

## Chapter 43

### The role of public aquaria in enhancing a sustainable coral trade

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#### ABSTRACT

The Marine Aquarium Council's (MAC) mission 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".

Public aquaria are one of the important groups of stakeholders in the work to ensure that the marine ornamentals trade is sustainable and responsible. In the past years, MAC has strengthened its collaboration with aquaria through specific activities.

This past decade there has been a growth of aquaculture and mariculture activities among aquaria. This paper provides additional information about the latest MAC international Standard on the Mariculture and Aquaculture Management (MAM), as well an insight into the actions taken by aquaria worldwide to enhance a sustainable coral trade, from general support to conservation, education and public awareness programs.

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#### INTRODUCTION

Millions of visitors to public aquariums across the globe are amazed by the diversity of aquatic life on display, among them are the many new and experienced hobbyists whose fascination for marine life leads them to keep aquariums in their home.

With their aim of showcasing their conservation, education and research programs, aquariums can be focal points for information on the coral trade for the public and these marine aquarium hobbyists.

#### RESPONSIBILITY OF PUBLIC AQUARIUMS

Public aquariums are one of the important stakeholder groups that can ensure that the marine ornamental trade is sustainable and responsible, a mission that the Marine Aquarium Council (MAC) implements by being dedicated "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".

Most responsible aquariums have adopted a strong ethical approach in their livestock

acquisition policies. An increasing number of facilities encourage the conservation and sustainable management of the marine environment and are concerned about the collection practices used to acquire marine animals for exhibition. Increasingly these institutions are turning to MAC Certification as the best way to verify that best practices are used in the acquisition of their tropical animals. Certain institutions' acquisition policies specifically require the collaboration with MAC Certified suppliers when possible:

"Today, when our institution needs to populate its tanks with marine ornamental organisms we prefer to contact MAC Certified operators. This is part of our quality seeking strategy and support of the more responsible marine ornamental trade we try to enhance at our aquarium", says Nuria Baylina, Curator at the *Oceanario de Lisboa*.

Another European institution has even pushed further with its ethics and environmental concerns, with the inauguration, last summer, of the first Fiji coral reef tank, populated solely with MAC Certified and cultured species.

"Our many visitors deserve a true and

transparent approach to conservation and obtaining life forms from sustainable sources is essential. We must practice what we preach!", expresses Kerwin Porter, Aquarium Curator at the *Horniman Museum and Gardens*, London (UK).

This increasing trend promotes environmentally concerned aquariums and the marine ornamental industry, focusing on providing the most appropriate, if not the best, example to their visitors for responsibility and sustainability.

### BREEDING PROGRAMS

Some aquariums have been self-sufficient with some of their display biota for many years, by culturing the species needed for their own displays. An example is the *Oceanographic Museum of Monaco*, which started presenting cultured corals to its visitors in 1989. Several other institutions are following along the path towards minimizing their impact on the marine environment. For instance, *Nausicaa* (France) displays marine fish and invertebrates, bred and cultivated in captivity whenever possible. "Our ambition is to raise this proportion by increasing the number of exchanges of captive bred animals with other institutions worldwide, but also by improving the techniques and breeding procedures in our own facilities. *Nausicaa* and other facilities are very keen to see to extension of the newly MAC Mariculture and Aquaculture Management (MAM) international Standard applied to their breeding and culturing activities. The MAM Standard will be a key element to accelerate this trend among European institutions", emphasizes Stéphane Hénard, Manager of the Aquarium at *Nausicaa*.

Additionally, successful breeding programs at some institutions represent a real opportunity for the marine ornamental trade. In fact, aquariums combine their technology and knowledge to enhance their experiments. Newly cultured species are offered in displays to their visitors and to their suppliers' customers. In many exhibits visitors can live a unique experience by observing captive-bred fish, hard corals asexually reproduced, soft corals, sessile invertebrates, and also spontaneous reproduction of bulb anemones. "It is really an illustration of the good equilibrium and health of our living coral reefs tanks, and the other ecosystems in general where species

reproduction takes place", says Pierre Gilles, Manager of the Aquarium, at the *Oceanographic Museum of Monaco*.

From a scientific point of view, limits are always pushed further: "We notice that the challenge we experienced to reproduce corals a few years back, is now replaced by a new one with the first reproduction of tropical seahorses in many institutions. We hope that in the future we will have more viable methods to reproduce them, as we now have for corals", adds Pierre Gilles.

These breeding programs represent a new supply for the industry, which sees the arrival of complementary species to the ones offered by fishermen: "We have started to successfully breed the Royal Gramma (*Gramma loreto*), which is highly demanded by industry operators and hobbyists. This species is very delicate to reproduce and needs both strong competences and a high level of technology. This activity is not productive enough for commercial entities to implement. It is our role as a safeguarder of the oceans to offer this complementary supply to the market", adds Pierre Gilles.

With those activities in mind, aquariums have started to approach MAC in order to see the development of a MAC international Standard covering their conservation, research and education programs; and acknowledge their responsible practices. This is the task accepted this year by the MAC European Union of Aquarium Curators (EUAC) working group studying the existing MAC Standards and analyzing their compatibility with aquaria activities, or if a new Standard would be needed for aquaria to become MAC Certified.

### RAISING AWARENESS

In response to the interest expressed by public aquariums in improving their support for MAC Certification, many institutions have also started to raise awareness amongst their visitors about MAC and its program.

For instance, the *Oceanographic Museum of Monaco* has always emphasized in its displays, themes related to habitat protection and management. Indeed, at the celebration of World Ocean Day on June 8<sup>th</sup> 2006, MAC had launched, for the summer 2006, its first informative exhibit at the *Oceanographic Museum of Monaco*. "As a pioneer among the public aquariums in various aspects, our

aquarium has always been very supportive of the MAC initiative. We wanted this MAC exhibit to share with our visitors our concern for the marine ornamental trade, and the actions we all must take to make it sustainable and responsible”, says Dr. Nadia Ounaïs, Operational Director of the *Oceanographic Museum of Monaco*. This type of exhibit provides great incentives for visitors to become aware of the marine ornamental trade and its transformation toward a more responsible industry with a sustainable management of the reefs and best practices. Dr. Ounaïs adds: “It is our responsibility as an institution to inform our visitors and hobbyists in general about the state of our oceans and coral reefs, so they can start protecting them”. Interaction with aquarium visitors is one of the important tools we can use to raise awareness among the general public and hobbyists. Millions of people visit aquariums annually. Aquariums are a highly visible and accessible driver for the marine ornamental industry. Through exhibits at aquariums, hobbyists have the opportunity to become engaged with reef conservation issues, and then make more informed choices about what they buy, by choosing MAC Certified organisms from MAC Certified suppliers.

### COLLABORATION

MAC’s program success relies on its stakeholder support and participation. Aquariums are enhancing the support for MAC and, more generally, are ensuring a healthy future of the marine ornamental trade and have become a vital model for hobbyists. As part of their collaboration with MAC, aquariums can state publicly their support toward MAC by signing the MAC ‘Public Aquarium Declaration of Support’, as the *Zoological Society of London* (UK), *The Deep* (UK), *Nausicaa* (France), and the *El Paso Zoo* (USA) have recently done. This form is available upon request by contacting MAC at [info@aquariumcouncil.org](mailto:info@aquariumcouncil.org).

In the future, MAC intends to strengthen and expand its collaboration with aquariums worldwide. Through their conservation program, aquariums could become a great supplier of certified cultured species. This approach added to responsible acquisition policies could enhance their public awareness programs. Specific opportunities such as collectors’ artifacts for displays, handicrafts for gift shops

along with sponsorship programs could also be considered on a longer-term basis.

Through their activities, aquariums are showing the right example for hobbyists to keep only species collected, handled and transported with best practices as verified by MAC Certification. Aquariums are now striving to be more responsible and sustainable. Their efforts are part of the global improvement of the marine ornamentals trade and hobby, leading to a better future for both - as well as for the coral reefs, the collectors of marine ornamentals, and the animals themselves.

### THE MARINE AQUARIUM COUNCIL (MAC) AND ITS PROGRAMS

MAC is an international multi-stakeholder nonprofit organization that brings together the aquarium industry, fishers and their communities, conservation organizations, public aquariums, hobbyists, and others to create standards, certification and labeling for quality and sustainability and harness market forces to transform the trade. Building on the good practices employed by responsible industry members, the MAC multi-stakeholder procedure created international Standards covering the entire “Reef to Retail” supply chain with requirements for third-party certification of quality and sustainability in marine aquarium fishery and industry.

Through worldwide multi-stakeholder consultations, MAC developed four international standards covering the entire chain of custody:

- *The Ecosystem and Fishery Management (EFH) international Standard*: ensuring that the collection area is managed as a responsible fishery to maintain the health of the habitat, stocks and species populations, including resource assessment, monitoring and designating Marine Protected Areas (MPA);
- *The Collection, Fishing and Holding (CFH) international Standard*: ensuring that the harvesting of fish, coral and other organisms is responsible and maintains the health of the area and sustainable use of the fishery (e.g. no destructive fishing practices; ensuring that handling prior to export, holding, packaging and transport

maintains optimal health of the harvested organisms);

- *The Handling, Husbandry and Transport (HHT) international Standard*: ensuring that the handling of marine life during export, import and retail maintains their optimal health; ensuring the segregation from uncertified organisms, and proper documentation to verify that MAC Certified organisms pass only from one MAC Certified industry operator to another; and

- *The Mariculture and Aquaculture Management (MAM) international Standard* addressing the propagation, collection, and culturing of marine aquarium organisms, and specifying requirements from broodstock/post-larvae collection through to growing out for market, packaging and transport of cultured marine ornamentals.

For marine ornamentals to be sold as MAC Certified, they must pass through an unbroken chain 'from Reef to Retail' of MAC Certified operators. Those organisms are available through MAC Certified operators and are labeled on the tank as "Marine Aquarium Council Certified".

Pilot scale MAC Certification is being obtained in strategic source (Fiji, Indonesia and the Philippines) and market countries (Europe and North America), setting the stage for scaling up.

**PROGRESS**

In 2007 in the Philippines, Indonesia and Fiji, 16 collection areas and collectors' groups have obtained the MAC Certification, (Figures 1 and 2), with scientific surveys and multi-stakeholder management in place for nearly thirty thousand hectares (30,000 ha) of reefs. Over 1,000 community stakeholders have participated in training and over 300 fishers and nearly 20 exporters have become MAC Certified (see Figures 1 and 2 for overall certification achievements). In certified areas, reef destruction has been reduced and sustainable harvest levels are in place. Collector's livelihoods are improving, with better business operations, steadier income, and fewer accidents due to unsafe diving practices.

On the market side, over 20 importers and retailers in the US, The Netherlands, France, Germany, the UK, Canada, and Singapore are MAC Certified (Figures 1 and 2). An increasing volume, variety and quality of certified products

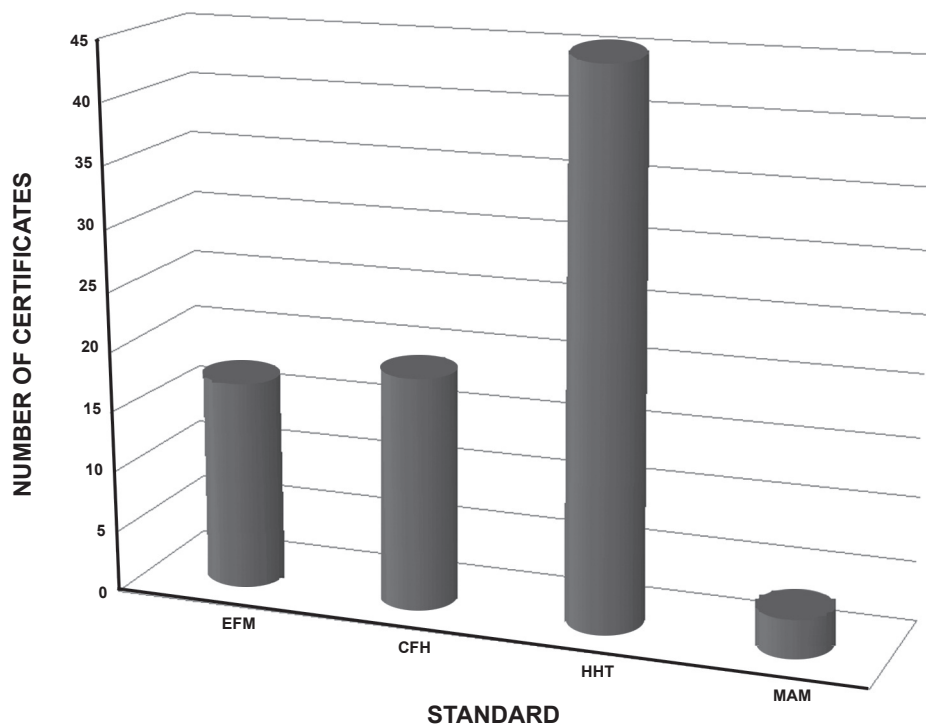


Figure 1: Number of MAC Certificates issued for compliance with MAC four standards by 2007: the Ecosystem and Fishery Management (EFM), Collection, Fishing and Holding (CFH), Handling, Husbandry and Transport (HHT) and the Mariculture and Aquaculture Management (MAM) Standards.

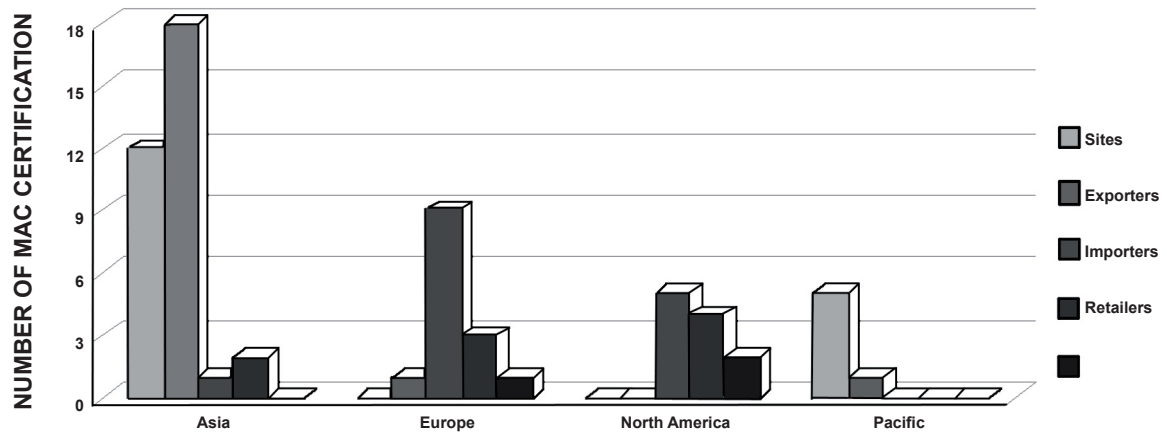


Figure 2: Region where MAC Certification has been achieved by activity for 2007 (at site, exporter, importer and retailer's levels).

are reaching consumers. Some noteworthy MAC Certified fish include Majestic angelfish (*Pomacanthus navarchus*), Lyretail anthias (*Pseudanthias squamipinnis*), Psychedelic mandarinfish (*Synchiropus splendidus*), Bicolor foxface (*Siganus uspi*) and Exquisite fairy wrasse (*Cirrhilabrus exquisitus*). Demand for marine ornamentals from hobbyists is rising, as is industry interest in MAC Certification, with over one hundred and 150 companies in over 20 countries having signed public commitments to seek certification.

## CONTRIBUTORS

Among aquariums collaborating regularly with MAC, the following people have contributed to this paper development:

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