

BEYOND THE GLASS

**An investigation into
Scottish public aquaria**



BEYOND THE GLASS



In most countries, including Scotland, aquaria are becoming more and more popular as sources of public entertainment.

Fish and aquatic invertebrate are sentient creatures. When held captive (in much the same way as animals in a traditional zoo), they live far from their natural lives. Although people are growing increasingly concerned about the keeping of animals in zoos, creatures in aquaria are treated almost with indifference.

However, this attitude is slowly changing with the growing realisation that fish are sentient beings capable of suffering in captivity.

Competition is getting fiercer as aquaria seek to exhibit uncommon, bigger or different species, or provide more exciting visitor attractions. As a result, more and more animals are being exhibited and new welfare concerns continue to emerge. There are numerous welfare problems inherent in the capture, caging and displaying of any wild species. Increasing public demand to be 'close up to' or to have 'hands on experience' with wild creatures – swimming with dolphins, diving with sharks etc is creating further welfare problems for the animals kept in aquaria as well as safety problems for humans.

Aquaria have become highly profitable visitor attractions, exhibiting millions of fish and aquatic invertebrates. Advocates for Animals has become increasingly concerned at the growth of the aquatic industry. New Scottish legislation has made 'conservation criteria' one of the licensing conditions for zoological collections. It is thought that many Scottish collections may not be meeting the new legal requirements. This concern, combined with a lack of published information about the aquarium industry and the welfare of fish in captivity, led Advocates for Animals to commission an independent scientific study on public aquaria in Scotland. The Captive Animals' Protection Society (CAPS) commissioned a similar investigation for the whole of the UK. These investigations resulted in the publication of two scientific reports entitled *Aquatic Zoos: A critical study of Scottish public aquaria in the year 2004*, both written by independent animal welfare consultant Jordi Casamitjana. This report, *Beyond the Glass*, summarises the main Scottish public aquaria findings only.

The reports' disturbing findings reveal a world of mental and physical suffering for the creatures trapped in these artificial aquatic environments from which there is no escape. Advocates for Animals believes it is time to recognise that this form of human 'entertainment' comes at a high cost to the animals.

Ross Minett
Director
Advocates for Animals



THE INVESTIGATION

The definition of **Scottish public aquarium** used was:

*"Any collection of captive animals in a particular site in Scottish territory in which one individual animal or more belongs to taxa not normally domesticated in Scotland (according to the Scottish Executive official criteria), that it is open to the public seven or more days in 12 consecutive months, and that exhibits **mainly fish and/or aquatic invertebrates**"*

This investigation used two main approaches:

- investigative journalism: visiting Scottish public aquaria, posing as a visitor
- scientific research: based on developing general descriptive statistical analysis from data obtained during the visits.

All public aquaria visits were recorded with a video camera.

All nine known Scottish public aquaria were visited in Spring 2004.

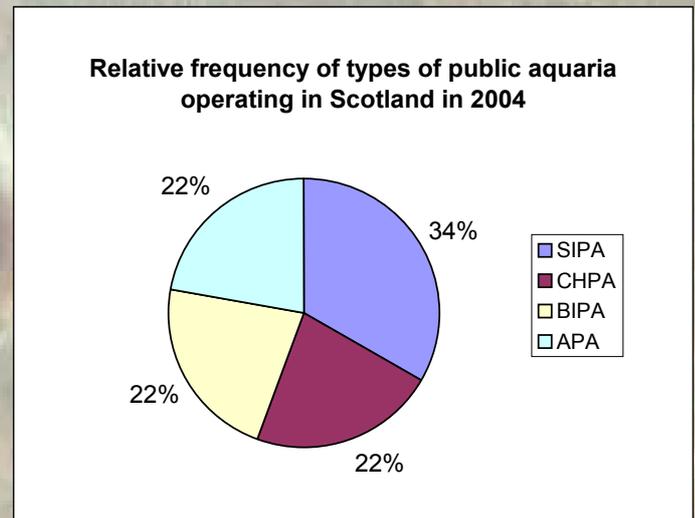
Types of Scottish public aquaria:

Chain Public Aquarium (CHPA) : a public aquarium belonging to a chain company/organisation that owns two or more public aquaria, all of them having as their main activity the keeping and exhibition of captive live fish and/or aquatic invertebrates.

Big Independent Public Aquarium (BIPA) : a public aquarium not belonging to any chain company/organisation that owns two or more public aquaria, having as its main activity the keeping and exhibition of captive live fish and/or aquatic invertebrates, and keeping either 30 aquatic exhibits or more, or at least one aquatic exhibit consisting of a tank bigger than 200 cubic metres in volume.

Small Independent Public Aquarium (SIPA) : a public aquarium not belonging to any chain company/organisation that owns two or more public aquaria, having as its main activity the keeping and exhibition of captive live fish and/or aquatic invertebrates, and keeping less than 30 aquatic exhibits none of which consists of a tank bigger than 200 cubic metres in volume.

Auxiliary Aquarium (APA) : a public aquarium not belonging to any chain company/organisation that owns two or more public aquaria, and having as its main activity any practice other than the keeping and exhibition of captive live fish and/or aquatic invertebrates.



It is estimated that, in 2004, there were over 4,000 individual animals kept in Scottish public aquaria, approximately 10% of the estimated total animals in UK public aquaria. In the Scottish public aquaria investigated:

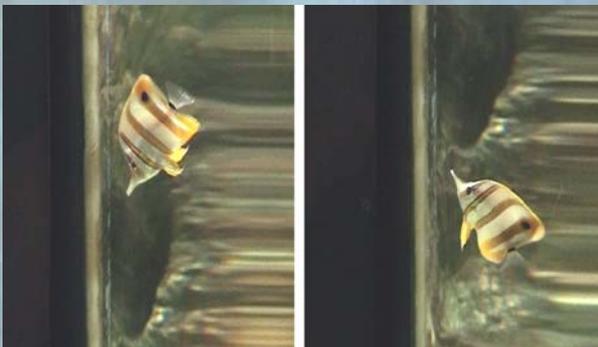
- 84% of the individual animals kept were marine species,
- 15% were freshwater species
- 1% terrestrial
- less than 1% from a blackish water biome

ANIMAL WELFARE

The *Aquatic Zoos (2)* report concluded that in 2004:

- At least 78% of Scottish public aquaria kept animals that showed stereotypic behaviour, which is an indicator of animal welfare problems.
- In at least 22% of Scottish public aquaria, 'spiralling', arguably one of the most severe forms of stereotypic behaviour in fish, was observed.
- 'Surface Breaking Behaviour' was observed in 67% of Scottish public aquaria, being the most common abnormal behaviour in aquarium fish, mainly seen in rays and sharks.
- Evidence of physical health problems in animals was found in 78% of Scottish public aquaria. Most cases of lacerations were seen in sharks and rays, in particular those kept in open tanks where the public could touch them.

Stereotypic behaviour – similar patterns or sequences of behaviour, performed repetitively, and having no obvious function – is considered one of the main indicators of long-term welfare problems.



Butterflyfish 'pacing' in a Scottish public aquarium



Ray 'spiralling' in a Scottish public aquarium

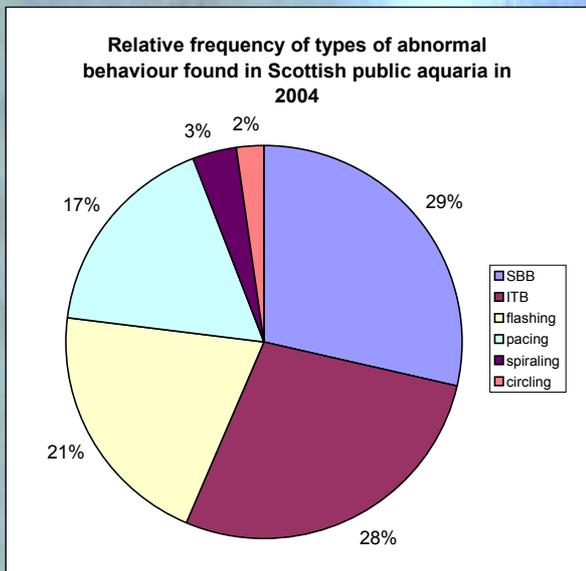
In public aquaria, the majority of diseases and deaths often go unnoticed by visitors.

Even traditional aquarium feeding methods can cause health problems, as can the use of animals in talks, shows and touch-pools.

When handled by the public and, despite all the precautions which members of staff claim are taken, it is, at times, quite obvious that many animals do not like being touched or handled. Such contact could lead to stress.



Crab infected with parasites taken out of the water by a Scottish public aquarium staff member to show to visitors despite its terminal illness



ITB= Interaction with Transparent Boundaries
SBB= Surface Breaking Behaviour

Infestations and infections are also very common, as are injuries caused by the captive environment.

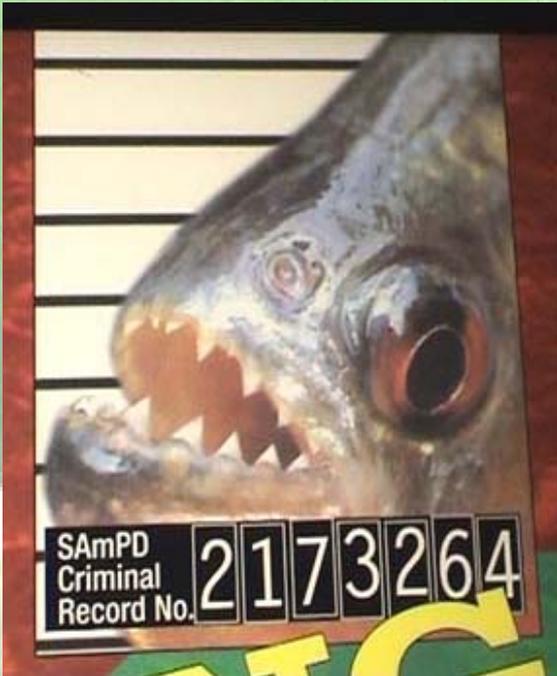


Ray in a Scottish public aquarium with a severe injury to its nose, which could have been caused by collision with objects in the tank or from lacerations caused by visitors touching it.

EDUCATION AND RESEARCH

The *Aquatic Zoos (2)* report concluded that in 2004:

- 39% of animals seen in Scottish public aquaria had no information display identifying the species to which they belonged.
- The Scottish public aquarium industry as a whole publishes an average of only one scientific paper every 12 years, which clearly shows that scientific research is not, by any means, an integral part of Scottish public aquaria work.
- During talks or displays, information given at some Scottish public aquaria reinforced inaccurate perceptions of animals (such as sharks and piranhas).



Sign by a piranha exhibit in a Scottish public aquarium, jokingly portraying a piranha as a 'criminal', and in doing so perpetuating the myth of their fearsome man-eating habits.

The *Secretary of State's Standards of Modern Zoo Practice* state the following:

7.7 Accurate information about the species exhibited must be available. This should include, as a minimum, the species name (both scientific and common), its natural habitat, some of its biological characteristics and details of its conservation status.

Only around half of the species kept in Scottish public aquaria were identified in information displays. In many cases, visitors ignored any educational information available.



Diver feeding fish in a Scottish public aquarium tank as part of a talk/show. The threat of shark attacks can be exaggerated to add drama to the performance, which perpetuates the myth of them being dangerous animals



What kind of educational value has this exhibit in a Scottish public aquarium?



CONSERVATION

The *Aquatic Zoos (2)* report concluded that in 2004:

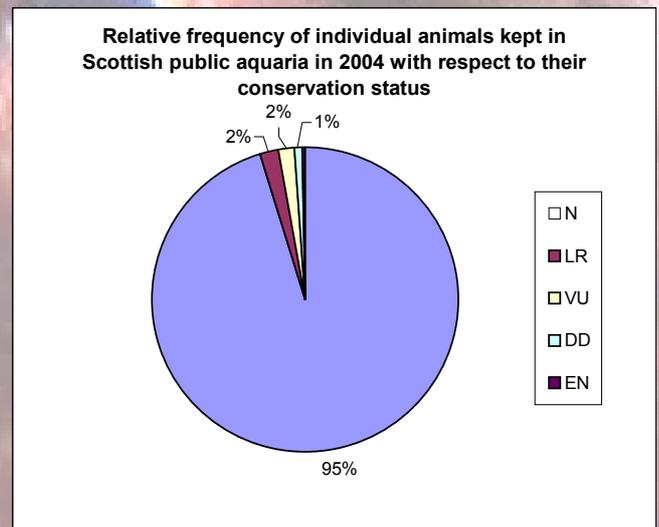
- A staggering 98% of the animals kept in Scottish public aquaria did not belong to species classed as threatened by the World Conservation Union.
- 94% of the species kept in Scottish public aquaria were not classed as threatened by the World Conservation Union.
- No species kept in Scottish public aquaria appeared to be part of any co-ordinated conservation European Captive Breeding Programme.
- Scottish public aquaria did not appear to be involved with reintroductions of animals into the wild for conservation purposes.
- At least 56% of Scottish public aquaria released animals to the wild for reasons other than conservation purposes, which is contrary to zoo regulations.
- It is estimated that 80% of the individual animals in Scottish public aquaria were wild-caught.
- It is estimated that 91% of the marine animals in Scottish public aquaria were wild-caught.

One of the main conservation concerns regarding fish and aquatic invertebrates is decimation of coral reefs by the aquarium and curio trade. 15-30 million tropical marine fish and hundreds of thousands of invertebrates are currently collected from at least 45 countries around the world. The proportion of the world's reefs at risk is estimated to be 27% high risk, 31% medium risk and 42% low risk.

With the enactment of the *Zoo Licensing Act 1981 (Amendment) (Scotland) Regulations 2003*, a 'conservation requirement' was incorporated into Scottish domestic legislation. It already had some legal form in the *Secretary of State's Standards of Modern Zoo Practice*, which were mandatory throughout the UK from 2000. Despite this, most Scottish public aquaria failed to meet the requirement by continuing to keep mainly non-threatened species, by not participating in European Captive Breeding Programmes and by not being involved in *in situ* conservation.



A wild-caught Atlantic cod, one of the animals threatened with extinction, nonetheless found in a Scottish public aquarium without belonging to any conservation breeding programme.



N= not listed in the IUCN red list (and therefore not considered threatened), LR= Lower risk, DD= Deficient data, VU= Vulnerable, EN= Endangered, NT= Near threatened, CR= Critically endangered. N=3,378.

Some Scottish public aquaria claim to run 'captive breeding programmes', but these are not designed to return animals belonging to threatened species to the wild. The aquaria's own explanation is that such 'programmes' are genuine conservation initiatives because they help public aquaria to take less fish from the wild – and therefore help to reduce the pressures they themselves inflict upon wild populations. This is a curious argument, since the best way to reduce such pressure is stop taking fish from the wild altogether.

Although Scottish public aquaria do not release animals into the wild for conservation purposes, they do release them for other reasons. The World Conservation Union's guidelines clearly state that the availability of surplus stock is not a reason to release animals into the wild. There are many reasons for considering that non-conservation releases are very bad for the environment and/or the individuals involved. For instance, the animals may have lost the ability to fend for themselves in the wild and could perish after release; they could expose the wild community to exotic parasites or exotic genetic material; reintroduced animals that have received antibiotic treatment could be carriers of resistant strains of pathogens; any reintroduced animal having received a chemotherapeutic agent whilst in captivity that is recaptured for human consumption could pose a health risk. Despite all this, the majority of Scottish public aquaria continue to return animals to the wild.



Reef fish kept in a Scottish public aquarium, most of them very likely to be wild-caught.

It is ironic that all three Scottish public aquaria with a restaurant, café or food kiosk offered food derived from animals (including cod) that are commonly seen in public aquaria displays.



One of the tanks of a so-called 'seahorse breeding programme' in a Scottish public aquarium

In May 2004, the international trade in seahorses became regulated through the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), although

four countries withdrew from the convention for the purposes of seahorse trading. So, despite being threatened with extinction, the exploitation of seahorses for commercial purposes continues and, in some countries, it is unregulated.

Seahorses are traditionally used in Asian medicines and by the pet trade. An estimated 25 million seahorses are consumed every year. Until recently, the aquaria industry obtained its seahorses from the wild, and it is believed that, in some cases, this is still the practice.

In recent years, 'seahorse breeding programmes' have become the UK public aquaria's 'conservation flag' (although only a few Scottish public aquaria have such a programme). These programmes are being run by, or are a partnership of the zoo industry and public aquaria. These programmes would appear not to be designed to bring about an end to the trade in seahorses but rather to the management of the trade itself. Other programmes appear to be mainly aimed at breeding and supplying seahorses to other aquaria. There are instances of captive breeding programmes that are not part of the official European Endangered Species Programmes or European Studbooks.

One of the claims of modern zoological collections is that they no longer contribute to the decimation of wild populations because they now mostly keep captive-born animals. Public aquaria, then, by being officially bred as zoological collections. Therefore they should operate under the same laws and regulations as any zoo, incorporating a 'captive bred' policy. However, this investigation has revealed that this is not the case.

In 2000, the European Association of Zoos and Aquaria (EAZA) launched its first conservation campaign - the 'Bushmeat Campaign' - which aimed to spread awareness about the hunting of wild animals for food and the subsequent conservation threat. Bristol Zoo launched its own campaign, 'Fish 'n Chimps', informing the public that endangered fish, such as the Atlantic cod, also constituted our very own 'bushmeat'.



Menu board in one of the Scottish public aquaria offering cod to visitors.

ANIMAL-VISITOR INTERACTIONS

The *Aquatic Zoos (2)* report concluded that in 2004:

- **At least 78% of Scottish public aquaria physical contact was witnessed between animals and visitors, regardless of whether or not that contact was authorised.**
- **In only 20% of the Scottish public aquaria that kept rays was the touching of the animals/water explicitly forbidden, whilst in 60% touching was surprisingly, explicitly allowed.**
- **Lacerations were found on rays in 80% of the Scottish public aquaria that kept these animals - a considerably higher percentage than that found for the whole of the UK.**
- **Very invasive handling techniques were used in some Scottish public aquaria, forcing some of the animals to be touched by hundreds of visitors each day.**
- **The investigation recorded incidents of visitor misconduct at all of the Scottish public aquaria with ten or more visitors.**

A growing trend in the UK public aquarium industry is the allowing of visitors with fish. Scotland seem to be leading this trend with almost a quarter of Scottish public aquaria already organising such activities.

These days the expression 'hands-on activities' is commonly heard when referring to zoological collections. Although physical contact would appear to be part of the modern 'zoo experience', there is no doubt that many of the animals find it invasive and stressful.

Shark being held almost out of the water by a Scottish public aquarium staff member so that visitors can touch it.



Extreme example of authorised ray - touching in one Scottish public aquarium, in which rays are held and passed around to be touched, even pressed against the tank walls to show visitors their mouths, and even their tails are allowed to be pulled by visitors—all despite the obvious signs of distress.

Physical contact poses threats to humans. One of these is zoonoses (diseases, the agents of which are transmitted between vertebrate animals and humans). Many studies confirm zoonotic cases involving fish. As warning notices in many public aquaria indicate, fish can bite (for instance a toddler had to have surgery after being bitten by a piranha during a visit to a butterfly farm in Scotland).

Despite this however, in some Scottish public aquaria, physical contact between visitors and animals is not only allowed, but is actively encouraged by staff members.

More intrusive practices were found in Scotland than the rest of the UK.

The level of physical contact allowed varies from one public aquarium to another. The very practices that are encouraged in one public aquarium, for example the touching of rays, are forbidden in another.

The most common explanation given by aquaria for the prohibition of touching rays is that the heat of human skin 'burns' that of the cold-blooded ray, which live in very cold water. Lacerations on the animal's skin, caused by such physical contact, can be easily seen in Scottish public aquaria where contact occurs.

Example of laceration (the white patch on the rays' wings) in a ray kept in a Scottish public aquarium where physical contact between rays and visitors occurs.



Many physical interactions take place repeatedly and over long periods of time. For instance, during one of several daily 'meet the animals' sessions that take place in one Scottish public aquarium, 67 different people touched a bearded dragon, held by a member of staff for an uninterrupted 18 minutes. The combination of becoming cold due to being removed from its heat source and constantly being touched must have been a very distressing experience for this reptile.

This was repeated throughout the day, and possibly on a daily basis. At this particular aquarium, for an extra charge, visitors were able to have their photographs taken holding a snake or a lizard. This is similar to the 'animal photo opportunity' offered to tourists in many holiday resorts abroad, which most people now condemn as unacceptable exploitation.



Coins thrown into an exhibit in a Scottish public aquarium (piled together by the staff), which release toxins into the water and are thus detrimental to the fish.

Other forms of interaction potentially detrimental to the animals' welfare include: tapping the tank glass; using flash photography (particularly distressing for octopuses); and dipping/throwing objects into the water, especially throwing coins into fish 'ponds'. All of these misdemeanors occur regularly in Scottish public aquaria. Despite the fact that some of the activities may not be allowed in some public aquaria, there is a 'zoo culture' of disregarding signs, invariably coupled with a lack of supervision by the aquarium staff.

Two Scottish public aquaria recently began allowing visitors to dive with fish. This trend is certainly worrying, because these types of activities are clearly aimed at satisfying the public's desire to get closer to and more involved with the animals, as opposed to improving the animals' captive life.

More worrying is the fact that the Scottish public aquarium where many of these intrusive activities take place is now part of an international leisure group that owns dolphinariums in other countries. This raises the frightening possibility that the future may see plans to bring captive dolphins to the UK.



One of the sand tiger sharks in a Scottish public aquarium with which visitors are allowed to dive.

EXHIBIT DESIGN

The *Aquatic Zoos (2)* report concluded that in 2004:

- **19% of exhibits in Scottish public aquaria contained crushed cockleshell as substrate (material used to cover the floor of a tank) arguably detrimental to the health of some fish, and 22% of Scottish public aquaria had exhibits with this substrate.**
- **23% of exhibits in Scottish public aquaria were open from the top so visitors could clearly see the surface of the water, and 17% of Scottish public aquaria exhibits were 'touchable' allowing visitors to touch the water and/or fish if they so wished.**
- **78% of Scottish public aquaria had exhibits where the visitors could easily physically touch either the water or the animals whether or not permitted to do so. Exhibits should be designed in such a way as to make it impossible for visitors to have physical contact with the water or animals.**

The design, setting up and maintenance of aquaria are all issues that should be addressed. These include small, dirty or barren tanks, display materials used, lighting, chemical composition of the artificial salt, filtering and disinfectant systems used, temperature and substrate, types of animals kept together and exposure to visitors. Neglecting these issues can lead to the

'Crushed cockleshell is an inappropriate substrate for most exhibits. Because it has not been naturally eroded by the sea, it is sharp and therefore unsuitable for most public aquarium displays. This material may cause sores and lacerations on the undersides of fish such as rays or any type of flatfish. These animals would normally lie buried in sand in the wild, but in public aquaria, they can be forced to use this abrasive substitute, or not bury themselves at all.



Crushed cockleshell, a substrate seen in Scottish public aquaria tanks, which could be considered detrimental for some fish



Ray exhibit in a Scottish public aquarium, clearly designed to allow visitors to interact physically with the animals, despite what signs may say.

Public aquaria claim not to encourage unauthorised physical contact. However, in most Scottish public aquaria, visitors can physically touch the water and animals. In fact, the specific design of some of the exhibits, such as the case of ray tanks, seems to encourage physical interaction despite any notices to the contrary. Public aquaria must be aware that visitors often ignore signs, and should therefore design exhibits in such a way as to make contact physically impossible.

Public aquaria are one of the few types of zoological collections where predators and prey are still housed together – this can often be seen in Scottish public aquaria. This practice should cease immediately.



Contrary to what some may think, small old-fashioned tanks like this one are still present in Scottish public aquaria.

CONCLUSIONS

The findings of this investigation call into question the existence of public aquaria in 21st century Scotland.



As the author of the scientific report concludes, *"Both in Scotland and the rest of the UK public aquaria seem to fail on almost every front. Many animals suffer in public aquaria, both physically and mentally, and no conservation, education or research work can compensate for this. However, there seem to be minimal conservation activities, the education value is very poor and scientific research is almost non-existent, so even the aquaria's own claims that could possibly justify the animals' 'sacrifice' are totally unfounded. Furthermore, in the context of the new Scottish zoo legislation, it appears that the majority of Scottish public aquaria no longer meet the requirements to stay open to the public since they fail to meet the new zoo licensing criteria".*

Scottish public aquaria would appear to differ from the rest of the UK on particular issues. The most distinctive feature of the Scottish public aquarium industry is 'hands-on experience'.

The 'meet the animals' sessions, including 'photo opportunity' events, diving with fish and feeding them directly, are among the most invasive of activities for the animals. Animals in Scottish public aquaria seem to be more exposed to contact with visitors as opposed to the rest of the UK.

Although there is always room for improvement, Advocates for Animals believes that minor changes in husbandry techniques will do little to enhance conditions for the animals incarcerated in public aquaria. This is an industry that exploits animals for profit by removing them from the wild and which deceives the general public into believing that aquaria can provide an adequate captive environment.

In light of this report, together with the breaching of Scottish zoo legislation, Advocates for Animals is calling for the abolition of the keeping of fish and aquatic invertebrates in public aquaria in Scotland. It is hoped that Scotland will lead other countries towards a more compassionate society.

Beyond the glass of public aquarium tanks, there are sentient beings that have lost the dignity of a life in the wild. Their plight deserves, at the very least, acknowledgement from those who claim to care about animals.



The full scientific report ***AQUATIC ZOOS (2): A critical study of Scottish public aquaria in the year 2004***, written by the Animal Welfare Consultant Jordi Casamitjana, can be obtained on-line at www.advocatesforanimals.org, or by request from Advocates for Animals, 10 Queensferry St. Edinburgh EH2 4PG, Scotland, UK. Tel: +44 (0) 131 225 6039, email: info@advocatesforanimals.org.

The full scientific report of the investigation commissioned by The Captive Animals' Protection Society, referring the whole of the UK and titled ***AQUATIC ZOOS. A critical study of UK public aquaria in the year 2004***, can be obtained on-line at www.captiveanimals.org.



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