredited to do so by the Marine Aquarium Council.

## **Annex 3**

### **MAC Approved Chemical Detection Methods and Providers**

The MAC Chemical Detection Methods (CDM) Committee will identify, approve, and periodically revise a list of credible, accurate, and reliable test methods for detecting chemicals that are suspected of being used in the collection and fishing of marine aquarium organisms.

A MAC Approved CDM is only valid if verified by an International Laboratory Accreditation Cooperation (ILAC) accredited laboratory.

#### **Note**

- (a) The ILAC accredited laboratory must be located in a country outside of where the test is performed and/or generates from.
- (b) The ILAC scope of accreditation for that laboratory must include the equipment, test protocol(s) and limits of uncertainty used for performing that MAC Approved CDM.

## **Annex 4**

### **MAC Unsuitable Species**

A sub-committee of the MAC Standards Committee will identify marine aquarium organisms that are inappropriate to be collected, handled, or transported by anyone in the chain of custody seeking certification. Criteria for identifying such organisms will be based on a variety of inputs (e.g., expert opinion of committee members, expert opinion sought by the committee, Global Marine Aquarium Database data, MAC documentation on mortality).

The initial designation of a marine aquarium organism as an “unsuitable species” will likely include organisms for which the requirements for keeping in captivity are well known and clearly impractical to fulfill. This will undoubtedly include

- organisms that get too large for most home aquariums (e.g., sharks and rays),
- organisms that are obligate feeders of food that is difficult or expensive to obtain (e.g., obligate coral polyp or sponge feeders), and
- organisms that are dangerous or highly venomous (e.g., blue ring octopus).

The sub-committee will develop criteria for reasonable and responsible exceptions to allow for the small number of these organisms that should be able to go to

- public aquariums and scientific institutions (e.g., documentation that the end buyer is a public aquarium accredited to the appropriate body, such as the American Zoo and Aquarium Association) and
- home aquarium keepers who are conducting research into the conditions required to successfully keep these organisms in captivity.

The sub-committee will periodically review and revise the list. The sub-committee will delete organisms from the list if and when they are determined to be viable in a certified trade and will add to the list when other animals are determined to not be viable.

The sub-committee will review and revise the criteria for identifying unsuitable species as more information becomes available. This will likely include information on

- the ability of a species to survive collection, handling, and transport;
- the ability of a species to survive captivity for a considerable portion of its potential life span; and
- life history traits that make a species particularly vulnerable to over-exploitation (e.g., intrinsic low growth or recruitment rates).